From House to School:

Adaptive Re-use of Housing for Primary Education in Havana, Cuba

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ABSTRACT

In the inner city municipalities of Havana eighty percent of the primary schools are located in houses known as *"casas adaptadas"*. These buildings accommodate more than twenty-seven thousand pupils. The purpose of this investigation is to determine the value of using houses for primary educational needs. The practice of adapting buildings for a different function from the one for which they were originally designed has been carried out for generations. However, this concept raises some fundamental questions relating to the basic principles of design.

First, through an analysis of the overall relationship between, and the effect of, building type, form, function and aesthetic meaning in relation to the adaptive reuse of buildings, the study demonstrates how a wider range of solutions can be applied if the focus is placed on the new function rather than on the existing building fabric.

The main body of the research then focuses on the contextual reasons behind the concept of adapting houses for primary schools in Cuba. Using a hybrid exploratory and descriptive strategy the purpose is to show how contextual factors provided the motivating force that initially instigated and then sustained the process of recycling obsolete buildings. This is achieved by focusing on the relationship between three specific components:- the evolution of elementary education; the development of architecture and urban growth in Havana; and the contextual factors comprising political policies, economic strategies, and the changing social and cultural development. The rationale for the emphasis on the historical analysis is to maintain objectivity and continuity of context. The study reveals that the use of houses as primary schools was an acceptable solution for educating young children that was driven by social, economic and political policies of each successive period of government.

The analysis of the empirical study of the *casas adaptadas* then illustrates how the houses contribute value to the educational process despite their lack of quality. This is followed by an evaluation of the research findings and their relevance to the real problems that currently face primary school education in the urban areas of Havana, and concludes with a discussion of possible strategies and proposals for future research in this field.

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Julia Dale 2005

I wish to dedicate this study to my parents,

Eric and Edna Dale

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Abbreviations

AE	*Anuario Estadísticas* - Annual Statistics
AMP	Asset Management Plan (DfEE)
ANAP	*Asociación Nacional de Agricultores Pequeños* - National Association of Small Farmers
CDR	*Comité de Defensa de la Revolución* - Committee for the Defence of the Revolution
CED	*Centro de Estudios Demograficos* - Centre for Demographic Studies
CEE	*Comité Estal de Estadísticas* – State Committee for Statistics
CEE	Central and East Europe
CENCREM	*Centro Nacional de Conservacion, Restauración y Museologia* – National Centre for Conservation, Restoration and Museums
CEPDE	*Centro de Estudios de Población y Desarrollo* - Centre for Population and Development Studies
CIS	Commonwealth of Independent States (formerly the USSR)
CMEA (COMECOM)	Council for Mutual Economic Assistance
CPA	*Cooperativa de Producción Agropecuaria* - Agricultural Production Cooperative
CTVU	*Centro Técnico de la Vivienda y el Urbanismo* - Technical Centre for Housing and Urban Studies
CTC	*Central de Trabajadores de Cuba* - Confederation of Cuban Trade Unions
CUJAE	*Ciudad Universitaria "José Antonio Echeverría"*
DAU	*Departamento Arquitectura y Urbanismo* - Municipal Office for Architecture and Urban Development
DfEE	Department for Education and Employment
DES	Department of Education and Science
DESA	*Desarrollo de Edificaciones Sociales y Agropecuarias* - Centre for the Development of Social and Agricultural Construction
DETR	Department of the Environment, Transport and the Regions
DME	*Dirección Municipal de Educación* - Municipal Office for Education
EIDE	*Escuela de Iniciación Deportiva Escolar* – Special School for Sports' Education
EJT	*Ejército Juvenil del Trabajo* - Youth Army of Work
ESBU	*Escuela Secondario Básica Urbana* – Urban Secondary School
ESBEC	*Escuela Secondario Básica en el Campo* – Secondary School in the Countryside
EOC	*la Educación Obrera y Campesina* – Workers and Peasants Education
EVMCC	*Escuela Vocacional Militar "Camilo Cienfuegos"* – "Camilo Cienfuegos" Military College
FAR	*Fuerzas Armadas Revolucionarias* - Revolutionary Armed Forces
FMC	*Federación de Mujeres Cubanas* - Federation of Cuban Women
FOC	*Facultad Obrera-Campesina* – Faculty for Workers and Peasants
GEOCUBA	*Instituto Cubano de Geodesía y Cartografiçía* - Cuban Institute for Cartography and Geology
GDIC	*Grupo para el Desarrollo Integral de la Capital* – Development Group for the Capital

ICAP	*Instituto Cubano de Amistad de Pais* – Cuban Institute for Friendship and Peace
ICCP	*Instituto Central de Ciencias Pedagógicas* - Central Institute of Pedagogical Science
I.I.	*Instituto de la Infancia* - The Children's Institute
INDER	*Instituto Nacional de Deporte y Recreación* - National Institute of Sport and Recreation
INRA	*Instituto Nacional de Reforma Agraria* - National Institute of Agrarian Reform
IPE	*Instituto Planificacion Fisica* - Institute of Physical Planning
ISPETP	*Instituto Superior Pedagógico Educación Técnica y Profesional* – Technical and Profession Teacher Training College
ISPJAE	*Instituto Superior Polytécnico "José Antonio Echeverría"*
ISPLE	*Instituto Superior Pedagógico de Lenguas Extranjeras* – Foreign Language Teacher Training College
JUCEPLAN	*Junta Central de Planificación* - Central Agency for Planning and Guiding the Economy
MINED	*Ministerio de Educación* - Ministry of Education
MINCON	*Ministerio de la Construcción* - Ministry of Construction
MININ	*Ministerio del Interior* - Ministry of the Interior (Home Office)
NLUD	National Land Use Development Plan
OECD	Organisation for Economic Co-operation and Development
OIE	*Organización Internacional de la Educación* – International Organisation for Education
ONE	*Oficina Nacional de Estadísticas* - Office for National Statistics
OPP	*Poder Popular* - Organs of People's Power
OPR	*Oficina para Rehabilitación* - Office for Restoration and Rehabilitation of Buildings
PCC	*Partido Comunista Cubano* - Cuban Communist Party
PEB	Programme on Educational Buildings
PP(DAM)	*Poder Popular (Dirección de Arquitectura Municipal)* - People's Power Municipal Architecture Office
RIBA	Royal Institute of British Architects
RICS	Royal Institution of Chartered Surveyors
RP	Rectification Process
SDPE	*Sistema de Dirección y Planificación de la Economía* - Economic Management and Planning System
UJC	*Union de Jovenes Comunistas* - Young Communist Party
UMAP	*Unidad Militar de Apoyo a la Producción* - Military Unit to Aid Production
UNIAC	*Union Nacional de Ingenieros y Arquitectos Cubanos* - National Union of Engineers and Architects of Cuba

Chapter 1

Adaptive Reuse:

Themes and Objectives

Chapter 1:

Adaptive Reuse: Themes and Objectives

1.1 Introduction

> ***"The best school, architecturally, that I ever saw or worked in was not designed as a school at all.*** *It was the Commonwealth School in Boston, which is housed in two old houses, tall and narrow, five floors and a basement, joined together at every floor to make one building. From the point of view of almost any school architect, the building is a disaster, full of "wasted" space, "unusable" spaces - stairs, landings, little corridors, closets, bathrooms, tiny rooms too small to use for any recognizable school purpose. And those spaces, as much as anything else, have been the making of that school. In and on those stairs, landings, corridors and corners, students meet, study, talk, argue and dream. The tiny closets and bathrooms have been made into private studies, which the older students sign up for and decorate in various personal and eccentric ways. One student filled a bathtub with cushions and made that her reading and study space. Whoever would have thought of such a thing, would have planned and built such a mixture of public, semi-private and private spaces? But it is what most schools desperately need."* (Holt, 1975: 143-144)

The concept of a house being used for educational purposes is by no means new. Prior to the evolution of a school as a type of building for the specific function of educating children it was not unusual for other buildings, particularly houses, to be used as a location for this purpose. The aim of this study is to explore the value of using houses for educating children in urban areas as an alternative solution to constructing new primary schools, where the term 'value' is defined as *"the relationship between the satisfaction of needs and the resources used in achieving that satisfaction"* (BSEN, 2000:13). From both an academic and a professional architectural perspective this raises some fundamental issues, especially regarding the principles of design, that need to be rationalized and explored prior to focusing on the specific topic of the primary schools located in houses known as *casas adaptadas* in Havana.[1]

At the macro level the main theme relates to the broad concept of adaptive reuse of urban buildings. Whilst the process of changing the function of buildings from the use for which they were originally designed has been carried out for generations, the documentation in this field has until recently tended to concentrate on the more pragmatic issues such as conservation and restoration or general maintenance of the building fabric. Usually the emphasis centres on the micro level, principally on the building and the function, but unlike the approach to the design of new buildings it does not embrace the wider issues involving contextual factors. Moreover the focus has favoured finding new uses for obsolete buildings rather than looking for redundant structures that would satisfy existing needs. In addition there is also a notable lack of theoretical principles to inform a better understanding and development of the topic.

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[1] The *casas adaptadas* (adapted houses) is the official name for the primary schools in Havana that are located in houses.

The starting point of the investigation focuses on two main propositions:-

First, that adaptive reuse is a response to contextual issues that are driven by political events, economic policies and social needs. Moreover, these contextual functions are the dominant influence on adaptive reuse and they apply to both developed capitalist countries and to less developed communist countries irrespective of whether the policies and issues differ in their aims and objectives;

Second, that there is a contradiction between the established theoretical principles of architectural design with regards to the elements of type, form and function when applied to adapted buildings rather than to new designs.

The purpose of the study is to address these issues in a pluralistic manner through the exploration of, and relationship between the specific themes of context, architectural form and function. By examining the works of various theorists and researchers the objective is to inform the theoretical debate in these areas. Using this information the study becomes more policy driven whilst still maintaining a holistic perspective. The aim is to explicate the topic of adaptive reuse by selecting one example of each theme in order to generalize across these elements (Cook & Campbell, 1979:77), and to provide a vehicle for investigation and subsequent empirical analysis. Within the context of inner city areas, the architectural theme is represented by the building typology of primary schools[2] and the functional theme is the education of primary school children.

Preliminary investigations revealed that there were many problems associated with the primary schools that were located in the *casas adaptadas* in Havana. Not only do the *casas adaptadas* represent eighty percent of the primary schools in the inner city municipalities but also over twenty-seven thousand children attend these schools. The initial intention was to help resolve some of the issues of concern, but it quickly became apparent that most of the 'problems' related to the physical condition of the buildings that in turn was due to the economic limitations of the country. By looking beyond the building, at the concept of what the Cubans were trying to achieve at the macro level, a different picture emerged. It appeared that the investigation could be a two-way exchange of knowledge, as there was much to learn from the Cuban approach.

A literature search revealed that there were no publications specific to adaptive reuse in Cuba despite the prolific number of buildings that are used for different functions from the use for which they were originally designed. However, because the interest in, and application of, adaptive reuse escalated in both Britain and the United States of America from the mid-1970s a number of major publications have been produced in these countries that have contributed to the

[2] This represents the typology of the new function rather than the existing function (see chapter 3).

overall debate on this topic.[3] Since theory is usually independent of context, the exploration of the themes can be applied to any location. Hence, it was considered appropriate to explore the main theoretical issues in general first in order to establish a conceptual framework that is subsequently examined empirically by focusing on the use of houses as schools in Cuba. The rationale being *"the more conclusions originally applicable in one setting or to one group can be applied to others without unjustifiable side effects, the greater is the generalizability"* (Zeisel, 1984:85). The strength of this strategy is that it provides a firm foundation for areas of convergence, such as the approach to architectural theory, education and practice as well as the development of school buildings and the system of education, albeit that these are not in parallel, and also areas of divergence, most notably in the political policies, economic strategy, social and cultural attitudes as well as the climatic environment.[4]

Due to the universal nature of architectural theory the investigation commences with the second proposition. By studying the reuse of redundant buildings in relation to the specific elements of typology, form, function[5] and the aesthetic and symbolic meaning of buildings, it becomes evident that various problems occur in respect of the established principles of design as a consequence of the change of use. Furthermore a review of the development of primary school buildings indicates that the dominant influences stem from contextual factors and consequently these are reflected in the architectural design.

The main body of the study then focuses on the first proposition by identifying the key causative factors that instigate the process of adaptive reuse. Both the architectural and functional themes are placed in a precise location that embodies all the contrasting components of the contextual theme - political, economic, social, cultural and environmental. The city of Havana in Cuba was chosen in order to demonstrate that it is reasonable to generalize the initial implied theoretical observations in a specific context and to verify that certain characteristics of these themes can be shared within other settings in spite of the wide-ranging differences (Robson, 1993:72). Through a descriptive and historical analysis the contextual theme demonstrates both how politics, economics, social and cultural issues all motivated, contributed to and influenced the practice of adaptive reuse and how the architectural and functional themes are contained within a specific contextual framework. The aim is to show not only how the themes have become more focused, but also how it would be possible to conduct multiple replications in different locations using different functions that are placed in different building types (Cook & Campbell, 1979:79-80).

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[3] Some of the most notable works during this period include: - Cantacuzino, 1975; Eley & Worthington, 1978; Reiner, 1979; Markus, 1979; Will, 1979; Worthington & Eley, 1979; Cantacuzino & Brandt, 1980; Burchell & Listokin, 1981; Catt & Catt,1981; Schmerz, 1982; Highfield, 1987; URBED, 1987; Austin 1988; Cunnington, 1988; and Cantacuzino, 1989.

[4] The multi-cultural (as opposed to comparative) approach helps to give a broader insight into the topic and contributes to the generalizability (Robson, 1993:73).

[5] Although function forms part of the architectural theme, it is also examined in detail as it represents a separate component in the investigation.

By addressing various key concepts the insights gained will be able to inform both theory and policy debates. The rationale and the structure of the study are detailed in the remaining sections of this chapter.

1.2 Theory versus Practice

> *"A building is a building, and a theory is a theory. No artist should go all the way with his own philosophy, translating too literally his theory into architecture, particularly into any one piece of architecture."* (Venturi, Scott Brown & Izenour, 1972:111)

Despite the scope of the topic of adaptive reuse, most authors have focused on case study examples in a descriptive manner, whilst a few attempted to seek a philosophical rationale for approaching such projects. In the USA, *"the brevity [of publications]* [6] *.... reflects the dearth of literature dealing with theoretical approaches to adaptive reuse as a design problem, a subject which perhaps will gain more attention from the architectural community in the coming years"* (Will, 1979:3). In Britain similar observations by Markus (1979) emphasised the polarity of the debate concerning adaptive reuse between theory and practice in the architectural profession. At a symposium entitled *'Building Conservation and Rehabilitation: Design for Change in Building Use'* in Strathclyde in 1979 he highlighted that this was not the case in other fields such as mathematics, psychology or history and put forward the suggestion that this gap:-

> *"might be labelled along such dimensions as: 'theory-practice', 'pragmatic-analytic', 'predictive-open-ended', and 'generalist-unique' .... [but] these dimensions are also those which describe the difference between current architectural theory and current architectural practice in new buildings and urban design on a larger scale."* (Markus, 1979: iv)

The aim of the symposium was to help reduce this gap. Nevertheless the approach to the subject by various authors such as Scott[7] (1979: 120-131) only seems to accentuate this dichotomy to such an extent that even bridging the gap appears to be a difficult task thus raising the question, what is the problem? For those who maintain that theory is intended to inform practice and vice versa, resolving the issue is of prime importance, but for others theory and practice run parallel to each other and are not necessarily intrinsically linked.

Since most of the existing approaches to obsolescence and recycled buildings are policy driven with the emphasis on methodological procedure rather than a theoretical assertion, it raises

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[6] There are four sections in Will's bibliography (1979); the first on other bibliographies has 5 references; the second section entitled 'Design Theory' lists only 6 titles of journal articles; the other 700 references are listed in the remaining 2 sections entitled 'General' and 'Building Types'.

[7] Scott expresses the view of the practitioner most accurately:- *"theoretical methodologies for evaluating the benefits and potential for a building's conversion .... present currently practising architects with ..... a bewildering array of mathematical formula, computer jargonese and abstract analysis .... quite foreign to the mixture of deep practical knowledge, intuitive 'feel' for a building's potential and sheer intuitive brilliance which is the hallmark of all good conversion work ..... decisions (have) much more to do with aesthetic value judgement than with mathematical equations."* (Scott, 1979: 120)

questions as to whether or not it is possible, desirable or even necessary to establish philosophical principles for adaptive reuse. Yet in the twenty-five years since Markus (1979) suggested that it was a void that should be addressed such questions still do not appear to have been answered satisfactorily. What appears to be missing is the **interface** between the policy driven procedures and a theoretical rationale. Hence, by taking a holistic view of **selected** architectural design strategies it may be possible to understand why this gap remains.[8]

1.2.1 Developing the Conceptual Framework

> *"Whether one seeks certainty or bravely faces relativity, focuses on the self or the world, prefers clear reason or rich sense, thinks logically or emotionally follows intuitions, one will probably find a number of attractive ideas .... All of these intellectual traditions have problems .... no perfect answer to our question [about the source of architectural form] has ever emerged."* (Gelernter, 1995:289)

Architecture is dependent on society through the need to fulfil specific functions, be those social, political, economic, cultural or environmental (King, 1993:118). Elaborating on the functional concept Farmer (1993b:159) suggests that there are three main ways in which function influences buildings, *"by required performance, by the requirements of what is to be housed and by symbolic need"* thereby linking function to form, use, meaning and aesthetics. When these components are combined with the social, political, economic or cultural functions it becomes evident that the diversity of elements contributing to the evolving theoretical debate in architectural design encompasses an exponential sphere of research.

Moreover the established principles that have evolved in relation to the above factors are directed towards the design of new buildings, not recycled buildings. Neither the existing literature, which indicates a powerful pull towards empirical study of adaptive reuse, nor Maver's proposition, that *"there is no inherent difference between the methodologies relevant to the design of new buildings and to the re-design, conversion, or 'design-in-use' of existing buildings"* (Maver, 1979:12), elaborate on these theoretical issues that are fundamental to the understanding, study, development, process and practice of architecture as a complete entity. In order to understand what has caused this void in theoretical principles, and to establish a more specific focus for the investigation, the main elements of these concepts need to be dissected and analysed **with respect to the change of use of the function of the existing buildings.**

[8] It is not the purpose of this study to detail the plethora of theories on architectural design that have emerged over the centuries.

1.2.2 The Concept of Change

The most relevant factor with regards to this study is the concept of CHANGE because it differentiates architecture from the other art forms. Painting, sculpture, music and literature all result in the creation of a unique artefact that does not usually change. Books may be updated or revised to create a second or third new version, but the original still remains; variations can be made to a music score, but the original also survives. Even other design related areas like film, fashion, cars and product design all produce individually created goods that do not actually change. They may have sequels and amended versions to that of the original, but these also represent another new product, different to, and independent of the original. In contrast to this, every time there is a change to a building, it does not result in a new building. Unlike the other art forms a building can alter its form, function, aesthetic meaning and typology such that **the new version is superimposed** upon the first and therefore the original version is either no longer identifiable or it is partially distorted and/or obliterated.

The two components of form and function normally fuse together in the design of a new building. However, when the proposed function is different from the one intended for the original form areas of compatibility and areas of divergence are created. The objective in adaptive reuse is to maximise compatibility and minimise divergence. Moreover, additional areas of divergence can evolve if the components are not perceived as being in context, thus signifying the relevance of the context. Using the aspect of change as the focal point and then combining this with the previously mentioned concepts, a series of questions can be compiled as follows:-

How do changes in social, political, economic and/or cultural conditions **instigate** the need for adaptive reuse of buildings?

In what way is adaptive reuse a **reflection** of social, political, economic and/or cultural conditions?

If the form, function and/or aesthetic meaning of an adapted building is considered to be satisfactory to the users of the building and is deemed acceptable by the architectural fraternity, does this then invalidate, undermine or contradict the fundamental theoretical principles of architectural design as they have been taught and practised over the centuries?[9]

These initial questions can be used to suggest a suitable approach to the study but the subject areas and the direction need to be refined into a more manageable framework with clearly defined aims and objectives.

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[9] For example, using the opening quotation by Holt, if an adapted house is a better solution for educating children than a conventional school building, does this mean that the principles of design for schools are misplaced? Markus (1993a:12) poses a similar question, but it is related to the changing function of the building. This is discussed in more detail in chapter 3.2.

1.2.3 Refining the Theme - Aims and Objectives

> *"Throughout most of our history, curiously, theorists seemed more interested in asserting one-sided extremes than in seeking the balanced view. They found it easier to understand and promote single aphorisms than to juggle the complex duality of the subject-object problem."* (Gelernter, 1995:289)

This quotation suggests that there are many possible directions from which to approach the topic, each providing a focus from a slightly different point of view. There is no one correct way, although historically the methods chosen have often been influenced by the current trend in architectural writing during a particular period. In developing the conceptual framework the objective was to select the most appropriate route to synthesise the various elements in the most cohesive manner. The aim is to provide a bridge of theoretical principles upon which an empirical study can be examined. Starting with his research on the source of architectural form Gelernter (1995) concluded:-

> *"Although many theorists in many different cultures generated a rich variety of ideas .... they tended to work out variations on* ***five basic ideas.*** *Ranging from the notion that forms are generated within the creative imagination to the notion that they derive from function and climate, these five [themes] provide the conceptual foundations for most .... historical theories."* (Gelernter, 1995:3)

Summarising the five principles Gelernter (1995) concluded that 'architectural form' is:-

1 - *"determined by the prevailing social and economic conditions"* (1995:11).

2 - *"shaped by the prevailing Spirit of the Age"* (1995:8).

3 - derived *"from timeless principles of form that transcend particular designers, cultures and climates"* (as in, for example, the theory of type) (1995:14).

4 - shaped by the various intended functions it is to perform (1995:3). These can be physical (as in form, scale, space etc.) social, psychological or symbolic.

5 - generated from within the imagination of the creative individual (1995:7).

The significance of this is that not only is there a harmonious link between these five basic principles and the components listed in the research questions, but there is also a strong degree of compatibility in the approach to them by other authors such as King (1993), Farmer (1993), Markus (1993a), Napper (1993) and Powell & Myerson (1998).

Further analysis of these five principles shows that they *"fall into two quite diametrically opposed camps .... each side arguably incompatible with the other"* (Gelernter, 1995:20). The first four propositions, representing the determinist ideology, emphasise how external forces influence design whilst the fifth principle relates exclusively to the personal intuition and imagination of the

designer that creates the architectural form. Since adaptive reuse implies that the form of a building already exists even the most imaginative conversion by the architect cannot be considered as totally non-deterministic, so further exploration of the fifth principle is not applicable to this study. Of the remaining four principles, the first two stress the influence of society as a whole, and thereby represent the contextual, non-architectural dimension. This contrasts with the third and fourth theories that are more specific to architectural design principles. On this basis it is possible to regroup these four principles into two succinct areas, combine them with the research propositions outlined in section 1.1 and then redefine the objectives as:-

a) To explore the influence and relevance of social, economic, political, cultural and environmental issues on the recycling of buildings.

b) To examine the relationship between, and the effect of, building type, form, function and aesthetics on the adaptive reuse of buildings.

Theoretically an investigation of these objectives could be applied to any building category in various contextual environments. However, the selection of a specific functional usage and a building type in a specific location is tempered by the time constraints of the study, the feasibility of data collection and access to the buildings. During the formation period of the research design the rationale for selecting primary schools located in houses in Havana evolved from a variety of factors that are discussed in detail in Chapter 2.

1.3 The Structure of the Document

The document is structured in a traditional format. Each chapter opens with an introduction that sets out the objectives under examination, followed by an analysis of the topic and ending with a summary. This introductory chapter (Adaptive Reuse - Themes and Objectives) sets out the overall aims of the thesis and the structure of the document.

The second chapter (Research Design and Methodology) defines the parameters of the study. After an explanation of the research design and strategy the background rationale for the location of Havana, Cuba for the case study is explained. Next the criteria used to select methods of data collection, particularly the role of the researcher with regards to the fieldwork experience, are clarified. As the study relies on the integration of both theoretical and empirical investigation the importance of using multiple methods (Robson, 1993) and the ways in which they complement each other are underlined. Finally, the method of analysis and interpretation of the information are outlined.

Chapter 3 (Changing Type, Form and Function) explores the theoretical issues of the second objective by examining the influences that type, form, function and aesthetic meaning have on an adapted building. This establishes a conceptual framework from which the body of research can be developed. After an understanding of the parameters in a general socio-economic and political context has been acquired the aim is to apply this knowledge to a different context. Through the exploration of the various types of buildings it becomes evident that a dilemma occurs between the original classification of an existing building and its new use. Function is then analysed in relation to the building's form and its aesthetic and symbolic meaning to reveal further theoretical anomalies. An explanation follows to show how value analysis methodology can be used to establish the functional needs required to educate children and to explore how alternative ideas (other than 'building schools') can provide feasible solutions. As the functional type selected is that of urban primary schools this chapter concludes with a synthesis of the key elements that have led to the evolution of 'school' as a building type. The purpose is to show how other types of building could be adapted for primary education. This section also illustrates how schools evolved as the consequence of the contextual factors. Expressed as an architectural analogy chapter three represents the foundation upon which a building rests. The remaining chapters therefore are indicative of the super-structure that gives the building form, context and meaning.

The main body of the study then develops the issues relating to the first objective. As both the built environment and pedagogical strategies vary according to location and *"knowledge and understanding are intimately related to context"* (Kellett, 1995:10), the next two chapters analyse the changing historical, cultural, social, political and economic context of Cuba at a national level. Together these chapters also reveal how the architecture and urban design of Havana mirrors the changing spirit of each era and how adaptive reuse of buildings for educational use is also related to these changing contextual forces. The synthesis of this knowledge provides the foundation for the case study analysis of the primary schools located in the *casas adaptadas* in Havana.

Chapter 4 (Cuba - The Contextual Focus) first explains the relevance of geographical and environmental factors on architectural design in a tropical region. Then the historical development of education and architecture from the colonial period through to 1958 are related to both the changing social and cultural spirit of each era and the evolving political events and economic policies. The relevance of adaptive reuse of various buildings for educational purposes, particularly in colonial times is also highlighted. The reflection of all these factors on the changing characteristics of the buildings is of particular significance because **all of the adapted buildings surveyed in the case study were constructed during this pre-revolution period.**

In **Chapter 5** (Revolution and Education) the educational developments that occurred, together with the political events and economic policies, are explained in chronological order by decade to

show the close relationship between them. The aim is to reveal how contextual, rather than architectural, issues provided the prime motivation for adaptive reuse as a valuable and satisfactory alternative solution to new build. The educational structure of the country and the approach to school building since the 1959 Revolution are then discussed in more detail. The major developments in architecture are outlined in order to give a comprehensive understanding of the period. The importance of the role that adaptive reuse of buildings for educational purposes played throughout the post-revolutionary era and the factors effecting the decision making process are also highlighted. This provides the vehicle for the field study at a micro level.

Chapter 6 (The *Casas Adaptadas*) opens with a brief contextual analysis of the municipality chosen for the study detailing the main urban and architectural features of the areas selected prior to the analysis of the schools. The case study could be described as both exploratory and descriptive because no previous research exists on the houses that are used for primary schools in Cuba (Hakim, 1992:61). The analysis first explains why using houses for primary education in Havana provides value by combining the need to educate children with the resources available. The next stage evaluates the quality of the key resources in order to determine which elements, or part thereof, are successful in fulfilling the function of "educating children" and which are not, and the reasons why they succeed or fail. Instead of a descriptive appraisal of each individual school the purpose of these two sections is to ascertain the factors common to all the schools that have led to their success in terms of value, but failure in terms of quality. Finally a variety of ways to improve both the value and quality of the buildings are explored. The aim is to establish the criteria required for implementing a strategic development plan as the first stage in an approach to selecting houses that would be suitable for the function of primary education in the future.

Chapter 7 (The Forgotten Schools - Remembered) discusses the various interrelated issues that have been raised throughout the study in a pluralistic manner. The chapter starts by explaining why the motivating forces behind using houses in preference to building new schools for primary education in central Havana are embedded in, and dominated by, political, economic and social issues rather than architectural factors, as suggested in the first proposition. Then the theoretical issues of type, form, function and symbolic meaning are reviewed and related to the empirical study of the *casas adaptadas*. The aim is to show the degree to which the initial objectives have been achieved as well as the significance of the practical and theoretical implications of the outcome of the study. Finally, drawing on the evidence presented, the last objective is to show how the insights and understandings gained from this investigation could provide possible areas for future research.

Chapter 2

Research Design and Methodology

Chapter 2:

Research Design and Methodology

2.1 Finding the Direction - Introduction

The motivating forces behind any thesis must be a personal interest in and commitment to the subject under investigation. Adaptive reuse, educational buildings and value analysis represent not only areas of academic interest but also many of my years of experience as a practising architect, value engineer and university lecturer. The theoretical and practical knowledge accrued in these areas has been a key factor in determining the direction of the research. The purpose of this chapter is to outline the development of the research design and clarify the research strategy; define the parameters of the study; explain the rationale for the research location; identify problems encountered and the strengths of the approaches adopted; and describe the methodology, data collection process and analysis.

2.1.1 The Initial Approach

The research began with a diagnostic approach in the form of a reconnaissance mission (Zeisel, 1981:60). My initial preference was to undertake an empirical study based on policy driven research with the emphasis on actionable factors (Hakim, 1987:4). Starting with a broad palette of questions a feasibility study was carried out to find a specific area related to primary school buildings that needed to be investigated. Although theoretical principles are usually independent of context, a literary search indicated that most theses on educational buildings were carried out in either one country or a specific region, for example, in the Middle East (Saleh, 1985); in Saudi Arabia (Khafaji, 1987); in Nigeria (Uduku, 1992) and in Iran, (Sami, 1996). Richmond's thesis (1989) on the development of Cuban education was of particular interest as I had made a study tour of Cuba in 1993. Then in 1994 at a conference in Cuba I met Professor Bancrofft, the Dean of the School of Architecture (ISPJAE) in Havana. Based on our discussion I decided to use Cuba as the study location.[1]

Returning in 1995 I showed Bancrofft my outline proposal for a research project on primary schools in Cuba. He arranged a meeting with two prominent architects who had worked extensively on primary schools in the 1960's and 1970's and who were currently in senior positions of authority – Josefina Rebellón in the Ministry of Construction (MINCON) and Rafael Barbosa in the Ministry of Education (MINED). Both were enthused by my research interests and offered all the support necessary to access the required data and survey the schools.

[1] My concerns as a foreigner were the ability to access information from various sources and the freedom to survey a selection of schools. Bancrofft said my proposal was feasible and he was also happy to assist anyone with research interests in educational buildings (notes from meeting on 12 October 1994).

2.1.2 The Research Design and Research Strategy

> *"This [visit] has been like walking into the safe deposit room in a bank with just one key and finding the right box to open first time (well almost – it has taken some considerable effort over the last year to 'find this box'). Not only have I found the right Departments, but I have also found the right people. I feel that I have established a good rapport with the people at MINCON and MINED as they now recognize that I am genuinely interested in my topic which is an area that they wish to have investigated."* (Extract from Author's Report No.1, 22 March 1996 after a visit to Havana in February 1996)

The theme had been narrowed down to the investigation of the contextual (political, economic, social, cultural and environmental) factors affecting either the rural primary schools in the mountain regions or the *casas adaptadas* in Havana. The questions that evolved indicated that the approach should be both exploratory and descriptive (Robson, 1993). A substantial amount of background data had to be collated, most of which was only available from Government sources[2]. Although the main how and why questions relating to primary schools were independent of location, the selection of a more precise proposition needed to be finalised prior to the data collection. Determining which schools to study was critical as the information required and additional research questions would vary according to the location (Yin, 2003:21-24).

I left Havana on 21st February 1996. Three days later two US planes invaded Cuban air space and were shot down by the Cuban Air Force. The reaction was swift. On 12th March President Clinton signed the Helms-Burton legislation[3]. When Prof.Arq. Fleitas visited Huddersfield[4] in April 1996 she brought instructions from both Barbosa (MINED) and Rebellón (MINCON) that I would neither be permitted to carry out field work nor allowed to collect any data in the rural mountain areas[5]. Hence the focus and location of my research became the urban schools in Havana for which visits and the availability of information was not a problem. With this knowledge I was able to finalise the research design and decide upon the research strategy.

The approach was influenced by a postgraduate course for research students on *'Social Research Methods and Evaluation'* run by Professor Robson that I had undertaken at Huddersfield University where using a combination of different methods was encouraged. The exploratory and descriptive nature of the research objectives suggested that a hybrid strategy would provide comprehensive complementary information.[6] In addition, as function analysis methodology concentrates solely

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[2] Director Barbosa prepared an official letter that would give me access to the data in various other authorities (see Appendix F), and I was given permission to carry out my investigation in Barbosa's Department at the Ministry of Education in July 1996.
[3] Officially this is known as the Cuban Liberty and Democratic Solidarity Act 1996 (see chapter 5.5).
[4] Prof. Arq. Fleitas assisted me during my research visits especially when difficulties arose. When she visited Huddersfield University in April 1996 I was able to have prolonged discussions about my work.
[5] Military activities in the mountains were increased and security tightened. Foreigners would not be allowed to survey anything, particularly schools, in the rural mountain areas, such is their importance and significance (see chapter 4.2).
[6] The three traditional research strategies being: Experiment; Survey and Case Study (Robson, 1993:40). The case study being suitable for the exploratory work; and survey being appropriate for descriptive studies (Robson, 1993:43)

on the how and why questions (suggesting that the strategy could be an exploratory case study), other questions of a descriptive nature relating to the *casas adaptadas* indicated that a survey strategy should be incorporated. The advantage of using two strategies meant that it was possible to employ various research methods as *"using a variety of data collection techniques and methods allows a more rounded, holistic study than with any other design"* (Hakim, 1987:61). Regarding the case study, the research design suggested that a *"multiple-case (holistic) design"* would be the most suitable (Yin, 2003:39–47). The purpose of using a case study was:-

a) to explore how the contextual factors act as the dominant antecedents that cause the process of adaptive reuse. This was achieved through the analysis of historical and contemporary documentation as well as personal interviews and observation.

b) to examine the effects and value of using inner city houses for primary school education. This was accomplished through the analysis of the user questionnaire and the physical survey of selected schools that needed to be capable of fulfilling both the objectives[7].

In summary the approach could be described as a descriptive inquiry with statistical support. The methods and means of analysis used are explained in section 2.4 of this chapter but first the criteria for the analysis are examined in the following section.

2.2 Defining the Parameters

> *"A good research design is clear both about what can, and what cannot, be tackled by a project."* (Hakim, 1987:120)

Having gained access to the information like many researchers I then experienced the frustration of being overwhelmed by both the quantity and the contradictory nature of much of the data. As the study embraces a number of independent components that had to be assessed in an holistic manner, the approach needed to be both topic specific and empirical since it was not within the scope of the study to investigate the plethora of theories in relation to architecture, design, society and the environment either independently or collectively. Moreover, as a part-time student additional constraints had to be taken into consideration, such as time availability and the corresponding financial implications required to carry out fieldwork overseas. This section therefore sets out the parameters on which the key components of the research are based.

2.2.1 Adaptive Reuse

Whilst the political, economic, social and cultural nature of education encompasses the elements relating to the contextual aspects of the first objective, the theme of adaptive reuse of houses for

[7] Using traditional Function Analysis and Value Analysis methodology applicable to the study.

primary school education directs the investigation to the exploration of building type, form and function as defined in the second objective. Despite the large number of primary schools located in houses in Cuba, my searches revealed that no investigation had previously been carried out on this specific topic.[8] In Britain the absence of material on, and lack of research in adaptive reuse for primary education gave an additional incentive for examining this area in more detail.[9]

Chapter 1.2 indicated a distinct imbalance between the theoretical and practical documentation in respect of adaptive reuse. Many authors such as Cantacuzino, 1975; Cantacuzino and Brandt, 1980; Schmertz, 1982; Highfield, 1987; Binney *et al.* 1990; Gause, 1996; Latham, 2000 etc. focus on the process of altering existing buildings to suit their new function. It was therefore appropriate to embrace a synergistic strategy by examining the more conceptual approaches to this topic. The application of function analysis methodology places the emphasis on finding alternative satisfactory solutions to particular needs by analysing a range of functions, from psychological to performance. This method suggests the focus should be on the new function and that finding a redundant building to suit that use or need is a resultant factor rather than the instigator of the process (see chapter 3.4). Due to the lack of literature on adaptive reuse in Cuba the investigation used sources from the UK and the USA to analyse the approaches to, and methodology of the subject as these, being independent of context, can be applied universally.

The terminology used in the description of the reuse of redundant buildings is both wide ranging and at times confusing. MacGilvray (1988) elaborates on this aspect of vocabulary[10] and, like Markus (1979), acknowledges that individuals tend to form their own interpretation of the words.[11] The expression *'adaptive reuse'* evolved in the 1970's and is more common to the United States than to the UK.[12] Buildings can of course become redundant due to physical degeneration through lack of maintenance and the resulting deterioration of the structure, services and fixtures. Normally these buildings undergo major repair work which, if the original function does not change, is usually referred to as 'restoration', 'renovation', 'refurbishment' and 'repair'. Such work is therefore excluded from this enquiry, as is 'preservation' and 'conservation' where these terms are used to describe the alteration to buildings of significant importance to the national heritage and the reinstatement of a building to its original form, and sometimes to its original function.

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[8] This was verified by the Director of Maintenance and Investment in the Department of Education in Havana who regarded this as an investigation long overdue (Barbosa, meeting in July 1996).

[9] Dr. Raman, Director of the Scottish Schools Research Unit, stated that *"currently there is no research in progress on either Primary Schools or Adaptive Re-use"* (telephone conversation in April 2000). There are many examples of the recycling of redundant primary school buildings to other uses but not the reverse. Being non-commercial it does not appear to draw the same interest as the more profitable commercial sector - for example, in the works of Binney (1990) and Nutt (1997).

[10] Listing over 32 verbs used to describe various activities in this field MacGilvray, (1988:3) shows that whilst some words have a clear meaning, others are ambiguous, for example, *"is to remodel the same as to renovate?"*

[11] The semantic issue is also addressed by Markus (1979:i) who states that:- *"Historically there have been a number of different approaches, each embodying a different activity and conceptual emphasis. These have included 'restoration', 'conservation', 'repair', 'rehabilitation', 'conversion', 'refurbishment' and 'alteration'."*

[12] A search of the term 'adaptive reuse' from 1970 to 1999 in the Avery (US) index produced 2,392 results, whilst the API (UK) index produced only 8 items for the same period. Change of Use, Conversion, Renovation and Refurbishment are more commonly used terms in the UK.

Hence, to avoid any misinterpretation in this study the term **Adaptive Reuse** is defined as:-

'the functional change of buildings which are redundant and are no longer used for the function for which they were originally designed.'

The emphasis therefore is on the change of use of the building rather than changes to the physical components. The significant feature of the primary schools known as *casas adaptadas* in Havana is the fact **the buildings have not been converted from houses into schools**, but that **they are houses being used for educating children**. The function has changed but the fabric has not been adapted for the new purpose.

2.2.2 The Urban Dimension

> *"The process of translating aims into goals is one that needs to acknowledge the context, because the contexts of education within cities are very different from those in non-urban areas"* (Raynor, 1974:14)

Accessibility to the buildings was one factor that contributed to the decision of restricting the study to that of houses located in the central core of the city[13]. Although the investigation evolves around the three main components of **adaptive reuse** of buildings for **educating primary school children** in **Cuba**, it is the **urban** dimension that fuses these elements together. Hence the relationship to, and the meaning of, 'urban' need to be defined with respect to each component.

Most of the literature on adaptive reuse centres on individual case studies that are usually grouped together according to either functional type (e.g. Binney, 1990; Cantacuzino, 1975) or location (e.g. Austin, 1988; Cunnington, 1988; Nutt, 1997) or both. Sometimes the division is obvious, such as barn conversions, but other types of buildings could be set in either a rural or urban context. The adaptations tend to be judged on the success of the alterations to the building fabric and little attention is paid to the social and economic impact that this might have on the surrounding area. The physical process of changing the use of a building from one function to another does not vary to any great extent with regards to location.[14] However, the reasons for buildings becoming obsolete and the social and economic effects of the change of use of these buildings differ between town and country (Smith, 1991:5).[15] Hence, consideration of **the contextual aspect forms an integral part of the approach to**, rather than means of, **changing the function of a building**.

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[13] This also seemed appropriate because government attention in Britain is directed towards urban regeneration and the redevelopment of brown field sites, as illustrated in the reports by URBED (1987) and Urban Task Force (1999).

[14] The work involved can vary irrespective of the site. The difficulty of building in remote areas is related to availability and/or transportation of materials and labour. Once these are in place the execution of the work is the same as other areas.

[15] Smith (1991) focused on the causes and effects of obsolescence and the subsequent recycling of the rural building stock. However the 'urbanisation' of the British countryside is almost the antithesis of the Cuban rural urbanisation policy (Chapter 5.2.2).

Adaptive reuse in towns and cities in Britain is often incorporated into urban regeneration schemes. The White Paper *"Planning for the Communities of the Future"* (Deputy Prime Minister, 1998), shows that political policies distinguish between urban and rural issues. An understanding of the contextual relevance of this subject at the macro level is therefore considered pertinent to the subject at the micro level. The UTF's Report confirmed that:- *"Many valuable buildings .... stand empty at the hearts of our urban communities, often having a disproportionate effect on the overall sense of economic and social decline. There are numerous opportunities to bring many of these properties back into beneficial use"* (UTF, 1999:257). Chapters four and five demonstrate how the Cubans seized the 'opportunity' whenever possible to use redundant buildings for many different functions, including educational purposes.

With regard to the relationship between 'urban' and the education of primary school children Raynor (1974:11) claims that the concept of **'urban education' as a specific subject**, originated in the United States.[16] Authors like Brain (1968), Howe (1968), McDonald (1968), Toffler (1968), David and Wright (1975) and Holt (1975) debated the problems of inner city schools and the political, economic and social implications of educating children in urban areas in the US. Alexander *et al* (1977) also considered the relationship between children, education and the context of the city[17]. Raynor (1974:13) noted *"there is both a theoretical and a practical need to understand the relationship between education and other parts of society's infrastructure"*. By fusing the two distinct pedagogical and the contextual approaches he then gave the following definition:-

> *"Urban education is an education which, in formulating its aims, goals, institutional forms and curriculum content acknowledges that it is taking place within a particular urban, political, and economic context, and acts in accordance with that knowledge, taking advantage of the city as a resource."* (Raynor, 1974:15)

The latter part of this definition is particularly relevant to the approach to education in Cuba as chapters five will illustrate. This investigation focuses on the inner city areas where expansion is restricted and which represents the original or historic centre that contains some of the oldest buildings as well as the latest developments. It can also refer to areas of deprivation and poverty although this is less easy to define in Havana since even the once affluent areas are poor by western standards. *"Ghetto areas based on ethnic differences"* (Raynor, 1974:74) associated with the term 'inner city' are not applicable in Havana. Whilst the city has good and bad neighbourhoods, these are not a reflection of ethnic differences.

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[16] In Britain in the early 1970s the topic of 'urban education' remained underdeveloped. This is not to imply that there had been no investigation into the topic in the UK (the Plowden Report on education had been produced in 1967 and the Government was investing in schools), but rather that *"the United States is information-rich and action-rich in the field of urban education while Britain is poor on both counts"* (Raynor, 1974:11).

[17] Six sections worth noting are:- S.18 *Network of Learning* (pp. 99 –103); S.57 *Children in the City* (pp. 293 – 296); S.68 *Connected Play* (pp.341 – 347); S.73 *Adventure Playgrounds* (pp.367 – 370); S.85 *Shopfront Schools* (pp.420 – 425); and S.86 *Children's Home* (pp.427 – 430) (Alexander, Ishikawa and Silverstein, 1977).

Another basic indicator that constitutes an inner city area is the demographic aspect. Often they are areas of high-density population although in some cases this has been depleted for reasons that are discussed later[18]. However *"one country's definition of an urban place, or of urban population, differs from another's: in Denmark, a place with 250 people is urban: in Korea, a place with less than 40,000 is not"* (Hall, 1966:19). Therefore, in order to interpret the statistics and data accurately, it is critical to clarify the **Cuban definition of 'urban'**, which is:-

> *"Any settlement that has 2,000 or more inhabitants, but also settlements with a population of [between]* ***500 - 2,000****, if they have electricity, running water, education and health facilities, as well as new towns of* ***200 - 500 inhabitants*** *with those amenities."* (Stubbs, 1989:29)

Since this represents settlements that are little bigger than villages it was necessary to narrow the study to the high-density central core of Havana. Section 2.3 explains how the choice of area for examination was made.

2.2.3 House or School?

Because personal experiences form the strands of a thread that permeate the inquiry it is appropriate to give an explanation of the author's interest in the adaptive reuse of houses for schools. Whilst these resemble the view expressed in the opening quotation in chapter one by Holt (1975), they are opinions that are not readily embraced by other architects and educationalists.

From the age of five to eleven I attended a primary school where I felt comfortable and happy. Every classroom varied in size and shape, the views out also differed. The meandering corridors were places in which to play hide and seek. In summer the favourite place to play with my friends was in the unkempt shrubbery because it stimulated our imagination. For us it became a place to sit and talk, a "home" that we maintained to suit our changing needs. It was a combination of what Alexander *et al* called *"A Place to Wait"* (1977:708-710) and our *"Adventure Playground"* (1977:367-370). Years later I realised that my primary education had in fact been spent in a converted Edwardian house. Reflecting upon the reasons why I liked the school I would say that a converted house has a familiar atmosphere and a domestic scale that young children can relate to, not just in room size, but also in the relationship of the spaces and rooms to each other.

The first three years of my secondary education were also spent in a large house. Since the environment was similar to my previous experience, I was content. However, a new purpose-built school was constructed in the mid-1960s. There I endured the last four years of my secondary education. All classrooms were the same size, had the same aspect over a concreted playground,

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[18] During a symposium on "Urban Educational Facilities" in Baltimore in 1999 I visited a new 'urban high school' that was located on a green field site on the outskirts of the city. This study therefore does not include suburban areas of the city.

and were linked by a long straight corridor into which hordes of pupils spilled at the end of every lesson. The anonymous, institutional, sterile atmosphere did little to stimulate one's imagination and the environment was neither conducive to comfort nor fun.

On reflection ten years of my education had been spent in buildings that had never been designed as a school, yet they hold vivid, happy memories[19]. The last four years in a 'real' school is simply a void, the only memory of which is that of walking along the seemingly endless corridor and fainting before reaching the end. This is in sharp contrast to Dudek's reflection of his experience of the move into a purpose-built school that he describes as *"a truly therapeutic environment"* (2000:ix).

As an architect working in with the local Education Departments in the UK specifically on Primary Schools, over a period of eight years I designed only two completely new schools. The remaining projects were conversions of other building types or extensions to an existing building.

These experiences raise the question, what is a school? When a child says they are "going to school" does this mean going to the building, or going to a place of learning, or both? In order to understand the confusion in the semantics of 'school' within the context of adaptive reuse chapter three examines the dilemma of building classification by type and by function in more detail.

2.3 Selecting the Research Location

> *"The concept [of urban education] has a universal applicability .... although, it is unlikely that the solutions will be the same"* (Raynor, 1974:11)

This section explains the rationale for the choice of the municipality of Plaza de la Revolución in Havana, Cuba as the research location. Starting at the macro level (the country) and progressing to the micro level (the zones in the municipality) the purpose is to show how the selection of the schools for the case study was based at each stage on a systematic appraisal of the key educational, architectural and political factors involved in the decision making process effecting primary schools.

The educational factors encompass the demographic data relating to areas of high-density population, the birth rate, concentration of primary school age pupils, number and location of schools and number of pupils in each school. The architectural parameters focus on the need to find a range of urban environments in which the schools are located, and a range of buildings that

[19] I appreciate that the views expressed above are purely subjective and the fact I was 'happy' in my surroundings may have nothing to do with the actual building. Nevertheless, I do feel that the environment made a certain contribution to my experience.

differ in size and style of architecture. The political factor takes into consideration needs and concerns of the Ministry of Education.

The penultimate section (2.3.5) acknowledges the value of the contribution made by the many Cuban friends and students whom I encountered on my visits to the island, whilst the final part of this section relates the trials and tribulations of doing the field work in Cuba.

2.3.1 Why Cuba? : Why Havana?

> *Cuba is a magnet - one is either repelled or drawn towards it. The force of polarisation is extremely powerful, occasionally ambivalent and sometimes simply unjustifiably irrational. I can think of so many reasons for not going back, yet I feel compelled to return, and I'm not quite sure why. At least on one occasion during these visits (usually after cycling 'home' wet through with sweat and covered in dust only to find that the power is off and I only have one bucket of water in which to wash), I ask myself "what on earth am I doing here?" - but the force of the magnet keeps pulling me back. (Author's, notes, 1997)*

Cuba provides a suitable location for investigation with regards to a political, economic, social, cultural and environmental context. As a one-party, communist-styled State with severe economic difficulties, having an Afro-Caribbean-Latin-American society and culture, and being located in a tropical climatic region, it initially appears to represent a contextual antithesis of the United Kingdom. Further analysis however will reveal that there are more areas of convergence that one might imagine. With regards to adaptive reuse the city of Havana abounds with examples of buildings used (but not necessarily 'adapted') for different functions from that which they were originally designed, such as department stores and offices used for dwellings; palaces used as museums; banks used as hospitals; houses used as offices and most importantly, **houses used as schools** - rather than houses that have been converted to schools.

Education has been at the forefront of the political agenda in Cuba from the start of the Revolution. The development of the educational system was well documented in the 1960s and 1970s but from 1980 relatively few publications have been produced[20]. However, following the collapse of the Soviet Union in 1991 Cuba was plunged into a severe economic crisis that permeated every aspect of life. This created a resurgence of interest mainly from the social, political and economic perspective by authors like Blasier (1993), Jordan (1993), Mesa-Lago (1993), Eckstein (1994), Calderón (1995), Deere (1995) and Coyula (1999) although the work of

[20] Apart from the many speeches by Castro on education and publications by the Ministry of Education (MINED), works from the 1960s and 1970s included:- Jolly (1964), Busby (1967), Thomas (1971), Fernandez (1975), Figueroa (1976), Alberni & Calderío (1978), Blanes (1978), Curbelo (1978), Foner (1979), Griffiths & Griffiths (1979), and Holly (1979). Works after 1980 include:- Kolesnikov (1983), Richmond (1989), Valdés et al (1994) Leiner (1985) and McLaren (2000).

MacDonald (1996) is specific to education. Towards the end of the 1990s there was an increase in books on Cuban architecture,[21] although these pay scant reference to educational buildings. Only Cuban works examined school buildings[22] and these concentrated on the innovative ideas for the design of the new school buildings that evolved during each decade of the Revolution. The *"casas adaptadas"* were either ignored or simply forgotten, despite their crucial role in the development of urban education.

The City of Havana is both the capital of the country and also one of the 14 regional provinces of the island. An analysis of demographic data revealed that Havana is the only province that is classified as a totally urban area. The City also had over 300 more urban primary schools than any other province in the year 1989 –90 [23] and the need for primary schools is greater in this province than any other, since the population under-14 years of age is considerably greater here than in the other provinces (Cuba, ONE, 1996:TI.10 :35-40).[24] Table 2.1 shows the total population and density of each municipality in Havana in 1996. However, these statistics relate to the aforementioned Cuban definition of 'urban' and are therefore misleading given the parameters of the study.

Hence to establish the equivalent of the 'inner city' areas of Havana an analysis of each municipality was carried out. As one would expect from a city that has evolved over a period of 500 years, each of the fifteen municipalities has its own identifiable characteristics, as well as features common to the other municipalities. Initially it was considered that selected municipalities in the province of the City of Havana could provide a representative sample of urban primary school buildings as the City has a diversity of contextual locations and building types that could act as a paradigm for other cities in Cuba.

2.3.2 Which Municipality?

There are over 500 primary schools in Havana (Cuba, AE, 1986:115).[25] Discussions with Barbosa at MINED suggested that a detailed study of a **specific municipality** would yield more positive outcomes and be more beneficial to the formation of future strategies, than a random selection of schools throughout the province.[26] Examination of the map of the province (Figure 2.1) together with the population statistics of each municipality (Table 2.1) reveals that many of the municipalities are more rural in nature than urban.

---

[21] Such as Lewis & Marshall (1990), Costantino (1994), Barclay & Charles (1995), Carley & Brizzi (1997), Engels (1999), Rodríguez (2000) and Menocal *et al* (2001).

[22] The most notable author on post-revolution Cuban architecture is Segre (1970; 1971; 1978; 1989 and 1990). In addition to publications produced by both the Ministry of Construction (MINCON) and the Ministry of Education (MINED), publications specific to educational buildings include the works of Salinas, Rojas & Segre (1971), Figueroa (1976), Friedman & Fishman (1978), Menédez & Estevez (1978) and Segre, Cárdenas & Aruca (1986). The unpublished works of Blanco (1981) and Rebellón (1995) are also noteworthy sources.

[23] 1989 was the latest printed publication of the Education Annual Statistics for the country due to the Special Period.

[24] *Población de Cuba por Provincia [según grupos de edades y sexo al 31 de diciembre 1995]* (Cuba, ONE, 1996:TI.10 :35-40)

[25] *Numero de Escuelas por Nivel de Educación y Provincia - Resumen Nacional* (Cuba, AE, 1986:115).

[26] All of the discussions referred to in this section took place between 4th and 26th July 1996 when I was based in the Department of Maintenance and Investment at MINED. My office was adjacent to the Director's Office (Arq. Barbosa).

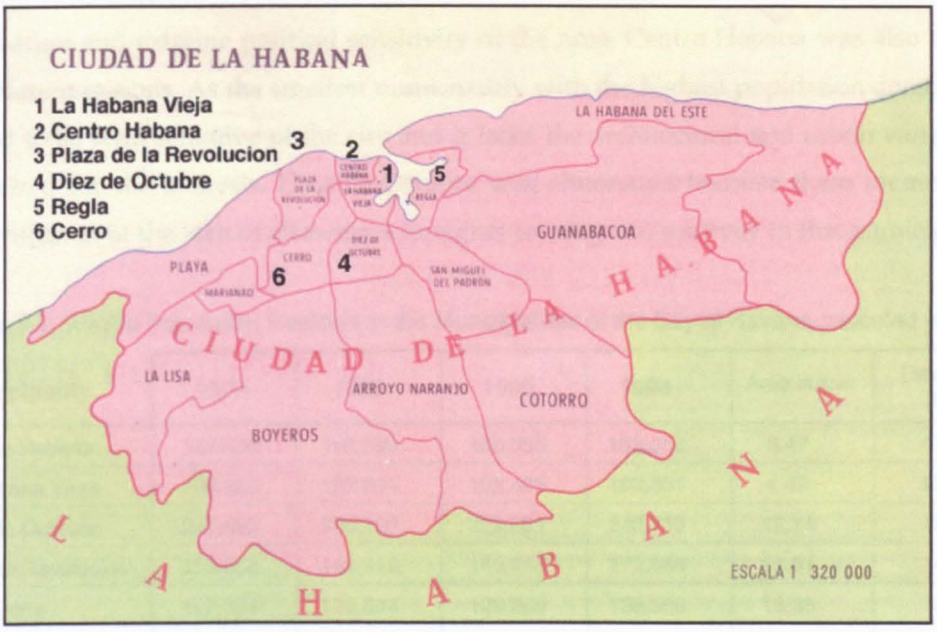

Figure 2.1 Map of the Province of the City of Havana
Source: Lorenzo : 1979:8

Land availability and the types of problems experienced in these areas are not the same as, or applicable to, those in the "inner city" areas. On the other hand, the municipalities of **La Habana Vieja, Centro Habana, Diez de Octubre and Plaza de la Revolución are all areas of very high density** with no possibility for expansion as, being the historic core of the city, they are bounded by the other municipalities on three sides and by the coast to the north. In this respect, they are the most representative of "inner city" development and would therefore appear to be suitable choices for analysis in greater depth.

The birth rate is a crucial factor because the number of pupils expected to enrol in primary education is directly related to the number of births during the previous five years. Analysis of the birth rate statistics (Cuba, ONE: 1995)[27] revealed that firstly, from 1990 to 1995 all municipalities show a slight decrease that is thought to be due to the impact of the "Special Period". Secondly, the distribution is fairly consistent. However, by calculating the number of births in relation to the area of each municipality it was found that, the four most densely populated municipalities also have the highest birth rate. However given the other criteria it was considered appropriate to discuss these four municipalities with the Director Barbosa at MINED.

La Habana Vieja is the most historic part of the City dating back to the 16th century. Many of the buildings are "listed" and there are strict regulations relating to any form of either development or renovation of these buildings as this municipality is under the control of a separate government

[27] Whilst most fall short of 100 births per square kilometre, Plaza de la Revolución has more than 150/km^2, La Habana Vieja and Diez de Octubre have more than 230/km^2, and Centro Habana has more than 600/ km^2. *Nacidos Vivos por Municipio Ciudad de La Habana de Residencia de la Madre - anos 1990-95* (Cuba, ONE, CEPDE: 1995).

department[28]. Consequently, access to the data for the research would be restricted due to the complex nature and extreme political sensitivity of the area. Centro Habana was also unsuitable but for different reasons. As the smallest municipality with the highest population density it is not considered to be representative of the city and it lacks the architectural and urban variations that were required for the analysis. Diez de Octubre was eliminated because there seemed to be a distinct reluctance at the idea of allowing a foreigner to carry out a survey in this municipality.[29]

Table 2.1 Annual Population Resident in the Municipalities of the City of Havana (selected years)

Municipality	1970	1980	1990	1996	Area in km²	Density in 1996
Centro Habana	179,386	169,699	168,056	**165,058**	**3.47**	**47,567**
La Habana Vieja	109,426	102,204	102,403	**102,831**	**4.49**	**22,902**
Diez de Octubre	247,555	239,120	239,651	**240,713**	**12.14**	**19,828**
Plaza de la Revolucion	159,654	163,912	169,963	**172,064**	**11.81**	**14,569**
Cerro	127,364	125,344	129,869	138,506	13.38	10,352
Marianao	127,364	127,272	134,315	138,300	15.09	9,165
San Miguel del Padron	130,952	134,986	148,918	155,436	25.66	6,058
Playa	168,623	179,338	189,226	188,326	36.16	5,208
Regla	39,465	38,567	41,953	42,032	9.16	4,589
La Lisa	71,754	92,562	112,226	122,862	37.51	3,275
Arroyo Naranjo	152,478	165,840	188,475	195,954	83.05	2,359
Boyeros	104,044	140,771	166,258	182,611	134.22	1,360
Habana del Este	44,849	104,132	161,039	180,308	144.91	1,244
Cotorro	48,434	53,994	65,407	73,317	65.66	1,117
Guanabacoa	82,518	90,633	101,570	106,015	127.4	832
TOTAL	1,793,864	1,928,372	2,119,059	2,204,333	724.11	3,044

Source: Cuba, ONE, (1996) Centro de Estudios de Poblacion y Dessarrollo, (CEPDE)"Annuario Demografico de Cuba" (statistics provided by ONE officials; density calculated by Author)

I felt that the choice of Plaza de la Revolución gave the best opportunity to select schools in a wider variety of different contextual environments compared with the more limited range in the other three municipalities.[30] Director Barbosa (MINED) agreed with my selection as it fulfils the decision making requirements in respect of educational and demographical factors, urban and architectural criteria and political requirements. Arq. Rebellón (MINCON) also agreed with my choice because the rationale was based not only on statistical data but also on the experience of the persons concerned with the school buildings.

[28] The *Oficina del Historiador*.

[29] There are some dubious areas in Havana. Working mainly alone, I wanted to avoid any potentially violent situations (see Kellett, 1995: 66). Taking advice based on local knowledge of the areas was essential to the success of the project.

[30] Because the schools in Plaza are representative in that they share certain characteristics with schools in various other areas, they provide reasonable grounds for generalizability (Zeisel,1984:85) and for making a case (Robson, 1993:72).

2.3.3 Which Schools?

Whilst MINED has the ultimate control for all schools on the island, each municipality has a Department of Education responsible for the day to day running of all schools and school buildings within their municipality. Records of pupil and staff statistics and schools that have closed or changed use are also kept at this local level. In addition, access to any school needs approval from the municipality Department. Similarly, whilst the Institute of Physical Planning (IPF) is responsible for all planning development nationally, at municipal level the Department of Architecture and Urban Development (DAU) controls and keeps records of all planning and building activities. Through a letter of introduction from Barbosa at MINED,[31] both the Director of Primary Schools, Mario Mesa, at the Department of Education (Plaza) and the Head of DAU (Plaza), Liliana del Portillo, agreed to help me with my investigation at municipal level.

Figure 2.2 Municipality of Plaza de la Revolución – Zones for Study
Source: Adapted from Baragaño & López (1993)

[31] Copies of the letters of authorisation are included in Appendix F.

Table 2.2 Schedule of Schools for Analysis in Plaza de la Revolución

Zone	Ref.	Name of School	No.Pupils	Capacity	Classrooms	Type of School
1	2	Arturo Montori	390	350	15	**Pre '59 - Private**
1	3	Carlos Hernandez	287	227	10	Casa Adaptada
1	**12**	**Hermanas Girald**	382	214	13	Casa Adaptada
1	15	Juan Fernandez Duque	0	186	10	Casa Adaptada
1	**20**	**Orlando Pantoja**	601	402	24	Casa Adaptada
2	**13**	**Ignacio Agramonte**	222	156	11	Casa Adaptada
2	**16**	**Juan Triana**	451	293	14	Casa Adaptada
2	28	**Tania la Guerrillera**	107	235	14	**Casa Adaptada**
2	29	Tomas David Royd	446	1343	40	**Pre '59 - Private**
3	19	Nicolas Estevanez	415	240	13	Casa Adaptada
3	**24**	**Pedro Portuondo**	314	223	12	Casa Adaptada
3	31	Union Interno de Estudiantes	467	325	13	Convencional
3	32	**Valdes Rodriguez**	772	1425	37	**Pre '59 - Private**
3	**34**	**Frank Hidalgo Gato**	420	374	18	Casa Adaptada
4	21	Ormani Arenado	652	1010	34	**Pre '59 - Private**
4	22	Patria Nueva	122	181	8	Casa Adaptada
4	**25**	**Rene Ramos Latour**	178	195	11	Casa Adaptada
4	**30**	**Tomas Romay**	364	342	19	Casa Adaptada
4	36	Elroy Alfaro	325	520	13	Convencional
4	26	Amistad Cubano Mexicana	182	179	11	Convencional
5	**4**	**Combatientes de Bolivia**	541	396	22	Casa Adaptada
5	**10**	**Gustavo y J. Ferrer**	592	352	21	Casa Adaptada
5	11	Gustavo Pozo	332	760	14	Convencional
5	17	Luis Arcos Bergnes	304	271	13	Casa Adaptada
5	18	Martires del II Frente	228	253	12	Casa Adaptada
5	27	Republica del Peru	191	168	8	Convencional
5	35	Jose Luis Arrunada	452	2288	46	Convencional
5	38	Calixto Garcia	352	400	10	Convencional
6	5	Eduardo Garcia Delgado	393	343	13	Convencional
6	6	Ejercito Rebelde	492	840	20	Giron
6	7	Frank Pais	559	585	21	Casa Adaptada
7	**1**	**Adalberto Gomez Nunez**	394	350	12	**Pre '59 - Private**
7	**8**	**Gonzalo de Quesada**	528	425	15	Casa Adaptada
7	14	Jose A. Echeverria	449	597	17	Casa Adaptada
7	**23**	**Pedro Albizu Campos**	290	280	10	Casa Adaptada
7	33	Saul Delgado	499	860	15	**Pre '59 - Private**
7	37	Felipe Poey	713	1240	26	**Pre '59 - Private**

Source: MINED (1997) – Information provided for author on request (% calculation by author)

Notes: - **The schools visited in the study are shaded yellow**

The Reference number is the number given to each school in the MINED listings. They are not specific to zones.

"Convencional" = purpose built state school pre-1959; "Pre '59 Private" = private school built pre-1959;

"Giron" = new school built after 1959 ; "Casa Adaptada" = Converted House.

First, all thirty-seven existing primary schools were identified (see Table 2.2) and plotted on the map of Plaza. The municipality was then divided into manageable zones to study. By cycling around and observing the characteristics of the area, it became apparent that the major influence on both the location of the schools and the urban and architectural development was the location of the *"calzadas"* (boulevards). To reinforce this theory, a meeting was held with the Director of Primary Schools (Plaza), Mario Mesa (23 April 1997). He confirmed that most children attend the school nearest to their home, and almost all children walk to school. Comparing the location of the schools with the urban grid pattern and their relationship to the *calzadas*, a total of **seven zones** were identified for examination (see Figure 2.2). It was considered advantageous to involve the Director Mesa, in the selection of the schools for analysis. I stressed the need to cover a reasonably wide range of building types and quality. At this point a previously unidentified parameter emerged; namely, some schools are located in more than one "house". These schools can occupy two or three houses that may or may not even be in the same street. Also, they can occupy **part** of a house, where the remaining part has a different use; for example, the school is located on the ground floor and flats occupy the upper floors.

Given all the above parameters a representative sample (57% of *casas adaptadas*) was selected from various zones in the municipality. These would supply sufficient material for analysis and conclusions that, if required, could be replicated in the remaining schools.

2.3.4 Valued Friends – the Cuban Contribution

The ability to adapt quickly to working in different locations and to 'fit in' to an unfamiliar political, social and cultural environment is essential when a number of tasks have to be completed within a limited timeframe. Success also depends on gaining the trust and cooperation of the local inhabitants. What surprised me was the fact that so many Cubans wanted to get involved in my work. The Cuban architectural students offered to assist in the survey of the schools. Their Professor, Gema Fleitas, agreed this could be incorporated into their work schedule (see section 2.4.3). None of this was 'planned', but it is just one of the many examples of the altruistic behaviour and generosity that seems to abound in Cubans.

Apart from the government departments (MINED and MINCON), given the bureaucratic nature of the country it was necessary to obtain data from many other state and municipal offices (see Appendix A). Once again the officials expressed interest in my quest and often contributed by recommending other departments that they thought I should visit. The common factors seemed to be a certain astonishment that someone (especially a foreigner) was investigating the *casas adaptadas* and it was obvious that most Habañeros were familiar with these schools, even if they or their children had not attended one.

Finally, the moral support I received from everyone I met was almost overwhelming. A telephone call to make sure I had arrived 'home' safely after an evening out; a friend dropping by the apartment in the evening just to see if everything was alright; being invited for a meal with the secretary's family; receiving a Mother's Day card from the children in the third grade of one of the schools; getting a push uphill on my bike from one of the students; receiving a Cuban worker's bus pass to get to and from MINED's office; a simple cup of coffee on arrival at an office - these are just some of the many gestures of support that helped to keep me going.

2.3.5 Strength of Mind: Weakness of Body

Working in Cuba in the mid-1990s was not without its difficulties. My first obstacle was to acquire a working knowledge of the language, which I did through several intensive language courses in Spain during my summer vacations and throughout the year at evening classes. Transportation to get around the city and visit the offices and schools was a major problem. This was resolved by purchasing retrieved stolen bicycles at the police auctions which I and my Huddersfield students then took out to Havana on the study visits. At the end of our visit we gave these to the Cuban students and professors[32]. When I returned for my fieldwork period I then 'borrowed' one of the bikes for the duration of my stay.

There were other difficulties. Power cuts were frequent and prolonged in the early years, although by 1997 the situation had improved considerably. Lack of materials meant that I had to bring everything with me from the UK each time. Paper was the top commodity. As with the bicycles my students and I carried hundreds of reams of A4 paper on each visit. Lack of working equipment was another problem. Not many of the ex-Soviet computers that some of the government offices had actually worked, and photocopiers were not available for use due to shortage of ink and paper. This meant I had to copy by hand not only all the statistical data in the Ministry offices but also all the plans at the DAU offices where the illumination was very poor.

Language, transportation, lack of power, paper and photocopiers were all issues that could be overcome with a bit of effort and ingenuity. Even the mundane diet of rice, beans and chicken for thirty consecutive days and living in a converted garage was tolerable. But for me, personally, the major problem of working in Havana was the heat and humidity. Cycling from my apartment to the Ministry (a distance of about 8km) in July was overpowering.[33]. Prevention of exhaustion and dehydration were a constant worry as I needed the bike to travel to the schools in April 1997.

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[32] In the period of four years (1995-1998) over fifty bicycles were given to the Cubans.
[33] The Cuban office workers were quite concerned that the journey by bicycle was too exhausting for me. Consequently, I was given a Ministry 'bus pass' that enabled me to travel to and from work each day on the official Ministry bus.

However, it made arriving 'home' to my cold-water shower a refreshing relief. At the end of the day, it was all worth it.

2.4 The Research Methods

This section summarises the various research methods used throughout the investigation. These can be divided into two broad areas that relate to the initial hypotheses, the two main objectives (described in Chapter 1) and also to the research design and strategy employed. This division relates to the two scales of investigation. Firstly, the macro scale that examines the broader issues of contextual influences on adaptive reuse in general and the exploration of type form and function relative to adapted buildings as an overall concept. Secondly, at the micro level through the field study of examples of houses that are used for educational purposes in Havana. Sometimes the same methods were adopted for both areas and, in other instances (mainly during the fieldwork), different methods were used simultaneously. Whilst the literature reviews are incorporated in the following chapters, the focus here is on the methods used for the collection of data during the fieldwork activities in Cuba and on their subsequent analysis.

2.4.1 Strategic Planning of Fieldwork Activities

"The more bureaucratic the country the greater the likelihood of delay" (Uduku, 1992: 3.23)

The bureaucratic nature of a communist regime like Cuba meant that forward planning of all activities to be carried out during each visit was a crucial factor[34]. A continuous period of fieldwork was considered to be neither feasible (being a part time student) nor practical due to the need to assess the information obtained prior to proceeding to the next stage of investigation. Although the fieldwork took place over a number of years, it was not longitudinal in nature. The approach was to cover specific areas of information on each visit and then to use the interim period of time to analyse the data and determine the direction for the next visit.

One of the difficulties was communications. In Cuba during the 1990s telephone services were unreliable, few fax machines worked due to either lack of paper or lack of ink, or both, and email was not available within the Ministry of Education Department so once I departed Havana there was a void in communications. The key to the achieving my targets therefore was the strategy of setting aside one or two days before the end of each visit to arrange meetings, schedules and get the required permits for the following trip. This saved invaluable time and enabled me to start

[34] Uduku (1992) spent eleven months on fieldwork in Nigeria. However, she records delays of up to two months in obtaining information as well as shorter periods of time wasted just waiting around.

work immediately after I arrived on every occasion. Table 2.3 summarises the main activities that took place during the research visits both prior to registering for the degree and post registration.

Table 2.3 Summary of Fieldwork Activities

PRE-REGISTRATION

Year	Date	Person / Institution	Topic / Activity / Notes
1993	August		2-week study tour
1994	8-15 October	Prof. Bancrofft (ISPJAE) / (at Conference)	Feasibility of school topic for research
1995	9-16 February	Prof. Bancrofft (ISPJAE)	To arrange meetings with MINED & MINCON
1995	16 Mar.–13 April		First Student study visit
	Friday 7 April	Rebellón (MINCON)	Lecture on schools in Cuba
	Monday 10 April	Rebellón (MINCON)	Initial proposal discussion
	Tuesday 11 April	Barbosa (MINED) + Bancrofft+ Fleitas	Initial proposal discussion

POST-REGISTRATION

Year	Date	Person/ Institution	Topic/ Activity / Notes
1996	25 Jan.– 21 Feb.		Second Student study visit
	Mon 3 Feb.	Centro Estadisticas Demografia	Data collection
	Tues. 4 Feb.	Kesser	GEOCUBA initial contact – maps & plans
	Thurs. 13 Feb.	Rebellón + M.E. Frada (MINCON)	Lecture on schools + proposal discussion
	Thurs. 13 Feb.	(DAU-Prado) & (DAU – Plaza)	Initial contact for data & plans
	Tuesday 18 Feb.	Barbosa (MINED)	Discuss proposal + agree to work at MINED for data collection
(1996)	*(11 Apr – 2 May)*	*(Prof. Arq. Fleitas visits UK)*	*Meeting – Change to Urban Schools*
1996	**4-31 July**	**MINED (see section 2.4.2)**	**Statistical Data Collection**
1997	30 Jan. – 26 Feb.	Various	Third Student study visit
1997	**18 April – 23 May**	**(Various sees section 2.4.2)**	**Plaza – School Survey**
1998	28 Jan – 21 Feb.	Various + revisit schools	Fourth Student study visit
1998	27 March – 3 April	Conference paper presentation	Trialog Conference, Havana
1999	*28 -31 October*	*"Adaptive Reuse for Inner City Schools" - conference paper*	*OECD – PEB Conference – Baltimore*

2.4.2 Documentary Research – Unobtrusive Methods

At the macro scale unobtrusive methods consisted of literary searches through reference resources in both the UK and Cuba[35]. These were used throughout the study period initially to clarify the exploratory and descriptive aspects and subsequently to keep up to date with the enquiry. At the micro level the collection of information and statistics from data archives and administrative records was used to identify the high density areas of the city of Havana for investigation and to establish the location of the schools for analysis. Most of the following information was collected during the visit in July 1996 when I worked at the Department of Investment and Maintenance at MINED. The data was obtained from the offices and institutions that are scheduled in Appendix A. The information is divided into the following three main areas:-

[35] In the UK data was obtained from university libraries, journals, the internet, professional institutions and various local Educational Authorities. In Cuba, the data was obtained from various sources listed in Appendix A.

a) Demographic Movements and Educational Needs

I arrived in Havana with pre-prepared printed sheets listing the information I wanted to collect, but I soon found that these were useless because the data published in the annual statistics was in a completely different format. I therefore had to redesign tables to suit the information available. In total twenty-seven tables were compiled into which all the relevant information was recorded by hand (as there was no photocopier available). Although publication of the annual statistics ceased in 1990 due to the start of the 'Special Period' (see chapter 5.5) the period covered (from either 1959 or 1978 to 1989/90) at national and provincial level was considered sufficient to give an overview of the general demographic and educational pattern of development. At the municipal level it was possible to get the current statistics from both the municipal educational offices and also the National Centre of Demographic Statistics[36].

First the demographic data was collated to determine the areas of high density. The number of births and the number of children in various age ranges in each municipality in Havana were also recorded[37]. Next the number of schools, pupils and teachers for the primary school sector in each province were obtained. As the method of recording educational statistics by the government changed in 1972 this date was considered to be an adequate starting point. The number of primary schools constructed and the type of construction methods used from 1975 to 1989 were also noted. The final task was to list of all primary schools in the specific municipality of Plaza de la Revolución at five yearly intervals since 1970, including those that have closed, and then to establish the current list of schools with number of pupils, teachers, classrooms and building type in each.

The combination of the data analysed from demographic and educational statistics reinforced the rationale for the selection of the study area and also provided a firm foundation for the understanding of the educational development in post-revolutionary Cuba.

b) Planning Factors

To place the architectural development of the city in its historical context, maps and archive records showing the urban development of Havana were collated. Plans at various scales of the municipality of Plaza were then analysed to give a comprehensive understanding of the contextual aspect of the primary school locations. By studying the urban grain and figure ground it was then possible to divide the municipality into manageable zones for further analyses. The three main plan-types obtained were as follows:-

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[36] I had to make a formal request for the specific data I required. A few days later I collected the hand-written information.
[37] The link between the birth rate and education is critical to the planning of the school building programme as I experienced in practice in both Sheffield and Dumfries.

i) Ordnance Survey Plans (scale: 1: 2000) - These are quite detailed. Topographical contours are shown and all buildings are plotted on the plans with the number of storeys of each building indicated. The location plan for each school is illustrated in Appendix B.

ii) Ordnance Survey Plans (scale: 1:2500) (Vacant Sites) *(Solares Yermos)* The vacant sites are highlighted by a colour code. The purpose was to find vacant plots for new schools should these be required. Detailed information about each vacant site is recorded on a card register. However, these are not updated regularly. Consequently, these plans have not been included, although the information has been incorporated in the analysis.

iii) Block plans – *(Manzanas)* **(scale: 1:500)** – These are fully dimensioned hand drawn plans that show every block in the municipality in considerable detail. Each building is coded to indicate:- the number of floors; the physical state of structure and the current use. These provided information about the schools visited. A copy of a block plan for each school appears in Appendix B .[38]

c) Architectural Records of the Primary School Buildings – *(Historias)* [39]

Administrative records are kept in respect of maintenance of all existing buildings. These also reveal the approximate date and type of construction, state of the building and repair work which has been carried out as well as recommendations of work to be done. A translation of each school's building record is given in Appendix B. No floor plans exist for any of the schools visited because the buildings were originally privately owned houses built prior to 1959. It was therefore necessary to make sketch plans for each building during the visits.[40]

2.4.3 Architectural Survey of Selected School Buildings

The field study of the schools took place during the visit in May 1997. The students from ISPJAE School of Architecture were available to start work on the second week of my visit under my supervision. This allowed me time to collect some of the other data I required and also to get a schedule of school visits established. In the mornings the pupils attend classes in the schools, but in the afternoons they have other activities, often outside the school complex. Consequently appointments were made with the various Head Teachers for visiting each school in the mornings (8.00am -1.00pm) with two Cuban students on a rotating basis. Only six schools were located in one building – the others occupied 2 or 3 buildings that were sometimes in different streets – hence the need for more than one set of floor plans per 'school'.

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[38] It was not possible within the time constraints to copy all the block plans for those schools that occupied more than one site.
[39] Hand- written copies of these were made for me by the Cuban students who worked with me in April 1997.
[40] Most of the sketch floor plans were made by the Cuban students, although where possible, I also made some sketch plans.

In each school six classrooms were visited – one in each grade, and the *"pre-escolar"* or kindergarten (if there was one), kitchen, dining area, library, Head Teacher's office, toilets and outdoor play area. I had prepared an architectural survey form (see Appendix D) which I completed for each school. The purpose was to establish the general building quality by visual assessment[41]. The condition of the materials of the walls, floors and ceiling and the quality of illumination, ventilation and acoustic environment as well as the furniture and facilities available were recorded. As the architectural survey form was in the same format as the User Questionnaire I was able to compare my perception of each area with that of the users. I also had blank forms for unforeseen areas such as the *'ludoteca'* (toy/games area), library, the speech therapist's room and the doctor/nurses' room. On the other hand, some scheduled areas (such as an assembly hall, gymnasium, and a secretary's office) did not exist in the schools visited.

Photographs were taken to provide a visual record of the areas studies to complement the architectural survey. Using a camera in the classrooms and other areas (particularly the external play areas) when fully occupied by the children had the additional benefit of recording **how** the spaces were used. Freehand sketches were made of the floor plans for each school to establish the overall layout of the buildings.[42] A copy of these plans appears in Appendix B. Given the importance of the contextual environment notes and photographs were taken of the site (or sites) occupied by the building and also the entire area surrounding each school. Although on the official visit to each school I was accompanied by a member of staff at all times, I was able to revisit the schools in the afternoons (when only a very few classrooms were occupied) to make additional note, drawings and to take photographs. This was a time for observation and reflection – a precious and peaceful time to synthesise the information collated during the loud chaos of a normal active primary school.

The involvement of the Cuban students was an invaluable source of local knowledge. When I interviewed the Head teacher one student would assist with any language difficulties to avoid any misinterpretation whilst the other would make sketches of the layout of the school as we walked around[43]. To make the students feel part of the study I asked them to fill in the architectural survey proforma. This impromptu exercise proved advantageous because their perception of the quality of the environment in the schools was different to mine. After each visit we would discuss our findings and this was fed into the results.

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[41] This was carried out in a similar way to that which I would use for a schedule of dilapidation for any building.

[42] Due to the time constraints of the study it was not considered essential to the overall evaluation process to carry out a measured survey of all the premises. The Cuban students completed the sketch plans of all the remaining buildings for me.

[43] Without the students this could have been a problem as I had not envisaged that I would always be chaperoned around every school by a teacher with whom I had to engage in conversation whilst simultaneously trying to make notes on my observations, take photographs and make sketch plans.

2.4.4 User Questionnaire Survey

The purpose of a detailed user questionnaire was to obtain the opinions of a selection of the primary school staff in each school with regards to their working environment. Five questionnaires were left with each Head Teacher who was asked to fill in one form and distribute the remaining four to a selection of staff. An example of a completed user questionnaire is illustrated in Appendix C. The forms were then collected the following week. The response exceeded my expectations in that twelve out of the thirteen schools completed the survey. A total of 49 out of 65 (75 percent) questionnaires were returned.

Since the response to the questions relating to the different areas in the school would be subjective it was considered useful to know some details about the individuals who completed the forms. In response to the question, how many years have you worked in this school? The results show a wide range of experience (Figure 2.3).

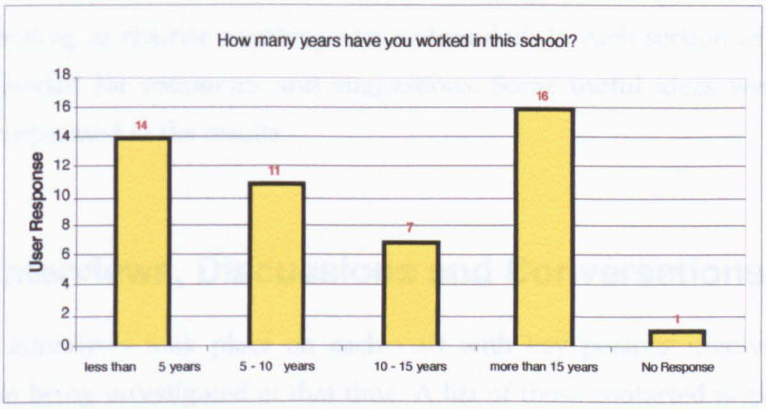

Figure 2.3 User Response regarding Number of Years they had worked in the School

It was also important to know if the respondents had worked in other schools and if so, whether they had worked in another *casa adaptada* or in a purpose built school, as this might influence their judgement of their existing environment. The results revealed that the majority of staff had worked in more than one other school and that the types of buildings varied (Figure 2.4).

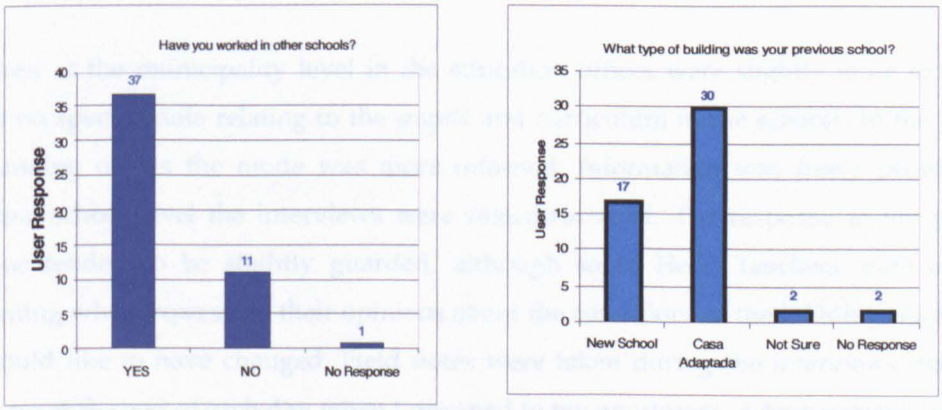

Figure 2.4 Users' Experience Working in Other Primary Schools

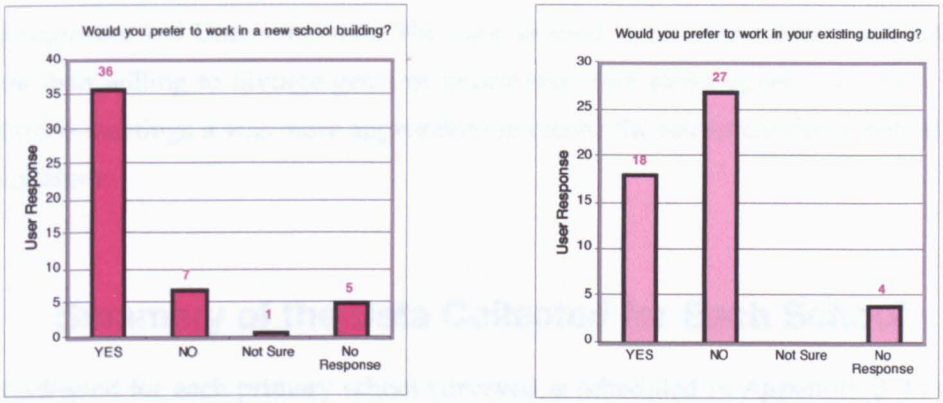

Figure 2.5 User Preference to Remain in Existing School or to Move to Another School

When asked if they would prefer to work in a new purpose built school, 73% stated that they would; but when asked in they would prefer to remain in their existing school, 36% stated that they would like to remain and 55% wanted to move (Figure 2.5). Concern that the respondents would be unwilling to criticise anything was unfounded. In each section of the questionnaire a space was provided for comments and suggestions. Some useful ideas were put forward and these were incorporated in the results.

2.4.5 Interviews, Discussions and Conversations

Unstructured interviews took place on each visit with key persons involved in the particular aspect that was being investigated at that time. A list of those contacted is given in Appendix A. At the national level the main sources were the two architectural Directors in the Ministry of Education and Ministry of Construction. As both had been young architects working on primary schools in the first two decades of the Revolution they provided a valuable insight into the development of the school building programme and the approach to educational development in Cuba. Discussions took place with them throughout the duration of the project and a rapport developed whereby I was able to ask questions more freely.

Interviews at the municipality level in the education offices were slightly more structured and focused on specific data relating to the pupils and curriculum in the schools. In the architectural and planning offices the mode was more informal. Information was freely provided. At the individual school level the interviews were semi-structured. The response to my pre-prepared questions tended to be slightly guarded, although some Head Teachers were a little more forthcoming when expressing their opinions about the conditions of the buildings and about what they would like to have changed. Field notes were taken during the interviews that were then written up at the end of each day when I returned to my apartment. A tape recorder was not used as I had been advised that few people would be willing to have their conversation recorded.

Apart from the people directly involved in the fieldwork discussions took place with architects, planners, engineers and University staff. The topic seemed to generate interest and many Cubans were more than willing to divulge gems of information that never appear in books. Due to the nature of these meetings it was more appropriate to record the key issues discussed later that day when I was alone.

2.4.6 Summary of the Data Collected for Each School

The data collected for each primary school surveyed is scheduled in Appendix B. In addition to this photographs were taken and an architectural survey form was completed by the author for each school. The school population statistics were also recorded for the current year. Both Barbosa (MINED) and Rebellón (MINCON) considered the data I had collected was essential to the overall comprehension of the topic. They also confirmed that such an extensive and comprehensive set of documents had never previously been collated for this type of school (*casa adaptada*) because some information does not exist at all (e.g. floor plans) and the rest is scattered in various government and municipal offices.

2.4.7 Tools for Analysis

After reviewing the literature on research methodology[44] I decided that using a combination of different methods of analysis would be more appropriate for the range of data accumulated as the possibility for cross-checking on validity are increased. I chose to analyse the data obtained from the User Questionnaire and the Architectural Survey using the SPSS programme[45] to provide a statistical base on which to support explanations of the perception of the buildings. A summary of the results for each area of each school was then transferred into a visual format using histograms. The outcome of the analysis is described in chapter 6 and the results for the classrooms and the external play areas for each school in scheduled in Appendix B.

In addition value analysis methodology was employed to structure the approach to the evaluation of the schools. Using standard function analysis a numerical evaluation of the functional requirements was carried out to ensure the hierarchy of priorities was maintained. However, value analysis is a problem solving technique that can be used for processes and well as products and in this respect it has also influenced the approach to the whole study by focusing on the ultimate function of educating children. This is explained in chapter 3.4 in more detail.

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[44] Particularly the works of Yin (2003), Robson (1993), Hakim (1992), Zeisel (1983); Cook & Campbell (1979) and Miles (1972).
[45] First, I recorded the data manually by transcribing the information from the returned User Questionnaire and my own architectural survey forms in numerical format on to an Excel programme that was compatible with the SPSS program.

2.4.8 Moving On - Summary

This section has explained the research design and the research strategy and has also defined the parameters of the study. It has given the rationale for the research location in some detail because of the contextual emphasis of the study. Finally the research methods used and the means of analysis have been outlined.

Chapter three explores the theoretical issues on which the initial propositions were based. From chapter four onwards the focus moves towards the more empirical area of the investigation by examining the contextual influences on the historical and then the contemporary development of education and the role of adaptive reuse of buildings for that purpose in the specific location of the study. All of this information is then drawn together in chapter six in the analysis of the *casas adaptadas*. The various arguments developed in each chapter are then discussed in chapter seven and from this ideas for future investigations are proposed[46].

[46] Based on Yin (2003:120 and 154).

Chapter 3

Changing Type, Form and Function

Chapter 3:

Changing Type, Form and Function

3.1 Introduction

> *"In the most 'advanced' industrial and post-industrial market economies, a vast range of socially and functionally differentiated building types exist, each classified according to a socially and culturally significant terminology. Thus, the catalogues of contemporary architectural libraries will list over 1,000 terms (in English) describing identifiably different building types .... it is assumed that building types may be explained primarily by reference to the prevailing mode of production (or system of economic organisation and political control), whether this is peasant agriculture, early industrial capitalism or state socialism, but also by taking note of historical and cultural variation at different times and places. This probably provides the most effective starting point for understanding the social contexts in which buildings are produced."* (King, 1993:118)

The purpose of this chapter is to explore the theoretical issues of the second objective by examining the relationship between, and the effect of, building type, form, function and aesthetic meaning on the adaptive reuse of redundant buildings. The aim is also to illustrate how these particular elements interact at the macro level with socio-economic and political issues regardless of their contextual location.

The construction of this chapter focuses on type, form and function whilst maintaining a pluralistic perspective on the topic. Due to the diversity of material on the theory of architectural design, section 3.1.1 provides an insight of the rationale for this theme adopted by the author. Section 3.2 then considers why the act of classifying buildings into fixed typologies in itself creates problems when applied to adaptive reuse. The analysis continues in section 3.3 by exploring the changing aspects of building type in relation to the form, functional use and the symbolic meaning of a building in order to establish where the theoretical areas of divergence between the approach to design and re-design lie. From these wide-ranging, generic concepts a more precise vehicle is required to synthesise all the issues of the debate into a coherent body. Hence, section 3.4 explains the use of function analysis methodology as an alternative approach to combine the functional theme of educating children with the architectural theme of adapting buildings for that purpose.

Section 3.5 then selects a specific type of building and a clearly defined function for further development. Identifying the former as 'Primary Schools' and the latter as the function of 'educating children', this section examines the meaning of 'school'. Through historical precedence, the analysis of literature and current debate the study shows how social, political and economic factors influenced the design of school buildings and how this relates to the evolution of the form and function of 'school' as a building type. The purpose is to provide a better understanding

between the correlation of the function and the resultant physical solution that developed for satisfying that function. Section 3.6 summarises the key issues developed in this chapter. The final section then outlines the rationale for the contextual analysis that provides the vehicle for examining these factors in a specific location.

3.1.1 Heroes, Heretics and Quiet Revolutionaries

> *"It is the job of practitioners to do things well and not necessarily to be able to explain either to themselves or to others how their solutions are successful, and it is the job of theoreticians precisely to be able to explain the general principles which seem to differentiate between good and bad solutions ... the gap in thinking between them is substantial indeed."* (Markus, 1979: iv)

That a healthy difference of opinion can exist between theoreticians and practitioners in itself can provide the impetus for innovative design appropriate for the changing needs of society. In the past the principles of design evolved in terms of eras. When making design decisions, solving problems or writing about buildings and theoretical principles, the architects, designers, practitioners and academics faced complex issues. The principles that existed at the particular moment in time provided established guidelines for the professionals to follow. Given the choice of 'going with the flow' of the established opinion versus making a controversial stance against the current trend, only a few chose the latter.[1]

From the 1960's not only was acceptance of the *status quo* fragmenting by society in general but also the gap in opinions began to widen within the architectural profession as the following quotation illustrates:-

> *"At the School of Architecture at Berkeley the utopian liberalism of Christopher Alexander was .... attacked at every opportunity by the Marxist methodologist Horst Rittel. The tension and creative friction between these ideological polarities was to recur and recur in Duffy's research and writings."* (quotation by Hannay in Duffy, 1992:3)

This emphasises the impact that theoretical principles had on each emerging generation of architects. Design was still influenced by the current ideology that was perpetuated in the academic training of architects[2]. Failure to comply was unacceptable. Moreover, these theoretical principles were aimed at the design of new buildings not to adapted buildings, and since the latter could not comply with these principles, the mismatch between the two became greater.

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[1] For example, various works by Rossi, Portman and Venturi were regarded as controversial in many schools of architecture at the time they were written. It was not until the late 1970s that their works were fully appreciated and received due recognition.

[2] In the 1960s and early 1970s students were expected to produce designs in keeping with the Modernist concepts. Corbusier, Mies and Wright were considered as the *'White Gods'* and *'Silver Princes'* (Wolfe,1983), whilst the mention of Portman was taboo. As recently as 1989, Wolfe's text (1983) was banned from the architecture library at Nottingham University.

One explanation for this cleft is the fact that the opinions expressed are generally the passionate convictions of those architects (either academics or practitioners) who feel fervently committed to write about the subject in the first instance. As such they could be described as activists representing the more extreme ends of the debate compared to the silent majority of architects. Acceptance or rejection depended not only on what they wrote, but also **when** they wrote it. Opinions expressed and applauded by society at any given moment in time may subsequently be suppressed or disparaged as reactions to various movements in architectural history have shown. As the subsequent chapters in this study will reveal, *"Proponents of cultural revolutions always wish to set themselves apart from the past, in order to highlight the novelty of their ideas"* (Gelernter, 1995:278).

Another contributing factor is the thought process itself. The apparent inconsistencies may depend on whether the author tends to be a more left brain or right brain thinker.[3] An analytical and logical thought process that would be expected of a theoretical methodologist or academic is indicative of a left brain approach. The process of creative designing and lateral thinking required by architectural practitioners indicates a right brain approach. This is illustrated in Table 3.1 by adapting Sommer's (1989) explanation of Sperry's theory. However, not only do opinions differ between the 'boxes', but they also differ within the same 'box'. Also an individual's thought process can move from one 'box' to another at random, so that the process itself is never constant.

Table 3.1 The Four Types of Decision Making Using Left and Right Brain Theory

Left Brain only	Left Brain +Right Brain	Right Brain +Left Brain	Right Brain only
Analytical	Analytical then Creative	Creative then Analytical	Creative
Theorist	Academic involved in practice	Practitioner with academic interests	Practitioner

Source : based on Sommer (1989) adapted by author

Conflicting opinions are not only confusing but also depend on the observer and the point in time they were expressed. The latter part of the twentieth century saw changes in design at an increasingly rapid rate. The plethora of *"isms"* that emerged created confusion as the philosophical principles of each new approach appeared to contradict one another. The important positive outcome of this was a more pluralistic approach to *"Design"* - meaning not only the liberating of the principles of design for new buildings, but also the acceptance of design as an integral part of the recycling of redundant buildings. Nevertheless, in parallel with this more open theoretical debate in mainstream architecture came the realisation of the lack of a theoretical foundation in the approach to adaptive reuse. Hence the topic of building type[4] and the relationship between type, form and function provides a suitable foundation on which to develop a focus for adaptive reuse. These aspects are reviewed more fully in the following sections.

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[3] Roger Sperry won the Nobel Prize in 1971 for his theory on Left Brain/Right Brain thought process.

[4] Gelernter (1995:14) outlines the Theory of Type as a subject in its own right. Rossi (1982:40) considered that *"type developed according to both needs and aspirations to beauty .... the concept of type thus became the basis of architecture."*

3.2 Understanding Building Typology

> *"The typological habit of classifying architects' plans has enriched and informed architectural history and architectural practice for centuries."* (Powell *et al*, 1998:92)

Whilst a pluralistic approach to the design of any building is both desirable and practical, as the above quotation suggests that at some stage of the process a form of categorisation is applied. Various different modes of classification such as style, function or method of construction are frequently used as a precedent. Hence, in selecting a focus for examining adaptive reuse the first consideration is the choice of building typology. The fact that the majority of literature on recycled buildings centres on the functional use does not in itself provide a verifiable rationale. Such a decision should be justifiable rather than arbitrarily based on the *status quo* since it forms a critical component of the investigation.

The purpose of this section is to give an overview of the rationale for categorising buildings by type prior to examining how the form and functional use of the building influence the classification of type. The remainder of the section explores the problems that this system of categorising creates in relation to the adaptive reuse of redundant buildings.

3.2.1 Little Boxes

> *"Design guides prescribe not for a building but for a type. They originate in the type plans described by Alberti and the Renaissance authors, and drawn in treatises such as Blondel's "Cours" (1771-7) and Durand's "Précis" (1802-9). .... Graphic 'texts' classify things just as do written ones and specifications, computer programs and Bills of Quantities.* ***The principles of classification are the rules used for deciding similarity and dissimilarity.***" (Markus, 1993a:19)

Starting with six of the more common categories of building classification and then adding examples to each of these, a matrix can be created as illustrated in Table 3.2:-

Table 3.2 Examples of Methods of Classification for the Analysis of Buildings

Function	Method of construction	Architectural style	Date of construction	Cultural setting	Land location
Housing	Framed	Modern	21st century	Western	Urban
Offices	Masonry	Classical	20th century	Middle East	Sub-urban
Industrial	Adobe	Gothic	19th century	Oriental	Rural
Educational	Timber	Renaissance	18th century	African	Coastal
Commercial	Prefabricated	Tudor	17th century	European	Island
Transport	Concrete	Medieval	16th century	Tropical	Mountain
Recreational	Mixed	Nomadic	15th century	Arabic	Desert
ADAPTABLE	SEMI- PERMANENT		PERMANENT		

This random selection of categories is not intended as a conclusive list as the purpose is to indicate the **range** of classifications possible and to show that the permutations available for selecting any combination of topics are of logarithmic proportions. Closer examination suggests that three of the above categories relate to the more permanent contextual aspects of architecture that cannot be changed, namely:-

Date of construction	=	Historical context
Cultural / Geographical setting	=	Social and ethnological context
Land Location	=	Physical and climatic context

Prior to building completion, the functional use, the architectural style, the choice of materials and the method of construction remain variable factors. Once built, the latter two categories also become permanent (albeit that some changes and additions can be made to these). Therefore, by a process of elimination, the only category that remains variable is that of the functional use.

When the building type is classified by its functional use the two components (type and function) begin to merge[5] but it is difficult to justify why such an apparently rigid concept should be based on its most variable element. This may not be a critical issue in the design of a new building since many theoretical principles are based on the evolution of form relative to function[6]. Some would argue that in fact it is a desirable aspect. However, as the following sections will reveal, a building's classification by its functional use creates problems when applied to adaptive reuse.

3.2.2 The Relationship between Type, Form and Function

> *"Because architectural typologies tend to concentrate upon classifying architects' plans rather than the patterns of use that the plans are intended to accommodate, [they] are particularly unstable, being constantly undermined by architects themselves as well as by the relation of architects to society ..... to the changing needs of the various individuals, organisations and institutions that use buildings."* (Powell *et al*, 1998: 92)

The first consideration is to understand why the above method of classification is the most commonly used by architects, academics and historians. In spite of the above comment, Powell *et al* (1998:92-97) emphasise that this *"kind of shorthand .... provides the basis for collecting comparative data about buildings and organisations"*. Markus (1993a:33) explains that *"even if buildings have clear meanings, we need to be able to place each unique experience into some kind of framework, a structure*

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[5] When precedent studies are used in teaching design to architecture students, examples are frequently based on the same functional use as the project given to the students. This creates confusion because it implies that type is synonymous with function.

[6] Although vehemently opposed to this concept Rossi (1982:47) does concede that *"functionalist theory is quite convenient for elementary classifications .... (as) it serves to maintain a certain order."* However, he then points out that *"if we begin with a classification based on function, type would have to be treated in a very different way."*

which makes sense at a more general level. This is what 'type' does". Viewed from the historical perspective, it can be said that:-

> *"The form-function relation was taken for granted in the Renaissance. The range of functional types was small and patronage stable. Purpose was defined in unambiguous, elementary and unchanging terms .... 'type' meant 'origin', archetype .... for Alberti, society was stratified and classified .... each class of people .... should have designated (for it) a different type of building."* (Markus, 1993a:33)

The origins of modern architectural typologies are attributed to the nineteenth century theorist Jean Nicholas Louis Durand. *"In the 'Recueil et Parallèle des Edifices en Tous Genres, Anciens et Modernes' (1801) Durand drew to a uniform scale examples of every functional type from all periods and places, using a standard technique for both plans and elevations"* (Markus, 1993a:35). This work was followed by a two-volume publication *'Précis de Leçons d'Architecture'* (1802-9) which *"led him to the conclusion that, if form followed function, an unforced aesthetic would result"* (Powell *et al*, 1998:93). Taken in the context of the Napoleonic programme of modernising France in which Durand was actively involved through training large numbers of architects quickly to complete a wide range of buildings, his rationale - that all useful building types already existed and that design evolved from the intelligent use of a pre-existing type - can be considered as both valid and practical. It was a strategy which would be echoed in the post World War II era of the following century.

Architectural education in the UK [7] from the 1950's through to the 1970's was influenced by:-

> *"Le Corbusier's idea of the 'fundamental premise', of an appropriate and fixed set of architectural solutions reflecting specific activities. For a generation of students .... **to reject the lessons of typology was to be doomed to waste time** and energy in continually re-inventing what already exists .... **design as the mutation of type implies useful continuity,** whereas a rigorous return to first principles at every opportunity risks casting the architect as an avant-garde practitioner ... rather than as a servant of society."* (Powell *et al*, 1998:93)

The form-function-type link was exemplified in the standard plan types produced by the National Building Agency (NBA) in the 1960's for public sector housing *"to facilitate what was then called 'system building'"* (Powell *et al*, 1998:93)[8]. The NBA's objective was to produce dwellings in quantity as quickly as possible and as such this method could be regarded as successful. The circumstances reflected those faced by Durand where the emphasis was on speed of construction rather than on the quality of design. However the sterile anonymity of these buildings was eventually rejected first by the public and then by the architectural profession. The form-function-

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[7] The Modernist Movement was also fundamental to architectural education in Cuba. However, in the 1950s the Cubans also embraced the North American approach in addition to the European influences, and from the 1960s onwards the architectural journals not only reported on the Western European trends, but also the Eastern block philosophies.

[8] It was the nomenclature used at this time that contributed to the misrepresentation of type. *"Type represents .... the idea of an element that must itself serve as a rule for the model .... The model .... is an object that must be repeated such as it is; type, on the contrary, is an object according to which one can conceive works that do not resemble one another at all .... everything is more or less vague in the type"* (de Quincy quoted in Rossi, 1982:40).

type link was beginning to weaken not only in housing but also in office and educational buildings as architects responded to the rapidly changing needs of society. The Expressionists were amongst the first to break with the functionalist tradition as designs became more fluid and individualistic. In parallel with the new wave of ideologies in the 1970s one approach promoted the idea that *"the designers and users [of the building] would eventually develop together the ideal solution"* (Gelernter, 1995:264). This led to the bespoke building designed to meet specific needs at a particular moment in time and consequently it did not allow for flexibility, future requirements or changes in circumstances. The idiosyncratic nature of the architecture lacked the continuity of form that masked the continuation of function as the dominant method of building classification.[9]

On the other hand, the new creative forms that evolved bore little resemblance to the traditional typological image that people were accustomed to experiencing, as Figure 3.1 illustrates. Yet society appeared to accept the changing iconography of the buildings in relation to their function. The relevance of this was critical to the continued growth of adaptive reuse of obsolete buildings because society was becoming accustomed to buildings whose form and appearance did not reflect their functional use. Type no longer related to Form, and Form no longer related to Function. Nevertheless, in terms of building typology, function remained the dominant factor in the classification of buildings.

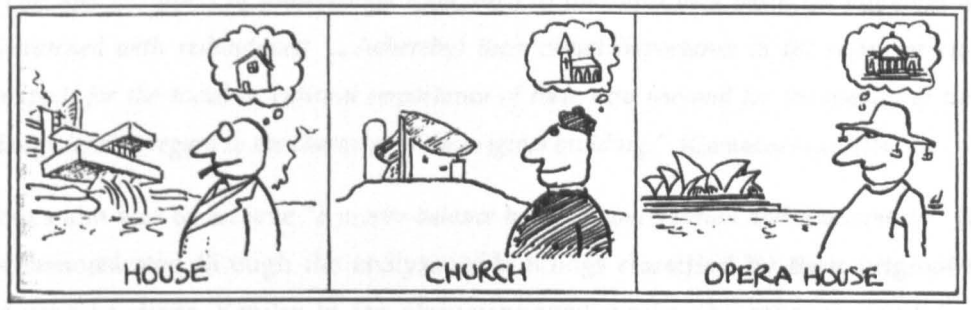

Figure 3.1 Mixed Metaphors
Source: Hellman, 1993:519

3.2.3 The Power of the Original Function

> *"Society sets the agenda and society moves on. Perhaps it is only architectural historians who, constantly looking backwards and untroubled by clients, can enjoy the luxury of believing that architectural typologies are in any way fixed."* (Powell *et al*, 1998:92)

The over-riding parameter for the type of building selected for study was that of the new function for a building. This represents a significant shift from the traditional approach to the subject because most writers are drawn to the classification of a building by its original use even when both the function and the building have become obsolete. The literature in this field concentrates

[9] Buildings were still referred to by their functional use, regardless of their physical form and aesthetic iconography.

on the functional type of the redundant building. A bibliography on adaptive reuse produced by Will (1979) lists almost seven hundred references under seventeen main classifications **according to the original use** of the structure. Some sections relate to precise individual uses such as banks, mills, railway stations, residences and theatres, whilst schools and other educational buildings are grouped together in another single section. The section entitled 'public buildings' covers a range of buildings with different uses such as courthouses, fire stations, post offices, city halls and jails.

Some authors prefer to concentrate on a specific building types; for example, Binney *et al* (1990) address industrial buildings, whilst Burchell & Listokin (1981) concentrate on municipal properties, and Kincaid (1997), Nutt (1997) and Gause (1996) all focus more on the commercial sector. Other authors select a range of typologies; for example, Cunnington (1988) covers farms, windmills, industrial buildings, large houses, schools, churches and hotels; Schmertz (1982) analyses a selection of civic and cultural buildings, offices, restaurants, and residential buildings. **In all these cases the selected type represents that of the original functional use of the building.**

The powerful influence that the existing function has, in spite of its obsolescence, is exemplified in the following brief analysis of two publications that involve the same author; first Cantacuzino (1975) and then Cantacuzino and Brandt (1980). The earlier work relates to:-

> *"One specific aspect of conservation - the need to find new uses when old buildings are threatened with redundancy ....(whereby) their visual importance in the urban or rural context, for the social or cultural importance of their new use and for the quality of their design having regard to the character of the original building."* (Cantacuzino, 1975: ix)

The author's aim was to achieve *"a proper balance between conservation and development"* (1975: vii) which is demonstrated through the analysis of buildings **classified by their original function** under specific headings. Similar to the aforementioned works, the rationale for this selection appears to be more subjective than objective. Nevertheless, the focus is clear.

The dilemma becomes apparent in the 1980 publication by Cantacuzino and Brandt which stresses that the focus is on the **new use** of the building. Three chapters are identified as -

Conversions **to** culture uses;

Conversions **to** commercial uses; and

Conversions **to** housing.

The emphasis clearly appears to be directed to the new use. However, the subsequent analysis under each of the above heading reverts back to the type of the original function; for example: - the new gallery for a collection of Greek and Roman antiquities and English watercolours appears under the title of "Old Speech Room, Harrow School Middlesex." With the exception of a short paragraph on the new use, the analysis is the identical format that Cantacuzino used in the 1975

work[10]. With respect to churches and railway stations the focus is not on the new use since, in the opinion of the authors, *"such specific building types .... justified the change of emphasis to their original use"* (Cantacuzino & Brandt, 1980: ix). The argument for these two categories being singled out as unique is questionable since the same rationale could be applied to many other building types that have a very specific function, as suggested by Farmer (1993b:159-165). Nevertheless it shows that the original function and type remain dominant even when authors make a deliberate attempt to focus on the new use of the buildings.

3.2.4 Understanding the Dilemma

> *"No typological system, physical or social, is ever complete or stable .... all such formulations are only useful if they are considered, in an environment of change, as inherently dynamic and open-ended."* (Powell *et al*, 1998:96)

As the preceding sections have illustrated, there is a reluctance to change the categorisation of buildings after they have been adapted. It is the fixation with the classification of the original type that poses a dilemma in the effort to establish a theoretical foundation in this subject. Apart from the conflict imposed by type, the dilemma also occurs at the functional, symbolic and linguistic levels. Regarding the latter, this is evident in the semantic approaches to the topic.[11] The two prepositions, 'of' and 'for' signal the direction of the focus:- for example, adaptive reuse **of** industrial buildings and new uses **for** old warehouses both expressly imply that the text concentrates on how the original building is to be changed. The starting point is the existing building and the new function emerges as a resultant factor, not the instigator of the project.

Other examples of the linguistic dilemma are based on personal experience. First, the Department of Architecture in the University of Huddersfield is located in a four storey adapted Victorian woollen mill. When returning from an off campus site visit students were asked where they were going. The replies varied as follows:- *"going back .... to the Department"*; *"to the studio"*; and *"to work"*. Nobody said they were going to 'the mill'. Everyone made the association with the new use of the building rather than the obsolete function. However, when asked to give new students, who had never visited the campus, directions on how to get to the Department, the description included phrases such as; *"it is in .... a large Victorian stone building"*; and *"a four-storey stone mill"* which indicated that the non-user of the building recognises the visual image of the building type, rather than its new function. Furthermore, local inhabitants who remember the building as a working mill, still refer to it as "the mill" but sometimes they add, *"it's part of the university now"*. Identification of the building type therefore appears to vary according to familiarity.

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[10] The analysis is carried out under the sub-headings of:- New Use (described in just two sentences), Architect, Client, Site, History, Character, Work Done, Accommodation, Date of Completion and Cost (Cantacuzino & Brandt, 1980:45).

Another illustration is demonstrated in the following encounter that the author had with a student who complained that he was unable to find a building in the UK to use as a precedent study for a film school. When asked if there were any film schools in Britain, the student replied that there were several before quickly adding, *"but they are not film schools."* The discussion revealed that all the film schools were located in buildings that had been adapted for that purpose. The student's dilemma lay in the fact that the form did not reveal the function, and therefore (in his opinion) the building type did not exist.[12]

Finally, in discussions concerning this thesis with both architects, academics and architectural research students, the author found that almost everyone thought that the type of buildings surveyed were schools, as opposed to houses converted for use as primary education. Yet again it was assumed that the function, form and type were all the same.

> *"Functions ... speak about society. The abstract, socially-formed language .... became concrete in spaces and in* ***their labels*** *which often* ***stand for both space and use****; 'choir' and 'law court' are both places and institutions."* (Markus, 1993a:12)

This inability to separate type from both the existing form and function is a major stumbling block in the approach to adaptive reuse. The problem appears to lie in the way that architects and academics classify buildings at the outset of the design and these labels remain permanently attached to the original building form and function.

3.3 Form Reformed; Function Transformed

> *"The successful adaptation of many old buildings has demonstrated that the same form can accept widely different functions."* (Napper, 1993:157)

Although the above quotation accurately expresses the physical reality in respect of the recycling of many redundant buildings, it still does not answer the key question raised by Markus:-

> *"Once the material is assembled, its analysis starts from a set of questions. In the instance of the monastery converted to a courthouse, who defined the first function? Who, and by what authority, transformed it? What physical changes were needed? Who named the functions? And* ***what does it mean if a building designed for the first function was capable of being used for the second?"*** (Markus, 1993a:12)

This section will illustrate how the plethora of predetermined paradigms upon which the design of buildings is based, poses a major stumbling block to the formation of a rational philosophical and theoretical approach to adaptive reuse. Buildings can alter to accommodate changing social,

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[12] The influence and role of language in functional classification and building typology is analysed by Markus (1993a).

political and economic factors, but confusion and contradiction occurs when a building is adapted for a different function from the one for which it was originally designed. The aim is to explore the question raised by Markus in an attempt to find out what it means, in terms of the approach to architectural design, when a building is transformed.

3.3.1 Aspects of Changing Form

> *"The idea of signature architecture as lasting for ever - monolithic and immune to the forces of change - has been exposed as impractical and irrelevant."* (Powell *et al*, 1998:10)

The above quotation reflected the change in attitude of the architectural profession from that of previous generations. In contrast to these views, Alexander's statement that, *"those of us who have trained as architects have this desire .... that one day, somewhere, somehow, we shall build one building which is wonderful, beautiful, breathtaking, a place where people can walk and dream for centuries"* (Alexander, 1979:9) seems out of context in the rapidly changing world of the twenty-first century.[13] Powell *et al* (1998:41) attributes this to the fact that, in the 1970s *"lingering fragments of Modern Movement ideology .... continue to provide some kind of intellectual underpinning for the persistent architectural habit of attempting to coin each building as the complete, timeless expression of a single mind,"* adding that:-

> *"It is chilling to see how Arts and Crafts, the Modern Movement, Neo-Rationalism, Classical Revivalism, the New Vernacular, Post-Modernism, Deconstructivism, all these passing architectural cults, share* ***the same disregard for accommodating change,*** *artistically, practically or intellectually."* (Powell *et al*, 1998:41) [14]

On the one hand the post-war era had experienced the Modernist method of demolishing old, yet often sound and well-loved buildings to make way for new comprehensive redevelopment of the cities. On the other hand, adaptive reuse had been a traditional way of making use of existing resources when the function of the buildings had become obsolete. Few buildings are destined to last for centuries and those that do are often subject to change.[15]

> *"The context within which buildings, people and organisations are placed is constantly changing. But the change has several parameters that affect this trio of the building/activity system in a multitude of ways.* ***Not everything changes at the same rate*** *or is affected by a context change in the same way. Neither the frequency, magnitude nor duration of change*

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[12] It was interesting to note that when the student was asked where he was, he replied *"in the studio"*; at which point I reminded him that the School of Architecture was located in a converted textile mill.

[13] Caudill (1971) had acknowledged that the future of architecture lay in the team rather than the individual.

[14] Powell *et al* (1998:41-42) attributes the reason for this attitude to economic factors, particularly the way in which architects fees are paid. He explains that *"the apparatus of an architect's appointment, building contract, fee scale, plans of work ... over the last 150 years has always tended in one direction: towards the inevitable acceptance by architects of the one-off building as a conveniently packaged* ***complete and time-less entity*** *.... Change is difficult and expensive to respond to and therefore it must, wherever possible, be eliminated."*

[15] *"Buildings and larger social and spatial divisions of society, are constantly subject to change, reconstruction and subjective redefinition"* (King.1993:120).

have constant dimensions across different situations. Since change is something we all observe ..... it is largely a subjective notion .... whether it is a large or small change, a good or bad change." (Aylward, 1979:1)

The way that the form of a building changes in respect of time was a topic that was investigated by Francis Duffy (of DEGW) in the early 1970s. Publications related to this theme followed in 1989 (The Changing City), 1992 (the Changing Workplace) and 1993 (The Responsible Workplace). Although the latter two works are specifically related to office buildings they provided the inspiration for Brand (1994) to explore the aspect of changing form in more detail. Duffy had originally conceived that a building comprised *'several layers of longevity of built components'* (Duffy, quoted in Brand, 1994:12). He distinguished four time-specific layers:-

a) Shell – the structure of the building – with a life span of 35 to 50 years.[16]

b) Services – electrical; plumbing; air-conditioning; lifts –to be replaced every 15 years.

c) Scenery – interior partitions; suspended ceilings –to be changed every 5 to 7 years.

d) Set –furnishings and movable items – that can change on a weekly or monthly basis.

Later, Duffy revised the layering system to include location and site resulting in six elements that he renamed, Location, Site, Shell, Services, Setting and Workstation (Duffy *et al*, 1993:18-19). These were established to differentiate the time and space scales applicable to office buildings and to the US culture although Duffy explains that this would probably only be extended slightly in the UK. Nevertheless the principle could be applied to buildings in other societies even if the numerical value in terms of years has to be changed to suit different cultures.

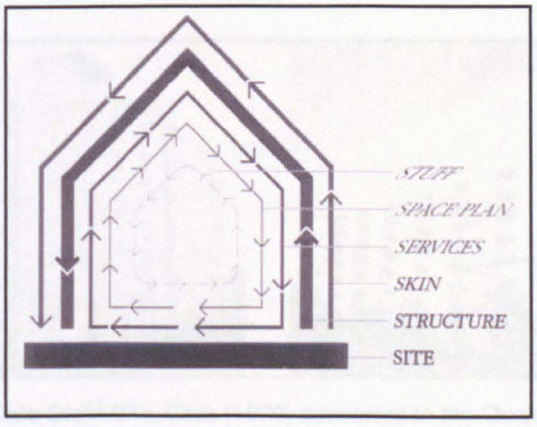

Figure 3.2 Shearing Layers of Change
Source: Brand (1994:13)

At the same time, Brand also expanded Duffy's original method of layering into six elements (Figure 3.2) that can be applied to a wider range of buildings. The main difference is the addition of **Site** as the physical location of the building that, in respect of time, *"is eternal"* (Brand, 1994:13). What Duffy described as the 'Shell', Brand split into two components of the **Structure**, meaning

[16] This again is related to Duffy's work on office and commercial buildings rather than public sector or religious buildings.

the load-bearing components that are expensive and difficult to adapt, and which have a life span of up to 300 years, and the **Skin**, meaning the external façade of the building, which he considered changed approximately every twenty years as illustrated in Figure 3.3.[17] Both Duffy and Brand explain the evolutionary process of change by revealing how the different components of a building's location, form and contents alter over various periods of time.

Figure 3.3 Changing Skin - The US Soldiers' Home, Washington D.C. in 1857; 1872 and 1910
Source: Brand (1994:19)

Adaptive reuse is a more radical approach when the function has become obsolete and the building is redundant, yet it is perceived as a valuable asset within the city. However, the empty shell presents a problem so a solution is sought regarding what to do with the building. If a new function can be accommodated within the structure, the first question to ask is, which components can change? Referring to Brand's schedule (Figure 3.2), the Site remains constant. Due to the function being obsolete the Stuff would presumably have been removed. Hence this leaves the Structure, (External) Skin, Services and Space Plan (or interior walls, ceilings, floors and doors) as the four components most likely to change. Given the possible permutations, this can result in either unnoticeable or dramatic changes to the overall form of the building. Adaptive reuse *"opens minds to formerly unthinkable possibilities"* (Brand, 1994:105) as Figure 3.4 illustrates.

Figure 3.4 Quaker Oats Grain Silo, Ohio (1979) converted to the Quaker Hilton Hotel (1990)
Source: Brand (1994:105)

"The best buildings are not those that are cut, like a tailored suit, to fit only one set of functions, but rather those that are strong enough to retain their character as they accommodate different functions over time." (Campbell & Vanderwarker, 1992:160-161)

[17] In this case, although the "skin" of the building has changed, the function has remained the same throughout.

3.3.2 The Contradiction between Type, Form and Function

> *"Architects unequivocally require the guidance of a theory when facing the complexities of designing a building, and so when one or another of these theories periodically rises to prominence and offers a direction to follow, architects usually embrace it with enthusiasm .... some .... accept the theory dogmatically, and follow it to the letter of the law .... [and] inevitably find themselves pursuing a narrow and unbalanced conception of design."* (Gelernter, 1995:22)

Architects, academics and student of architecture are faced with a plethora of theories that have been developed over centuries concerning the approach to the design of buildings. At the forefront theories about the form, function and meaning of architecture are perhaps the most documented and analysed. Although all three concepts are closely related to each other, for reasons of clarity this section concentrates on the first two, and the next sub-section (3.3.3) will focus on the aesthetic and symbolic meaning.

The Roman architectural theorist, Vitruvius (via O'Gorman in Frankl, 1914:vii) listed three main architectural design principles as: -

Firmitas	*the use of materials and structural technique in design*
Commoditas	*the accommodation of the building's use to its design*
Venustas	*the aesthetic and symbolic aspect of design* [18]

Representing the theoretical principles of the Modern Movement, Gropius implied that *"Firmness and Commodity **equal** Delight"* (Venturi *et al*, 1972:90), whilst Louis Sullivan's statement[19] that *"Form follows Function"*, suggested function was the key component and form was the resultant factor. In sharp contrast to this Rossi (1982: 41-61) rejects the concept that *"functions bring form together"* (1982:46) and argues that type constitutes form which precedes and remains independent of function. Furthermore, in his analysis of buildings as social objects Markus (1993b:18) reasons that *"there is no internal link, within architecture, between form, function and space."*[20] These five examples illustrate the diversity, inconsistency, contradiction and complexity that exist in the understanding of the relationship between these components.

The generations that followed Sullivan's concept interpreted 'function' solely as the activity that takes place within the building, rather than its broader meaning. A building can have many functions, one of which is normally the use factor, although frequently it is also expected to perform social, psychological and symbolic functions (Gelernter, 1995:3) as well as political,

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[18] According to Simpson (1959) the literal translations are: - *firmitas* = firmness, stability and constancy (1959:248); *commoditas* = proportion, symmetry and fitness of style (1959:120); *venustas* = beauty and attractiveness (1959:635). Sir Henry Wotton's translation "firmness, commodity and delight" is a better known version.

[19] *"The expression '**that form ever follows function**' was first used by Louis Sullivan (Sullivan 1896, quoted in Benton and Benton 1975:13)."* (Farmer, 1993b:165)

[20] Markus (1993b:16) relates **form** to the visual elements, and **function** to the use or purpose of the building, whilst **space** is defined as *"whatever is done somewhere: in a space which is related to all other spaces and outside."*

economic and cultural functions (King, 1993:118). Nevertheless, though **form** and **function** are regarded as essential concepts in the approach to building design, the degree of their interdependency varies significantly and they represents an area of contentious debate that is beyond the scope of this study.

In respect of adaptive reuse the question to be asked is:- What degree of influence does the existing form and function have with regards to the recycling of redundant buildings? To establish if some kind of pattern exists, three different combinations of form and use function were selected for examination:- The first is where the original form was specifically derived from the original function; the second is a form designed to suit a variety of unspecified functions; and the third is a combination of the previous two examples, where the form has been designed for a generic building type but in which the specific use requirements have not been prescribed.

Historically, the form of many buildings reflects their use function[21]. At one extreme end of the scale, Farmer (1993b) discusses how specific functions have generated unique yet universal forms such as lighthouses, windmills, fortresses and gasholders etc.. These are exceptions to the norm, representative of the bespoke building. The original function was the instigator of the design that resulted in a fixed form which satisfied the needs of that function. However, many of these buildings are now redundant due to political, economic and social changes that have rendered their function obsolete. Latham (2000a & b) gives examples of various unusual conversions such as:- water tower to a museum; water tower to a holiday home; cement silos to offices; prison to visitors' centre; bottle kiln to craft centre; pig pen to laboratory and surgery; power substation to graphic design studio. Despite the exceedingly prescriptive nature of their form various building types have been successfully adapted for alternative functions (Figures 3.5; 3.6; 3.7 & 3.8).

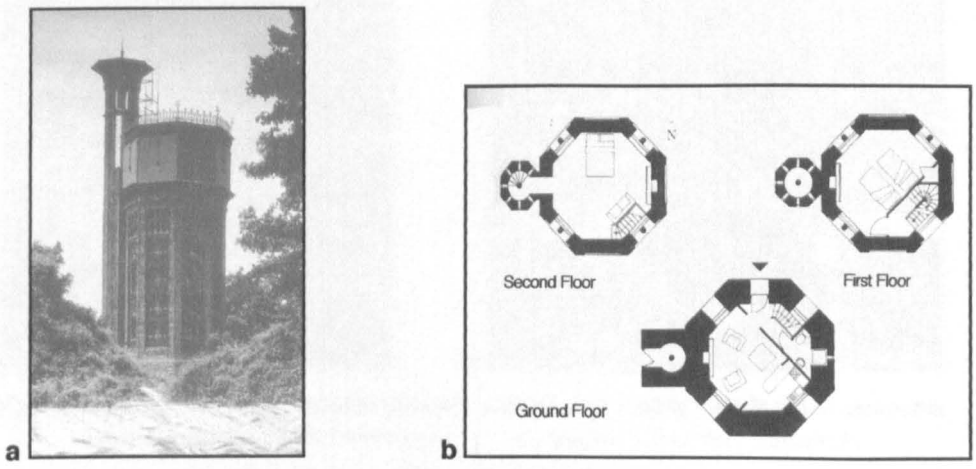

Figure 3.5 a) Converted Water Tower, Appleton, Sandringham.
b) Floor Plans of the Water Tower showing the holiday home layout
Source: Latham (2000a: 21)

[21] This does not mean that the image necessarily reflects the function although it often is implied.

Figure 3.6a Converted Power House, Stamford Brook, London[22]

Source: Latham (2000a: 25)

Figure 3.6b Converted 19th century Spinning Mill to University of Huddersfield

Source: Latham (2000b: 56)

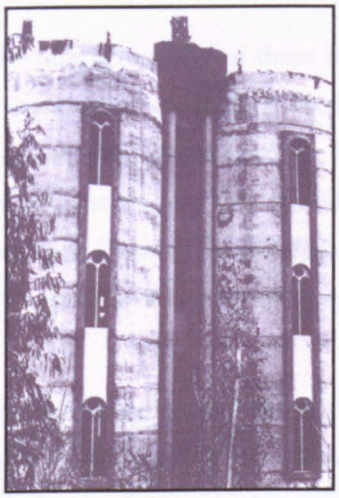

Figure 3.7 a) Cement Factory converted to office accommodation, Barcelona

Source: Latham (2000b: 157)

Figure 3.7 b) 19th Century Bottle Kiln converted to a Craft Centre, in West Hallam

Source: Latham (2000a: 24)

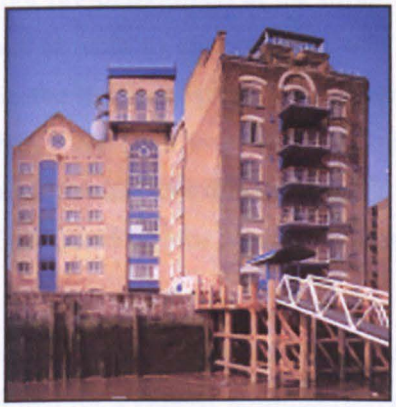

Figure 3.8 a) and b) Dockland Warehouses converted to Luxury Residential Apartments

a) New Concordia Wharf, Bermondsey b) Thames Tunnel Mills, Rotherhithe

Source: Binney *et al* (1990:38-39)

[22] The conversion was to a recording studio, offices, car parking and additional residential units created within the roof area.

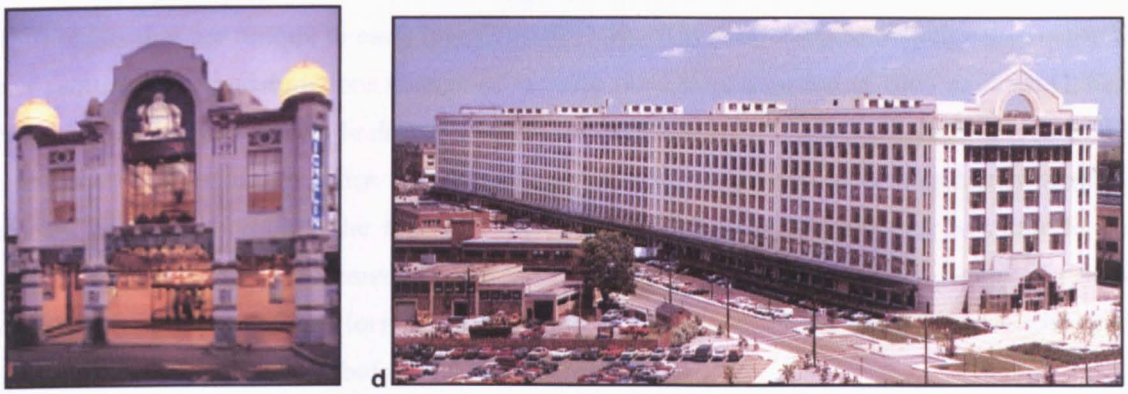

Figure 3.8 c) and d) Factories converted to Retail and Design Centres
c) The Michelin Building, Fulham Road, London d) The Boston Design Centre, USA
Source: Binney *et al* (1990:85 & 95)

Although the adaptive reuse of these buildings indicates that other functions can successfully be performed within that uniquely prescriptive form, due to the nature of these bespoke buildings their original use does not appear able to function properly in a different form[23]. In these instances the dictates of function are less flexible than those of form, even when the latter remains the dominant element. Rossi (1982:60) explains how *"we frequently continue to appreciate elements whose function has been lost over time: the value of these artefacts often resides solely in their form."*

Representing the other end of the scale, some buildings are only required to fulfil such basic functions as 'contain space' and 'provide shelter'. Given these parameters the most extreme design solution could be a simple shed or container. The evolution of the new business and industrial parks illustrates this principle. The result is an anonymous building for an unknown purpose. The building form provides a basic envelope (with services) for an unspecified client and a function that was not pre-determined at the design stage. In theory, it could contain a wide range of uses and should be able to change from one function to another. Yet the exclusion of this type of building in the literature concerning adaptive reuse suggests that their range of uses may be less flexible than their form implies.[24] The inference is that functional requirements are once again more stringent than those of form. Hence, this type of building may only be suitable for a limited variety of uses, and may be less flexible than its form implies.

The third scenario is best exemplified in the Bürolandschaft office buildings of the 1960s. These were designed for a generic administrative function but the open-plan form was deliberately non-prescriptive thus making it more of a 'high-tech' shed than the previous example. *"It took several years of reflection to realise the major intellectual flaw in arguments for office landscaping: **why**, if detailed analysis of particular organisations was so important, were all office landscapes the same?"* (Duffy,

[23] For example, an office building is not suitable for use as a cement silo, nor a house for a water tower etc..
[24] One explanation may be that these container sheds are a relatively recent building type that does not attract the attention of adaptive reuse authors. Another explanation may be that these sheds are reused without adaptation.

1992:81). Duffy intimates that successful design is achieved when the form evolves from a variety of functions that are unique to each specific project. But this does not acknowledge the reality that user requirements and functions change at varying rates over a period of time as Rossi (1982:60) states *"a function must always be defined in time and in society."* This hybrid attempt to reconcile the form-function dilemma in office buildings received only temporary success and was eventually rejected because it ignored the fact that the form needed to keep changing in order to meet fluctuating functional requirements[25]. The same fate was experienced in the design of primary schools, when the open-plan format was introduced in the early1970s to be replaced by a more traditional semi-cellular form before the end of the decade.

> *"A given form can be used for any function and, vice versa, a given function can take on any form. The relation is not contingent or immutable but the outcome of the specific historical narrative in which we, when we arrive, have a place too."* (Markus, 1993a:28)

Contrary to the above quotation all the examples indicate that the form of a building is more flexible than its function. Moreover with recycled buildings even though the basic form already exists it has been shown that this can be altered to accommodate a variety of different functions, but not necessarily every function. By comparison, even minor changes in functional requirements may involve major changes to the building form. Following the principle that form evolves from the original function, then theoretically it would be difficult to justify a completely different function within the original form. This would also contrast with the previous quotation that suggests **any form can suit any function and vice versa**. Yet it appears that a wide range of functions **can** be accommodated successfully even in the most prescriptive forms.

The confusion occurs because there is a contradiction between the accepted principles of design in respect of form and function for new buildings and in the approach to the recycling of redundant buildings. This in turn contributes to the **gap** in a philosophical rationale to adaptive reuse. The third component, the aesthetic and symbolic meaning of buildings, will be examined next.

3.3.3 Mixed Metaphors

> *"The language of architecture is not static.... (it) is not limited to symbols or signifiers but includes space, time, form, atmosphere, texture, colour and so on. Using this vocabulary a great architect can create poetry and evoke a spiritual response, whether dealing with a new or old building type."* (Hellman, 1993:519)

The aesthetic image or symbolic meaning is part of the function of a building. Up to the mid-twentieth century many building types were identifiable through the language of the building

[25] In 1980 I was an Architect in Sheffield City Council's new Bürolandschaft office building that was demolished in the late 1990s.

even if the style or period varied. The functional use of these buildings was symbolically represented more often in respect of power and authority than of the building form required to perform the function (Markus, 1993a). The use of iconography can be either obvious as in religious buildings, or more subtle and obscure as the following quotation explains:-

> *"Symbolism can be .... less than direct as a by-product of buildings which gives clues to the nature of society. Vernacular domestic building in villages and mass housing by totalitarian regimes not only provide different living conditions, they symbolise and signal cultures. .... **Symbolic appreciation is learned and is peculiar to a society rather than being universal.**"* (Farmer, 1993b:164)

Such a rationale creates another area of ambiguity because the implication is that architectural symbolism is closely linked to culture, yet the same author describes how *"many **building types** are generated by institutions (for example, the family, the economy, the law, political systems, education, religion and social stratification) - **varying again in form from culture to culture - but are common within all cultures**"* (Farmer, 1993a: 117). This implies that whilst form and symbolism vary from one society to another, some method of classification of buildings is common to all societies[26]. This line of thought substantiates the need for both the relationship between form, function, symbolism and type, and the proposed topic to be discussed in general terms in order to establish the rationale for the analysis in the chosen socio-cultural setting in subsequent chapters.

With regards to symbolism, the advent of the Modern Movement created confusion as it *"rejected the old language .... and sought to develop a new language based on 'functionalism ' and scientific rationalism .... [which] people refer to .... as 'faceless', 'inhuman' or 'alien'"* (Hellman, 1993: 518). It represented the language of the taught profession thereby dividing society into two tiers that was reminiscent of 14th century England under Norman rule[27], namely; those who understood, and those who did not. But new architectural semantics are absorbed by society similar to the ways in which Bryson (1990) details the development of language in any country over a period of time. Each new style that emerges adds to the vocabulary and like all dictionaries it contains both good examples and bad, the judgement of which is best made in retrospect.

The importance of image is reflected in the analyses of two contrasting writers, Venturi and Frankl. Venturi stated that:-

> *"Architecture depends in its perception and creation on past experience and emotional association and that these symbolic and representational elements may often be contradictory to the form, structure and program with which they combine in the same building."* (Venturi *et al*, 1978:87)

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[26] This is not to imply that all societies have the same or even all of these categories.
[27] *"Norman society had two tiers: the French-speaking aristocracy and the English-speaking peasantry"* (Bryson, 1990:46).

He perceived this as a contradiction that he separated into two categories - the 'duck' and the 'decorated shed'[28] although he stated that certain buildings could sometimes be both (Figure 3.9).

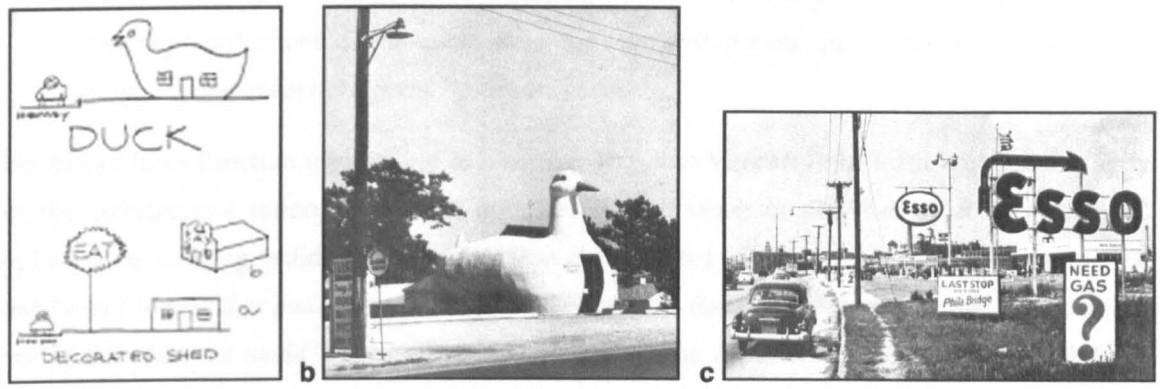

Figure 3.9 a) The Duck and the Decorated Shed
b) The Long Island Duckling
c) Road Scene from "God's Own Junkyard"
Source: a) Venturi, in Venturi *et al* (1972:65); b) Venturi *et al* (1972:65); c) Blake, in Venturi *et al* (1972:65)

With regards to adaptive reuse, Venturi's theory could be expanded to include a third category - the "**meta-duck.**" For example, on the University of Huddersfield campus there are two buildings; a church (whose form would represent a 'duck')[29] which has been converted to a discothèque, the identification of which is indicated by neon signage; and a Victorian textile mill (also a 'duck') which now houses the Department of Architecture, also only identified by a sign above the entrance. Neither of these buildings could be described solely as a 'decorated shed' as neither could be regarded as 'conventional shelter'. Nor can they remain as 'ducks' since the functional symbol they represented no longer exists. The contradiction results in the 'meta-duck'.

The historian Frankl also highlights the dilemma regarding change of use in the following description of a medieval monastery that was converted to a courthouse.

> *"If we study buildings of older cultures and find one lacking in original fittings .... our need* ***to know*** *something becomes still more conspicuous. The spectator who is without historical knowledge has even greater need for the right reference when confronted by a building* ***designed for an obsolete purpose.*** *He sees a great display of artistic forms but does not perceive why they exist .... they are mere ornament .... [but] as his historical knowledge grows, he can begin vaguely to reconstruct the essence of the building."* (Frankl, 1968:158)

Frankl found the functional change of the building disturbing in relation to its visual appearance. His perceptions may well have reflected the concerns of society at the beginning of the century

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[28] *"The* ***duck*** *is the special building that* ***is*** *the symbol ..... where the architectural systems of space, structure and program are submerged and distorted by an overall symbolic form [derived from the 'Long Island Duckling'];*
"The ***decorated shed*** *is the conventional shelter that* ***applies*** *symbols ... where systems of space and structure are directly at the service of program, and ornament is applied independently of them."* (Venturi *et al*, 1978:87).

[29] A cathedral represent the 'duck' but in some instances the facade is more akin to the 'decorated shed.' (Venturi *et al*: 1978:74)

which confirms the view that theories are dependent not only on the expertise of the writer but also on the period when they were written.

> *"Frankl's message is revolutionary in **placing function centrally into an analysis of meaning** together with spatial composition, the treatment of mass and surface, and the use of light, colour and optical effects."* (Markus, 1993a:27)

This theory links function with image in a similar way that Venturi links form with iconography. But the architectural rationale for both approaches to symbolism becomes confused when it is applied to an existing building whose function changes but whose form remains the same. *"The symbols and images that buildings provide form the basis for the lexical concepts by which people make sense of their material world"* (King, 1993:119). However, the exponential rate of 'change' that has characterised all aspects of life in the twentieth century, is now more readily accepted by society, and the examples in section 3.2.4 also demonstrated that the users of an adapted building appear unperturbed by these changes.

Whilst society in general does not appear to have a problem accepting either the changing function, form or image of a building, it seems that any attempt by the architectural fraternity to agree on a philosophical approach to the relationship between recycled buildings and form, function and aesthetics is fraught with difficulty as confusion and contradiction of established principles abound. This may account for the *"dearth of literature"* (Will, 1979:3) on the topic, and explain the concentration on the more practical or methodological approaches to adaptive reuse.

3.3.4 Separating Type, Form and Function

> *If all the buildings studied in this research were originally designed as houses, but are now currently used as primary schools, which typology is the focus of the study? – schools or houses?*

Based on the evidence established in the preceding sections, the anticipated answer to the above question would probably be housing, because this represents the form and function of all the buildings surveyed and the analysis explains how these houses are currently used for educational requirements. However, since the functional use no longer exists, it is not necessary to study the functional typology of the redundant building.

When a client wishes to re-use a derelict building for a new purpose, the architect's design criteria, the space requirements, the ambience of the environment, the background research and the technical specification must aim to meet the standards and regulations in respect of the new function. In this respect *"there is no inherent difference between the methodologies relevant to the design of new buildings and to the re-design, conversion, or 'design-in-use' of existing buildings"* (Maver, 1979:12). This might be considered an over-simplified opinion as most architects who have carried

out work on adaptive reuse projects would argue that unforeseen complications inevitably arise, and that relaxation of codes and variations to space standards have to be evaluated, all of which are reflected in the higher fee for renovation work[30]. Nevertheless, the fundamental principles and procedures are the same. The preservation or conservation of any existing features or character of the obsolete building is a secondary issue, which is not to imply that it is not important (and sometimes essential or desirable) but that it is not the focus. In the same way that the site forms part of the context for a new building, the existing shell of the redundant building forms part of the context within which the architect designs the new spaces. Consequently the revised form results in what was previously described as a "meta- duck". The ambiguity is in the mind of the beholder who is either ambivalent towards the changes or, due to familiarity and memory of the original image, is confused by the functional metamorphosis.

The reasons for the ambiguity and confusion are explained by Markus (1993a:30-33) in his analysis of form, function and space relative to the meaning each has in the field of social relations. He uses two useful examples to show how 'meaning' changes to illustrate this point. The first involves the conversion of a monastery to a courthouse and concert hall which he considers to be an 'acceptable' transformation.[31]

> *"The form and space, material properties, remained virtually unchanged. The shift of function to a new use, representing new social relations with new meanings, 'drags' form and space with it to a newly convergent point. The fact that the church may continue to carry echoes of worshipping .... might serve a useful ideological purpose .... but it is seen as a new place. The meaning of its forms and spaces is transformed and the word 'courthouse' adequately defines it."* (Markus, 1993a:31)

By way of contrast the conversion of the ancient abbey of Fontevraud to a prison Markus reasons that, *"when such a splendid building is used for a squalid or oppressive purpose, the meaning of its function may refuse to converge with that of its form and space .... we find it difficult or impossible to accept that this is a prison. There is a contradiction .... things are not what they seem or feel to be"* (Markus, 1993a: 32). He then draws the analogy of the way we respond to someone's words that are contradictory to their gestures and facial expressions to reach the conclusion that the gap in understanding the meaning ranges from *"simply puzzling"* to *"bizarre or meaningless"* (Markus, 1993a: 32). Based on this argument as well as on historic precedent, the transformation of a house to a school would seem to be acceptable for reasons that will be explained in section 3.5.

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[30] The indicative percentage fee scales recommended by the Royal Institute of British Architects (RIBA) are graphically illustrated under two headings:- for new works and for works to existing buildings (RIBA, 1996:6). Using a primary school, which is Class 3, as an example the difference in the architect's fees as a percentage of the total construction cost is as follows:-

Construction Cost	£100,000	New work = 7.5%	Adaptation = 11.4%
Construction Cost	£500,000	New work = 6.5%	Adaptation = 9.8%
Construction Cost	£1 million	New work = 6.2%	Adaptation = 9.4%

[31] Frankl (1914:158) considered the transformation of this example disturbing rather than acceptable (see section 3.3.3).

There are valid reasons for selecting the existing use as the starting point for investigation since the majority of studies employ this stance, but it is not necessary to understand how to design a house. However, it is important to understand the fundamental principles of the design of educational buildings as this forms the start of the new project that culminates in a school as section 3.5 will illustrate.

Responding to the query *"What does it mean if a building designed for one function is subsequently capable of being used for a different function?"* this section has not given a conclusive answer to a question that implies that there should be a logical explanation, but has identified some of the factors that have created the dilemma. A parallel could be drawn between the development of language and architecture. In spite of the efforts of academics and theoreticians to establish rules, regulations and formulae to control, simplify and facilitate a logical form of development that each should take, in the end both are moulded by outside forces; social, cultural political and economic. Hence the successful change of function of a building simply means that the established principles of design have been abandoned and the rules have been broken. As with language, the theory can dictate the form, or a new form can determine a different theory and both will change over time. Having attempted to resolve the dilemma in this section by focusing on form the debate will now continue in the following section by focusing on function.

3.4 Function Analysis Approach

*"Start with .... picking the best **building** for a particular use,*
*"Start with .... finding the best **use** for a particular building."*
(Eley & Worthington, 1984:51)

Matching a new function with a redundant building is an important element in the adaptive reuse process. The strategies adopted for a project are either to start with the building or start with the use. The aim of this section is to demonstrate how function analysis methodology[32] can enhance both the architectural aspect of adaptive reuse and the functional theme of educating children.

The function analysis stage of a Value Study frequently reveals that most designers concentrate on the building rather than the function for which that task was intended. However, the function analysis approach first establishes exactly where the focus should be and what is the actual scope of the task or problem to be resolved. The next two sub-sections (3.4.1 and 3.4.2) demonstrate what happens when designers concentrate on the task to be performed rather than the function for which the task was intended. This is followed by an actual case study to highlight the anomalies that can occur. Section 3.4.4 then examines the educational theme in functional terms.

Finally, section 3.4.5 demonstrates how starting with function rather than the product or building, not only increases the number of solutions possible but also provides a suitable alternative approach to the process of adapting buildings.

3.4.1 Starting with the Task or Product

Knowledge can both enhance and inhibit the design process. Function analysis eliminates preconceived solutions to the process of resolving a problem. It does this by focusing on what an item, product or service **does**, and what its purpose is. Once this has been established the next stage is to find alternative ways of fulfilling that function. The following example illustrates what happens when this is misinterpreted and when the designer continues to focus on the product rather than the function.

In an exercise concerning the design of a kettle, Alexander (1964:60) lists all the functions (twenty-one in total) that a kettle is required to perform in order to be considered successful. However, instead of looking at new ways to satisfy these functions, he reverts to a discussion on how the design (or redesign) of the kettle could be improved. The only solution can therefore be variations of the original kettle as *"his list presupposes previous experiences with existing kettle design .... (that) have provided him with the concepts necessary to structure his solution"* (Gelernter, 1995:273). It could be that a kettle is not the most suitable product for performing the functions required. Using functional analysis methodology the focus would only be on the functions so a broad range of solutions (possibly a hundred)[33] would be expected, one of which may be a type of kettle.

3.4.2 Why not to start with the Building

> *"Buildings, and the larger built environment of which they are a part, represent a given social order and the way that economic, political, cultural and social power is distributed within this."* (King 1993:118)

The creation of a building can be regarded as the solution to a need, whether that be a social, cultural, economic or political need, or any combination of these. King (1993:118) succinctly lists the functions of a building with respect to these four areas in verb-noun[34] format (see Table 3.3). In the case of a redundant building most of the original functions have become void but some functions will remain, for example: - the empty shell may still 'define space' or 'provide shelter';

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[32] The standard methodology used here is recognized by all the national value analysis institutes in America, Europe, Australia, and Asia as detailed in Dale (1993).

[33] For example, in a Value Study on the design of low-volume road bridges the team produced 112 different ideas for the construction of the bridge. This was eventually refined down to 34 recommendations (Gangarao *et al*, 1988:1962-1977).

[34] Functions must be described in two words: a verb = describing 'what does it do?' and a noun = describing 'what does it do it to?'

the facade may continue to 'embody history' or 'symbolise meaning'; and the floor plan still 'occupies land'.

Table 3.3 Society's Influence on a Building in Function Terms

Social Functions		Cultural Functions		Political Functions		Economic Functions	
house	institutions	store	sentiment	represent	authority	house	activities
provide	shelter	symbolise	meaning	symbolise	power	occupy	land
support	relationships	embody	history	create	(political) resource	create	work
express	(social) divisions	express	identity	create	arena for conflict	provide	investment
permit	hierarchies	**convey**	**heritage**	**inculcate**	**ideology**	store	capital
embody	property relations	**communicate**	**culture**	**construct**	**society**	**develop**	**economy**
express	status / identity			**eliminate**	**inequality**	**increase**	**wealth**
improve	**standards**					**improve**	**standards**

Source: based on King (1993:118) adapted by author

By using the building (rather than the use) as the starting point, it is possible to create a Technical FAST (function analysis systems technique) diagram in simple generic terms based on Kaufman's Intuitive Logic diagram (Kaufman, 1986:3-10) as illustrated in Figure 3.10.

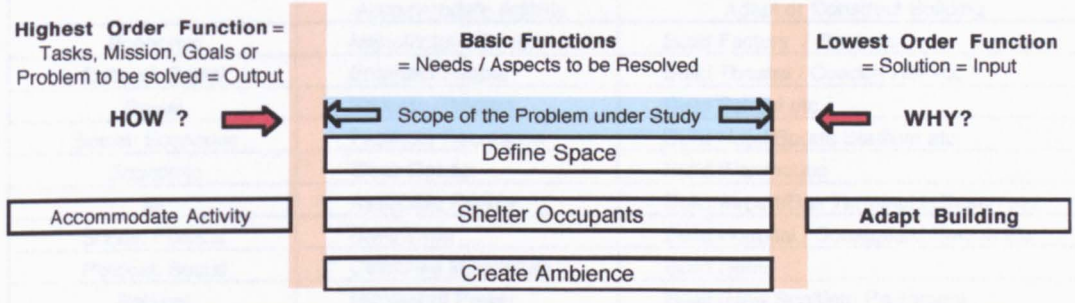

Figure 3.10 Simplified Technical F.A.S.T. diagram for a Building

In this scenario the **building** (the starting point and a constant), is the Lowest Order Function that *"represents the input side that 'turns on' or initiates the subject under study"* (Kaufman, 1986:3-5). The Highest Order Function (the objective, task or mission) is to "Accommodate Activity". All other functions (basic or support) lie between these two functions and are therefore within the scope of the investigation. As this example does not have a specific context the functions shown represent the minimum overall needs. The relationship between the Highest and Lowest Order Function can be understood better by substituting known functions which can be related to the influence of society, as Table 3.4 illustrates.

From both Figure 3.10 and Table 3.4, two fundamental principles can be established:-

1. The **building,** as the Lowest Order Function, is not within the scope of the problem. Also, because *"the only reason a lower level function has to be performed is because a higher level function caused it to come into being"* (Snodgrass & Kasi, 1986:39), it should be a **resultant factor** representing the solution of the Higher Order Function and it would normally be a **variable**. If the Lowest Order Function is predetermined (as in the above instance) the only way to resolve the

problem is to keep asking the 'question – "why adapt the building?" This approach of effectively starting with the solution and working backwards to the goal could lead to dubious results, as sub-section 3.4.3 will illustrate.

2. As the Highest Order Function is the goal, problem, task or mission to be accomplished it is normally regarded as a constant or fixed element. In practice the construction of the FAST diagram starts at the left hand side, usually with the Basic Function, and moves towards the right finishing at the Lowest Order Function. Using this approach the solution cannot be predetermined and in many instances surprising and innovative results are achieved. In the case of the Highest Order functions listed in Table 3.4, all of the functions could be accomplished with alternative solutions to that of constructing a building.

Table 3.4 Examples of the Influence of Society on Highest and Lowest Order Functions

Influence of Society	Highest Order Function = Task	Lowest Order Function = Solution
	How ? ⇨ Accommodate Activity	⇦ **Why?** Adapt or Construct Building
Economic	Manufacture Goods	Build Factory / Plant etc.
Cultural: Social	Entertain People	Build Theatre / Concert Hall etc.
Social	Educate Children	Build School etc.
Social: Economic	Facilitate Recreation	Build Hotel/Sports Stadium etc.
Economic	Store Goods	Build Warehouse
all	Assemble People	Build Airport/Bus Terminal / Church etc.
Social: Political	Save Lives	Build Hospital / Coastguard Station etc.
Political: Social	Celebrate Millennium	Build Dome
Political	Represent Power	Build (New Scottish) Parliament

The first task therefore is to list all the verb-noun functions and then assembles them in the correct how-why sequence so that the diagram reads in both directions. The FAST diagram is a means to an end (finding the real purpose of the exercise). It can vary considerably according to the information available, the skills and knowledge of the team involved in assembling this information and indeed, the desired outcome, as will also be shown in the next section.

3.4.3 Building Backwards

The shift of focus is best understood in the following study of a Coastguard Station built in Stornoway.[35] The technical FAST diagram produced in Figure 3.11 shows the Highest Order Function (i.e. the mission of the Coastguards) was to "save lives" and the resultant Lowest Order Function was to "build station" (Dale, 1994:207). The purpose of the study was to analyse the value of the station, which had already been built, so the Lowest Order function became a fixed constant. The Basic Function of the Coastguards is to "rescue people", so that also was a constant.

[35] The author was the facilitator for a Value Study at H.M.Coastguards HQ in 1993. This example is unusual for a new building because the station had already been built, and therefore this is where the shift of functional hierarchy becomes apparent.

All other functions were placed in their logical sequence so the diagram flows in both directions (Dale, 1995:293-294).

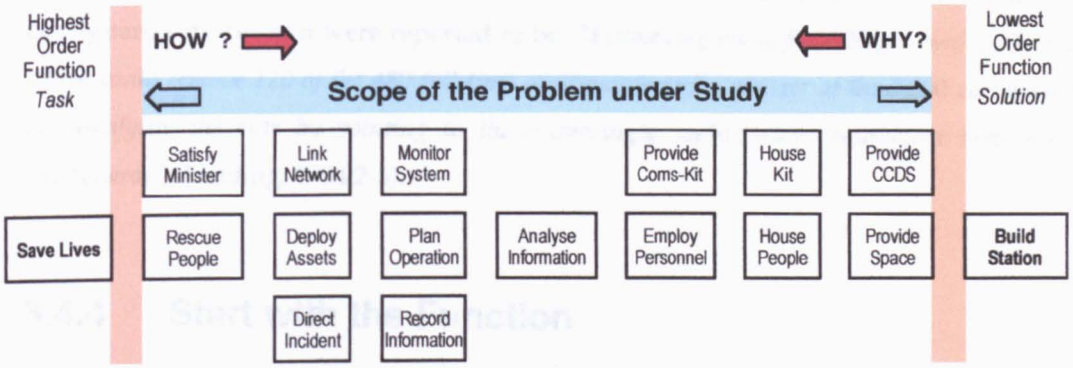

Figure 3.11 Original FAST diagram for H.M Coastguard Station - Stornoway
Source: Dale (1994:207)

The subsequent analysis revealed that **building a station was not necessary** in order to "save lives" or indeed to "rescue people". This could have been achieved more efficiently in other ways. The Lowest Order Function could have been "relocate staff." The rest of the diagram would remain virtually unchanged (Figure 3.12).

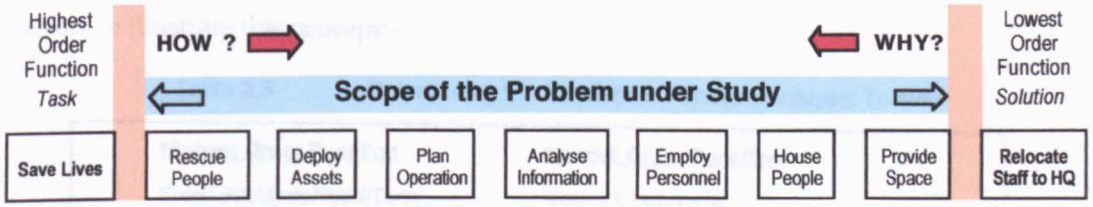

Figure 3.12 First Alternative FAST diagram for H.M Coastguard Station - Stornoway

This alternative was not only a feasible solution but also one that would have been more economical **without making any staff redundant.** In spite of these advantages, this solution was considered undesirable as one of the 'non-negotiable' functions listed was "Satisfy Minister" thereby implying that the **reasons for building the station were due to political issues.** To accommodate this function, the diagram could have been reworked keeping "build station" as the Lowest Order Function but changing the Higher Order function from "save lives" to "reassure inhabitants" (Figure 3.13).

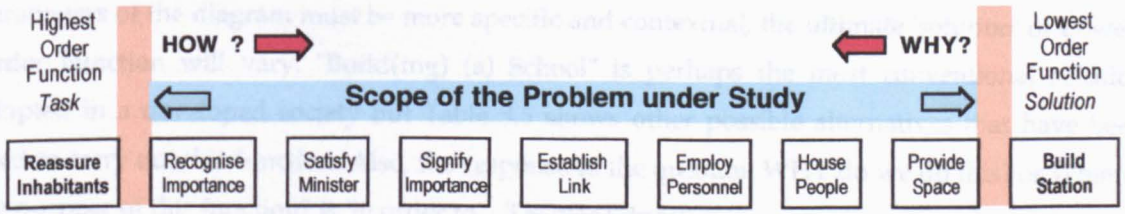

Figure 3.13 Second Alternative FAST diagram for H.M Coastguard Station - Stornoway

With this variation, all the interim functions would have to change to make sense of the flow sequence. Rather than a solution to the problem, **it represents a justification** for the construction

of the station and it shows how the diagram can be manipulated to exonerate a predetermined solution. It also suggests that honest misconceptions[36] can arise when a strategy of 'starting with the building' is adopted. Seven months after the above study the Government reviewed the coastguard services and were reported to be, *"Examining plans for a 20 per cent cut in running costs which could remove 120 of the 480 full-time coastguards and a quarter of the 3,500 coastguard auxiliaries .... justifying the cuts by pointing to the increasingly sophistocated equipment now available to the coastguards"* (Fielding, 1994:2-3).

3.4.4 Start with the Function

If a building is created to satisfy a need and/or to solve a problem, it represents the answer to the question, 'how can this need be satisfied, or how can the problem be resolved?' and it is therefore the Lowest Order Function. If there are several ways to satisfy this need and solve the problem, then someone has to choose which solution is most appropriate under the given parameters. If a building is not the solution, what would be the reason for its existence? The starting point should be the Highest Order Function of 'satisfy need' be that social, cultural, economic, political or any combination of these. In a deliberately simplified example Table 3.5 uses one function 'deliver education' to illustrate this concept:-

Table 3.5 Determining the Problem in Function Analysis Terms

Highest Order Function	**Lowest Order Function**
Fixed Problem/Need/Task	**Various Solutions**
HOW (can we....) ?	**WHY** (do we ...) ?
Deliver (Primary) Education	Build School
Deliver (Primary) Education	House Children
Deliver (Primary) Education	Create Space
Deliver (Primary) Education	Broadcast Material (Radio / Television)
Deliver (Primary) Education	Communicate IT (Information Technology)

The process is instigated by the question, HOW can we 'Deliver (Primary) Education'? All functions to the right should answer each preceding function in sequence. There may be several interim functions such as 'Employ Teachers', 'Assemble Children', 'Supply Material' etc.. Since the parameters of the diagram must be more specific and contextual, the ultimate 'solution' or Lowest Order Function will vary. "Build(ing) (a) School" is perhaps the most conventional solution adopted in a developed society but Table 3.5 shows other possible alternatives that have been used to carry out this function. Also, the response to the question WHY do we do this? or What is the purpose of this function? is 'in order to' - 'Deliver Education'.

[36] 'Honest misconceptions' - meaning that the original intention was genuine but unknowingly misguided.

This example shows that by establishing exactly what the need or problem is first, **many different solutions** can be obtained. A building is often the ultimate solution. However, the function for which a building was originally constructed is sometimes outlived by the structure itself (Cantacuzino, 1975:viii). This is because functions are intangible yet clearly defined concepts representing needs, wants and desires that change due to time, social issues, politics, economic factors or other reasons. In contrast, a building is a tangible object the form, shape, structure and internal environment of which have been designed to satisfy the original function. When that function ceases to exist various options are available as the next sub-section will explore.

3.4.5 Critical Path Function for Adaptive Reuse

In a study of recycling inner city redundant commercial buildings in London, Nutt (1997:3) listed six options as: -*"Marketing; Leave Vacant; Refurbish; Modify Use; Change Class of Use; and Demolish"*. In another study of obsolete urban buildings in the US, MacGilvray (1988:6) observed, *"We really have only **three** alternatives in dealing with an existing historic resource: we can **keep it;** we can **change it;** or we can **destroy it.**"* These alternatives can be rationalised and expressed in three main proposals:-

a) Demolish Building = destroy

b) Keep Building = leave vacant; refurbish; preserve; conserve

c) Adapt Building = change use

As these functions all relate to the actual building, it raises the questions: - Are these options the Highest Order Function, representing the task, problem or need; or are they the Lowest Order Function, representing the solution or resultant factor; or can they be both? Furthermore, does it make any difference? The answer to the latter, based on the preceding examples, must be 'yes'. Since the first two options, 'demolish building' and 'keep building', do not represent a change of the functional use, it is only appropriate to analyse 'adapt building' to establish the effect on the strategic approach to the topic relative to its position in the function hierarchy.

Each proposed function can be placed at either end to illustrate the effect this has on the overall approach. In practice all the functions (basic and secondary) are listed and then placed in order.[37] It is a means to an end, not an end in itself. The following illustrations (Figures 3.14 and 3.15) are simplified versions, based on the Critical Path functions and they represent the minimum number of functions needed to realise the purpose of the task.

[37] The result can be a FAST diagram several metres long and over a metre in height containing hundreds of functions, depending on the complexity of the problem.

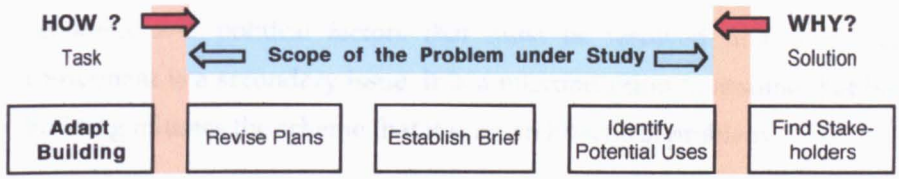

Figure 3.14 'Adapt Building' as Highest Order Function on Critical Path FAST diagram

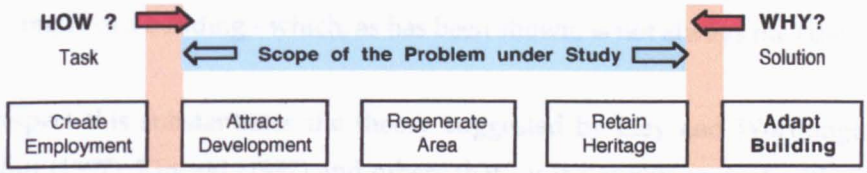

Figure 3.15 'Adapt Building' as Lowest Order Function on Critical Path FAST diagram

The above diagrams verify that the function "Adapt Building" can be either the task or the solution. As the Highest Order Function or task (Figure 3.14) it can only respond to the How questions, the answers to which are of a mundane practical nature. In contrast, as the Lowest Order Function or solution responding to the Why questions (Figure 3.15) the answers are more wide ranging. The Highest Order Function could simply be to "Retain Heritage" or "Regenerate Area" if that is the desired need, or it could extend beyond "Create Employment" to more specific needs like "Profit Shareholders" (as in the American Marketplace developments) or "Provide Housing" (as in the recommendations of the Urban Task Force, 1999) etc..

The function analysis approach shows how the focus shifts dramatically depending on where the function of 'adapt building' is located within the diagram, and also where the scope lines are drawn (Kelly: 2000). By combining both diagrams the logic is maintained (Figure 3.16). This option reveals that 'adapt building' is neither the task nor the solution, but simply one of the functions within the scope of the problem (i.e. how to 'Create Employment' and/or 'Attract Development') being studied.

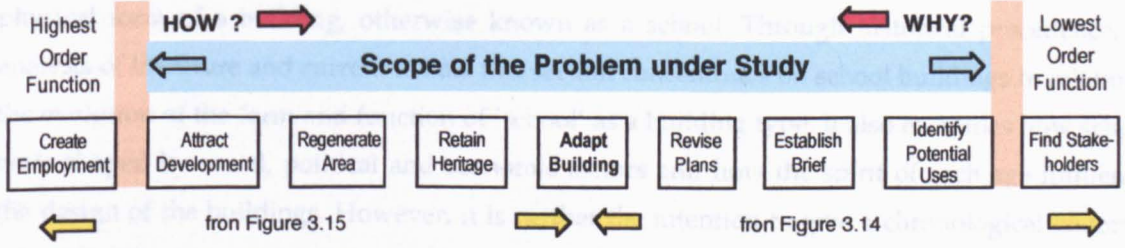

Figure 3.16 The Complete Critical Path Function diagram

In summary of this section therefore it can be determined that:-

a) If the starting point is to recycle a building - the focus is on finding a reason for adapting the building. The problem is therefore **not architectural** as the purpose is to find a

compatible use and a suitable client. This task contains a combination of social, economic and political factors that must be resolved first. The architectural component is a secondary issue. It is a misconception to assume that because the building initiates the scheme that it is an architectural problem.

b) If the starting point is a use or function - the focus is on finding a place to house the function. In this event, the problem **is architectural**, provided the function requires a building - which, as has been shown, is not always the case.

In one respect this substantiates the theory suggested by Eley and Worthington (1984), Reiner (1979), Nutt (1997), Kincaid (1997) and others that - it is possible to start with either the building or the use. It is easier to focus on the building because not only is it a physically tangible object but also because it is nature of the architect's work. Unfortunately this can create tunnel vision with regards to objectivity. The function analysis approach shows that starting with the use actually becomes more of an architectural issue than starting with the building. Focusing on functions is more difficult not only because there are so many variables but also because these variables change over time. Nevertheless the potential for a wider range of creative solutions is greater.

3.5 The Essence of 'School'

Successful adaptation of a building for educational purposes depends on many factors but the most important is a suitable match between the function and the form. The match does not have to be perfect, but it should be fit for purpose. There are many examples in which the original building has undergone a complete transformation in order to accommodate the new function but, if economic resources are limited, the nearer the existing form meets the new functional requirements the better in terms of the viability of the project.

The aim here is to determine how the function of 'educating children' has been translated into the physical form of a building, otherwise known as a school. Through historical precedence, the analysis of literature and current debate this section concentrates on school buildings in relation to the evolution of the form and function of 'school' as a building type. It also examines how schools were shaped by social, political and economic factors and how the spirit of each age influenced the design of the buildings. However, it is neither the intention to give a chronological history of school buildings nor to replicate the findings in the works of Seaborne (1971), Seaborne and Lowe (1977), Saint (1987), Ringshall *et al* (1983), Segre (1990), Weston (1991) Markus (1993a) and Dudek (2000) who each give detailed accounts of the various aspects of the development of school buildings. The purpose is to examine the essence of 'school' in order to ascertain how the essential components can be transposed into a different building and to determine what other types of buildings could be used for primary education. Although it is the sum of the components that

constitutes the nature of 'school' as a type, the following sections examine selected elements that represent the key issues relating to primary educational buildings in mainly urban areas.

3.5.1 Evolving Function; Revolving Type and Form

This section gives an overview of the development of the form of schools after a brief summary of its relationship to function. The purpose is to find out **what other type of building would suit the functions of a school.** Within the constraints of this investigation the focus is restricted (with a few exceptions) to that of Primary Education[38]. The basic function required of these buildings is to facilitate the education of children. There are also many secondary functions that need to be considered but these can vary depending on who is being educated and who is educating them. The resultant form and aesthetics of the building are strongly influenced by these functions which can be encapsulated in the spectrum of typological sub-sections that have evolved over the centuries as education has expanded to reflect political and social needs and expectations.[39] The functional requirements and design solution for each of these sub-sections tends to be quite specific in most countries which again reflects the political, economic, cultural and social control within this sector.

The main function of the school is to 'educate children' and 'inculcate knowledge'. *"The classroom is primarily a teaching environment and, as a design, has little to do with learning; learning is a by-product"* (Jilk, 2001:14). In spite of the implications of this quotation the focal point of a school has always been the classroom. This is where the pupils are taught. Seaborne (1971), Seaborne and Lowe (1977) and Ringshall *et al* (1983) use floor plans of different schools to show how, over the centuries, the classroom has altered in size and shape to accommodate the pupils that each successive educational establishment considered an appropriate number to constitute a class. For example, in the Lancasterian model plan of 1811, three hundred and twenty pupils were accommodated in one room (Seaborne, 1971:137). By the end of the nineteenth century this had reduce to around sixty pupils per class (Kelsall, 1983:18) and by the mid twentieth century this had reduced even further to around forty pupils per class.

The classroom determined the repetitive cellular form of the school as a building type and this has never altered throughout the last three centuries as the various plans in Figure 3.17 illustrate. What **has** altered is the size and shape of the individual cells in accordance with the number of pupils to be accommodated, although once the cell size was established it was used consistently throughout the school.

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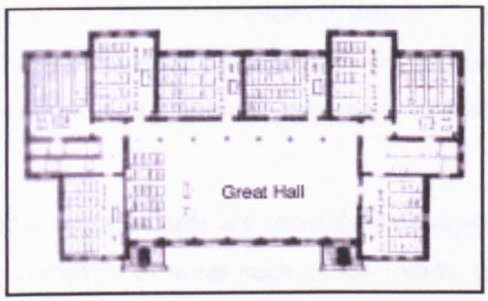
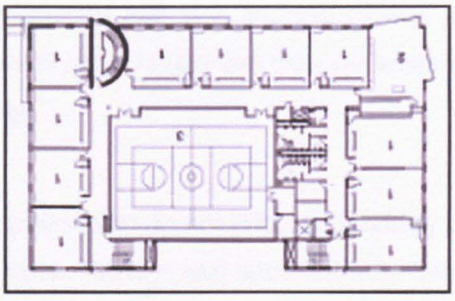
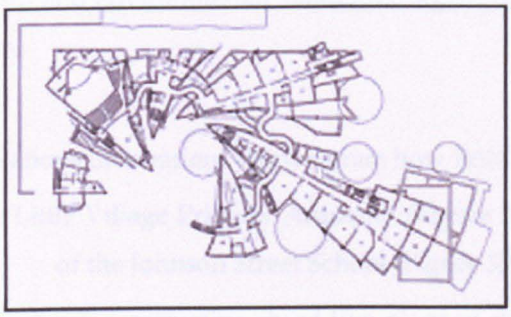
[38] This parallels the precedent established in other architectural theses related to school buildings; Primary Schools in Egypt (Saleh, 1985); Intermediate Schools in Jeddah (Khafaji, 1987); a Comparison between Primary Schools in Tehran, Iran and Birmingham, England (Sami Azar, 1996); and Secondary Schools in Nigeria (Uduku, 1992).



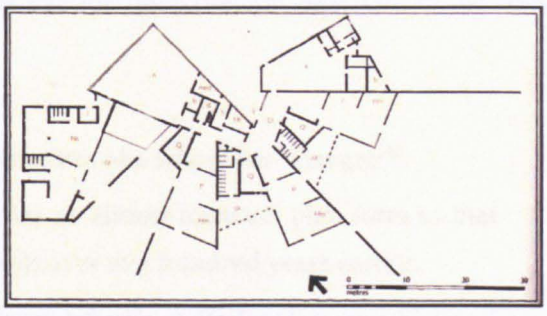
a Plan of the Johnson Street School, 1872



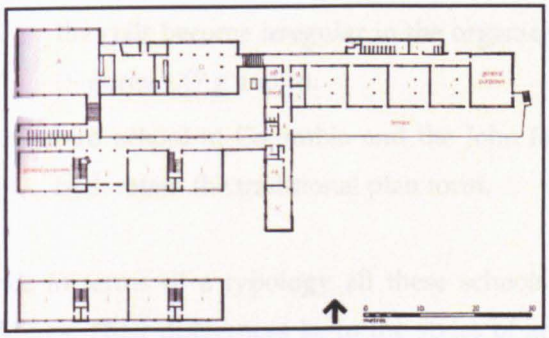
b Little Village Primary Academy, Chicago by Barney & Jankowski



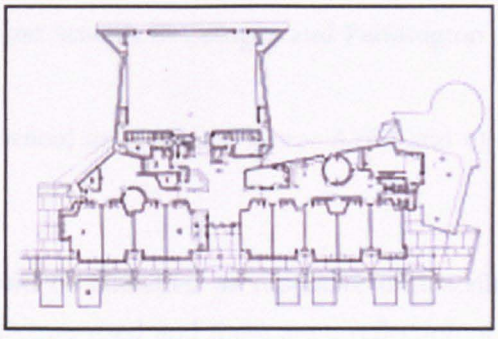
c Heinz Galinski Primary School, Berlin by Zvi Hecker



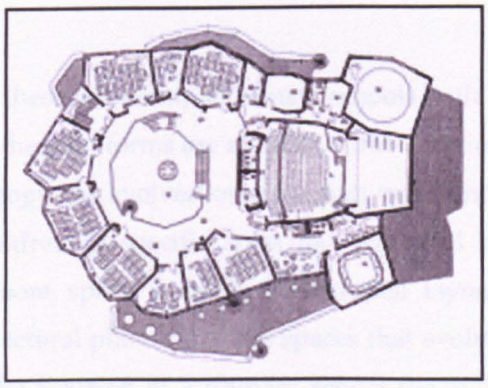
d Hungerford Primary School, 1970



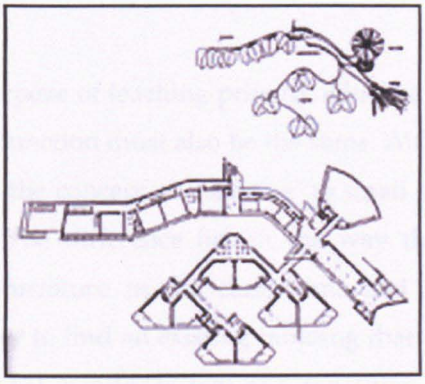
e John Ball Primary School, London, 1952



f Seabird Island School, British Columbia, by Patkau Associates



g Waldorf School, Cologne, by Peter Huber



h Hallfield School, Paddington by Denis Lasdun 1950s

Figure 3.17 Floor Plans of Various Schools from 1870s to 1990s

Source: a) Ringshall (1983:17); b) & c) (Dudek, 2000: 174 & 205);
d) & e) Ringshall (1983:72 & 49); f); g) & h) Dudek (2000: 140; 229 and 91)

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[39] These sub-sections include:- nursery /day-care centres; primary schools; secondary schools; tertiary educational buildings such as technical/vocational colleges and university buildings; special educational needs centres; and boarding schools.

Access to these cells is achieved by means of a corridor or circulation route. Another feature that developed in the late nineteenth century was the assembly hall as a multi-functional area that could also be used as a teaching room. In essence this is just a bigger cell than the teaching units, but its size makes it a dominant feature of the building.

All other requirements are secondary or support functions that do not relate to teaching children. These comprise of areas such as the toilets, dining room, kitchen and administrative offices that have evolved in parallel with the social development of the country such as the need to improve health and environmental standards. Again these are cellular units that get added on to the basic form.

The above illustrations demonstrate how little the plan form of a school has changed[40]:-

The Little Village Primary Academy (Figure 3.17b) has an almost identical plan form to that of the Johnson Street School (Figure 3.17a) built over one hundred years earlier.

Both the deconstructive shard-like plans of the primary schools in Berlin (Figure 3.17c) and Hungerford (Figure 3.17d) retain the cellular units albeit in trapezoidal form, whilst the cells become irregular in the organic shaped schools in Cologne and Paddington (Figures 3.17 g and h).

The Seabird school in Columbia and the John Ball School in London (Figures 3.17 f and e) both retain the traditional plan form.

Hence in terms of a typology all these schools could be classified as repetitive multi-cellular buildings. Their differences lie in the styles of architecture used and these are a reflection of the period when each was built.

Since these are examples of new schools built for the purpose of teaching primary education, and since the plan forms are all similar, this implies that the function must also be the same. Although pedagogy has evolved over the past two hundred years the concept of 'teaching' to small groups of children in specific areas has remained the same. The difference lies in the way that the classroom space is used, the internal layout of the furniture in the classrooms and in the architectural planning of the spaces that evolved. In order to find an existing building that would suit the function of a primary school the main component comprises that of a repetitive multi-cellular structure.

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[40] This is not dissimilar to proposition by Rossi (1982) that *"housing types have not changed from antiquity up to today."* It is interesting to note therefore that the floor plans of some of the schools designed by Rossi (Braghieri:1991) resemble the typical layout of schools built in the late 1800s.

3.5.2 A Scale for Little People

Scale is more than the study of proportion. It is the aspect of a building that creates both atmosphere and impact. Politically it distinguishes between dominance and subservience, the powerful and the humble more immediately than can be suggested by style, form or materials even when the basic function of a typology is the same. The difference between a parish church and a cathedral; a house and a palace; a workshop and a factory, or between a guesthouse and a resort hotel is predominantly a difference in scale. In addition, scale also has a 'comfort factor' that relates to familiarity. A contrast in scale can make a deep impression on a person and it should be appropriate to the function, the user and the context.

The vocabulary used in most texts concerning school buildings is largely devoted to form as it relates to the plan size and shape of rooms, the relationship of areas and functions to each other and the increasing interest in environmental standards, sustainability and maintenance. With the exception of Weston (1991), the words 'scale' and 'atmosphere' rarely appear.

The scale of a room can change noticeably if the height is increased or decreased. Ringshall (1983: 76 & 79) observed that in the 1960s the height of the classrooms was reduced to 2.40 metres. This was not an aesthetic decision but rather one specifically related to cost reduction due in part to the number of schools that needed to be built in the UK at that time. In contrast to this the Hampshire schools in the late 1980's were noted for their big roofs and barn-like images.

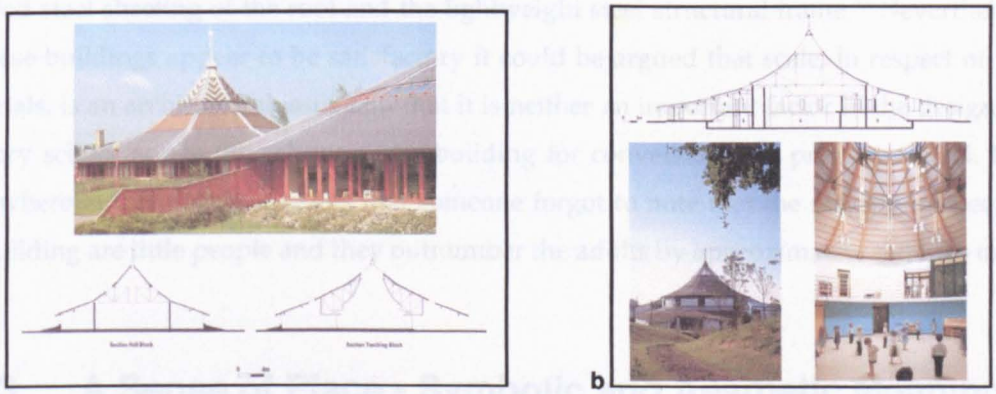

Figure 3.18 The Hampshire Schools with Big Roofs

a) Burnham Copse Infant School, Tadley, 1985 b) Stoke Park Infant School, Bishopstoke, 1986

Source: Weston (1991:72 and 80)

Both Burnham Copse and Stoke Park Infant Schools have roofs that soar to cathedral-like proportions relative to the height of a five year old child (Figure 3. 18) whilst Velmead Infant and Queen's Inclosure First School each have a high central atrium that exude an atmosphere not dissimilar to that of an office building (Figure 3. 19).

In respect of Velmead[41] Weston (1991:25) noted that *"the description given by one of its first pupils (was) - 'the wonderful glass palace.'"* 'Palace' is a significant choice of words, as it must be presumed that not many children in Hampshire are familiar with palaces (except in fairy tales). Alternatives such as a 'glass house', 'glass box', or even 'glass school' could have been used, but these expressions would not signify the large scaled grandeur of the building that the pupil obviously intended. The image created was applauded by architects illustrating the potential alternatives to the previous designs imposed by the system buildings of the previous decades.[42]

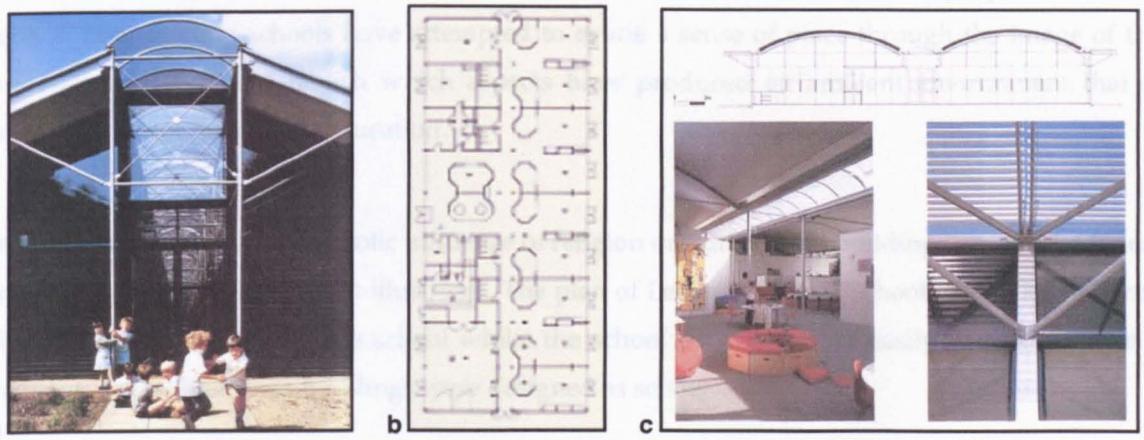

Figure 3.19 The Hampshire Schools with a Central Atrium

a) & b) Velmead Infant School, Fleet, 1986 (Michael Hopkins) c) Queen's Inclosure First School, Cowplain, 1988
Source: Weston (1991: 76; 77; and 83)

The scale at Velmead is created not only by the height and internal spaces but also by the materials, especially the continuous glass curtain walls on the north and south facades, the profiled steel sheeting of the roof and the lightweight steel structural frame.[43] Nevertheless, since all these buildings appear to be satisfactory it could be argued that scale, in respect of form and materials, is an architectural issue and that it is neither an important factor in the design of a new primary school nor in the selection of a building for conversion to a primary school. However, somewhere in this debate it seems that someone forgot to note that the majority of people using the building are little people and they outnumber the adults by approximately thirty to one.[44]

3.5 3 A Sense of Place - Symbolic and Aesthetic Meaning

> *"Older facilities have their importance, both symbolically and architecturally. They create not only a feeling of belonging but also an image that remain in the minds of all former students .... School is a gathering place. Its symbolic dimension must not be overlooked. Students have a strong sense of belonging, years after they have left school."* (Drouin, 2000: 11-12)

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[41] At Velmead the "*minimum 3.2 metre height .... (is) open to criticism*" (Weston, 1991:25).
[42] Hampshire used the SCOLA system, but other systems included CLASP and MACE.
[43] This is sharp contrast to the primary schools that I personally designed, where the choice of traditional materials such as bricks and slates were selected for their small scale qualities and where the window sizes were comparable to a domestic dwelling.

The previous sub-sections examined purpose built schools to see what aspects of form in relation to plan, shape and scale should be taken into consideration in the selection of an existing (redundant) building for conversion to a school. But the above quotation suggests the symbolic and aesthetic meaning of school are also important components and these apply not only to new schools but also to adapted buildings used as schools as noted in chapter 2.2.3. The symbolism imposed on a building is usually a reflection of the political and social ethos of the era in which it was built as Seaborne (1971), Seaborne and Lowe (1977), Saint (1987), Ringshall *et al* (1983), Segre (1990), Weston (1991), Markus (1993a) and Dudek (2000) all acknowledge. The purpose here is to look at how existing schools have attempted to exude a sense of place through the image of the building and then to establish which aspects have produced an ambient environment that is conducive to contemporary education.

In terms of planning, the symbolic influence of religion on educational buildings can still be found in recent schools as Figure 3.20 illustrates. The plan of Leeds Grammar School looks like a church that has been converted into a school whilst the school by Rossi could easily be mistaken for a convent. Yet both of these buildings were designed as schools.

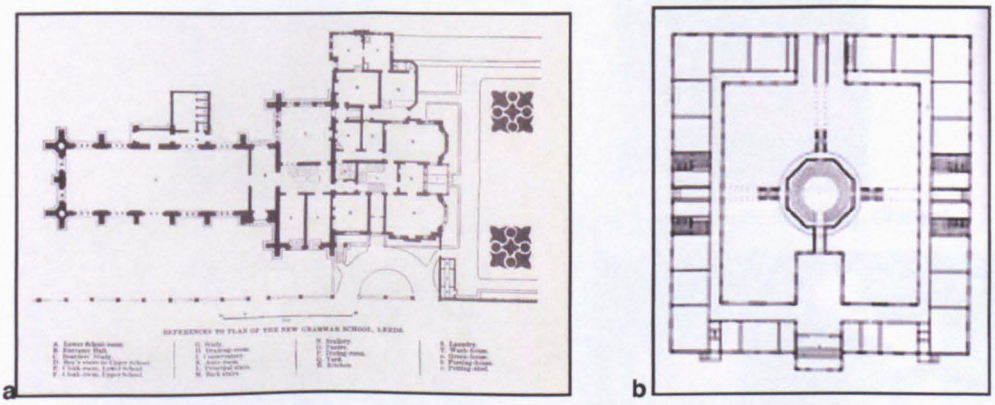

Figure 3.20 Religious Overtones in School Planning

a) Plan of Leeds Grammar School, 1859 b) Broni (Pavia) Middle School by Aldo Rossi

Source : a) Seaborne (1971:Pl.227); b) Braghieri (1991:104)

However, it is the visual appearance that establishes the symbolic and aesthetic meaning of school as the examples in Figure 3.21 demonstrate. All of these buildings were designed for the purpose of educating children, yet their characteristics mirror the changing attitude of what a school should represent. The first four schools, built prior to the nineteenth century, look like private dwellings. They are symbolic of 'home' and a place of nurture. The remaining six schools were built in the twentieth century. Though their styles vary to echo the architectural trend of the period in which they were built they all reflect the institutionalisation of education and are symbolic of 'work'. In this respect they could be mistaken for office buildings or even a factory.

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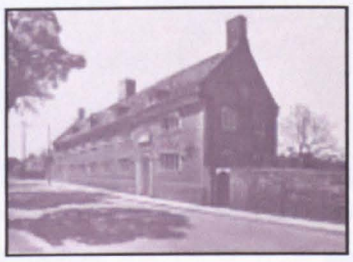
[44] Weston (1991:68) points out that at the Abbey Infant School "*its height* ***is deliberately scaled down for small children****: the high-pitched roofs spring from eaves less than two metres above ground level*".

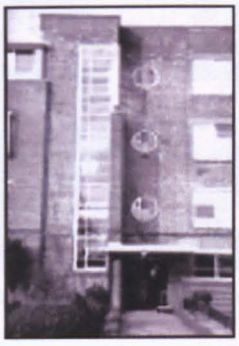
a Bablake School, Coventry, pre-1560

b Hawkshead, Lancs, 1585



c Sir John Leman's School, Beccles, Suffolk,1613

d Octagonal School, Wimbledon, Surrey, 1773



e Burlington Secondary School, London. (1935)

f Little Village Primary Academy, Chicago

g Example of Typical 1950s School

h Anne Frank School, Netherlands, by Herman Hertzberger

j Orphanage School, Amsterdam, by Aldo van Eyck (1955)

k Heinz Galinski Primary School Berlin

Figure 3.21 Changing Styles Reflect the Spirit of the Ages

Source: a); b); c) and d) Seaborne (1971: pl. 23; 27; 45 and 111);
e); f); and g) Dudek (2000: 29; 104 and 102); h); j); and k) Dudek (2000: 104; 36 and 209)

Given the above examples it therefore seems that many other buildings types could be used as primary schools:- churches, convents, houses, office buildings and factories. Most of these also have the cellular form, or at least the ability to be adapted to a cellular form, that the previous sections indicated as the main criterion.

a Aboyne Lodge Infant School, St. Albans (1949-50)

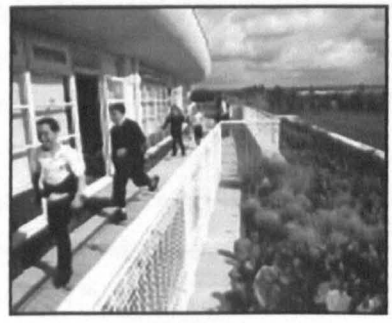
b Typical corridor to classrooms, Shoreham School, Sussex

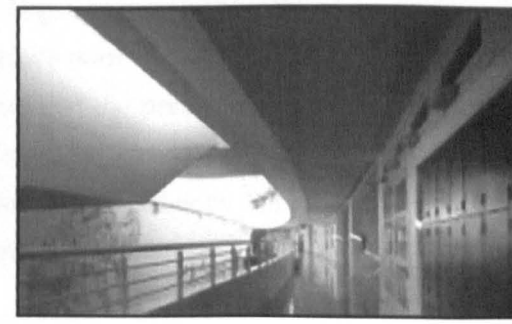
c Classroom Interior, King Alfred School, Hampstead

d Typical Classroom in the 1960s

e Waldorf School, Cologne

f Broni (Pavia) Middle School, by Aldo Rossi





g Admiral Lord Nelson Secondary School, Portsmouth

Figure 3.22 A Place to Be or Not to Be

Source: a) and b) Saint (1987: 88 & 54); c) Gilbert in Dudek (2000: 89); d) Ringshall (1983:240); e) Dudek (2000: 232); f) Braghieri (1991:105); g) : Dudek (2000: 198 and 197)

Nevertheless, in the course of adapting a different building type to that of a school, the new 'meta-school' must exude its own meaning. Is it "a place to be" or "a place not to be"? The rationale for this stems from the Cuban requirement that all primary schools have a specified *"area de estar"* (a place to be)[45] that equates to the 'unprogrammed spaces' referred to in the following quotation:-

> *"Less than 25% of all learning occurs within the classroom. We now know that the so-called* ***'unprogrammed spaces' in schools are extremely important*** *because it is in these* ***'nooks and crannies' that much of the socialization, interaction and real learning take place*** *.... The classroom as the center of the learning universe is now in serious jeopardy."* (Nair, 2001:23)

Both the formal teaching spaces and the informal learning spaces need to have a comfortable sense of place. In Figure 3.22 the illustrations on the left hand side demonstrate how this can be achieved whilst the images on the right hand side epitomize areas that do not exude a pleasant, welcoming atmosphere. Consideration of these factors should be included in the adaptation of a building in order to create an ambient environment for young children.

3.5 4 Learning from the City; Teaching in the School

> *"We begin with the context: the city. We used to believe that a school was a self-contained system, a walled enclave set apart from the outside world. .... Today this model of the school is simply no longer tenable. Knowledge itself is changing at an accelerating pace. .... The walls are simply no longer relevant. It is no longer possible to keep the outside world at bay. In fact, the attempt to do so is now destructive of the very purpose of education itself."* (Toffler, 1968:7)

The theme of 'learning from the city' keeps recurring in debates on the design of urban schools. Authors such as Segre (1990) and Alexander *et al* (1977) promote the concept of integration of school and city, yet many inner city schools are becoming more like fortresses that exclude the outside world rather than integrate with it. Howe (1968:10-13) pointed out that, *"The problems of the [city] schools are intricately connected with larger economic and political questions, with [such] seemingly 'non-educational' matters .... [and] therefore must be seen in a larger context. .... Education costs more in the city than in the suburbs."* The fact that the problems and issues raised at the 1992 OECD, PEB (Programme on Educational Buildings) Symposium in Baltimore (Duckenfield, 1995) are almost identical to those described twenty four years earlier by Toffler *et al* (1968) would seem to imply that traditional approaches to inner city educational buildings have not been successful (Dale, 1999:1).[46]

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[45] Alexander *et al* (1977:707-711) make reference to "A Place to Wait" that has certain similarities to this although it is not specific to schools and it implies this is an interim activity en route to something else.

[46] Of greater concern was the fact that all of these matters were reiterated at the OECD, PEB symposium on *"Invention, Maintenance and Renewal of Urban Educational Facilities – Global Challenges and Community Solutions"* that I attended in 1999.

Alternative solutions, such as the adaptation of other building types for educational purposes are politely acknowledged (Mayfield, 2000:18). However this concept is simply not welcomed in a developed western economy where the emphasis is on new purpose built schools despite the difficulties encountered in densely urbanized areas. The reluctance to adopt this approach has nothing to do with the fact that the type and form of an existing building could be adapted to suit the function of a school. The negative response is focused on the symbolic meaning. An adapted building has the connotation of being "second best" inferring that the society it serves is not worthy of a new building.

Fortunately such prejudiced views regarding the concept of 'new' being better than 'adapted' are not universal. Konopko (2000:6-7) demonstrated how, in the central business district of Manhattan in New York, a 500-pupil middle school (grades 7 to 12) was created in the first five stories of a 1920s office building. Being close to public transportation it is easily accessible from all parts of the city and at the same time *"its central location facilitates the use of the city's resources as a learning laboratory"* (Konopko (2000:7). This illustrates the potential for adaptive reuse as a solution to the problems of creating educational space in the city centres.

Apart from the school building, the possibility of using the resources of the city as part of the learning process is another topic that has been repeatedly raised by various writers.

> *"One problem of urban education is to create a system in which the resources of the city are intimately integrated with the educational process, so that large numbers of children can utilize all the resources of the city for their education."* (McDonald, 1968:230)

Chapter 5.6 and chapter six will demonstrate how this has been successfully developed in the educational process in Havana. Although this is not primarily an architectural issue it does influence the way in which the urban schools are used and it forms part of the criteria for holistically evaluating the success of the schools.

3.5.5 When 'School' is not a Building

> *"What is the true nature of a school? Is a school a man under a tree talking to a group of people or is it a building? Somewhere in the realm of all building form throughout history and over all societies is a thing that is unchanging called 'school'."* (Louis Kahn, quoted in Farrell, 1979:61)

This section has shown how the form and symbolic meaning of school has evolved over a period of time whilst still retaining a strong degree of consistency in the cellular nature of the building. It has also demonstrated that a variety of other building types, including a house, could be adapted

to provide the function for educating children. However, the process of labelling buildings according to their function leads to confusion when the original building is adapted for a different function. In this respect the proposal of McDonald (1968:236) that the word 'school,' as a location of educational resources, be abandoned, seems very appropriate.

3.6 Summary

> *"In spite of the body of knowledge, those architects and planners making day-by-day decisions are little affected by the research. The* ***gap*** *is apparently the result of problems in communication and the ability to build a bridge between academic research and real-world application. But the bridges need to be built"* (Green, 1975:73-74).

This chapter has tried to build some bridges across the chasm that divides theory and practice in relation to the adaptive reuse of buildings. It identified one of the contributing factors hindering the process as the way that buildings are classified according to their functional use, because once the use is changed the label is no longer appropriate, yet it continues to remain. Section 3.2.2 revealed that one reason for placing different types of buildings into labelled categories was that it enabled projects to be designed and constructed more speedily. Value studies frequently find that the criteria for evaluation are usually based on precedent that, over a period of time, becomes the standard, even when the original reason for that precedent on longer exists. This is why it is better to start from first principles rather than to follow what already exists. Unfortunately the system of classifying buildings is so engrained in the architectural ethos, from education through to practice, and from regulations and codes through to publications on different types of buildings, that changing the system would be exceedingly difficult.

Another factor that confuses the attempt to establish a theoretical approach to adaptive reuse is the relationship between form and function, because the existing form usually changes to suit the new function. Hence the statement by Markus (1993a:28) that implies any form can suit any function and vice versa, would be more appropriate to adaptive reuse if changed to:-

> *An existing form can be adapted and used by some, but not all, functions and vice versa.*

Finding an appropriate form for the new function is essential to the success of the project. By starting the process with the function and determining all the criteria that the function requires both in terms of how the task needs to be executed and why it needs to be performed, a more precise focus is achieved and consequently a better and wider range of solutions can be obtained.

Using one specific function (educating children) and one building form (primary schools) it was demonstrated that a wide variety of buildings could be adapted for the purpose of educating primary school children, other than a conventional school. Success depends on the correct selection of an existing building that either has, or has the capability of accommodating, a repetitive multi-cellular form. The choice would then depend on the aesthetic and symbolic qualities that are appropriate for the function.

From the historical study of school buildings it was shown that a house could be considered a suitable building to adapt for this function. This is a feasible solution in terms of the physical changes that need to be carried out. However, whether or not it is an acceptable solution in terms of the social and political implications is questionable and as such this takes the investigation back to the first proposition that the process of adaptive reuse is driven by the political, economic, social and cultural factors rather than the theoretical issues.

3.7 Looking beyond the Building

> *"Because their structure tends to outlive their function, buildings have continuously been adapted to new uses - a fact which has enabled generation after generation to derive a sense of continuity and stability from their physical surroundings."* (Cantacuzino, 1975:viii)

To understand the previous and contemporary approaches to adaptive reuse a review of the literature and current debate was carried out. This revealed that most works were pragmatic rather than theoretical in essence. On the one hand various authors selected different or specific aspects of adaptive reuse, such as individual case studies (for example, Cantacuzino, 1975 and 1989; Cantacuzino and Brandt, 1980, etc.), or the urban context of recycling buildings (URBED, 1987), or the historic value of restoration work (like Highfield, 1991, and Cantacuzino, 1975), or the social value of regeneration of inner city areas (including URBED, 1987 and the Urban Task Force, 1999), or any combination of these. Some writers do refer to the social context and the corresponding political and economic issues but usually in general terms. On the other hand authors like Garrett (1979), Reiner (1979), Burchell et al (1980), Pawley (1981a; b; c; & d), Koudra (1984), URBED (1987) and the Urban Task Force (1999) confirm the need to examine the causative factors in detail to avoid any misinterpretation of the data. The concern is that if these factors are continually regarded as merely background information, the fundamental principles will become diluted and distorted.

A preliminary investigation revealed that in the USA and the UK the trend toward the recycling of buildings became the fashionable thing to do in 1980s (Reiner, 1979:x). The corresponding analysis of these projects centred on what had been achieved and **how** it had been carried out. But

as section 3.4 explained this can lead to a justification of the topic in question. The rationale is determined by responding to the questions, **why** is adaptive reuse a suitable alternative to new build? and what is the reason for using buildings for different functions from that for which they were originally designed? When these questions were explored, it was found that in the western economies both the marketability factor and the profitability incentives were the motivating forces that drove the process of adaptive reuse, although these factors in themselves did not always guarantee the success of a project. The main contributing influences that instigated the interest in and led to the continued growth of adaptive reuse of redundant buildings in both Britain and the United States were national and global political events, economic policies, social and cultural issues. However, as this chapter has demonstrated, these should not be regarded as just contextual issues as they constitute some of the basic functions that the buildings are required to perform.

The following two chapters develop the contextual theme by examining the role that 'adapted' buildings[47] played in the development of education in Cuba. The purpose is to show that the decision to use buildings other than schools for this purpose was also based on national and global political events, economic policies, social and cultural issues, albeit that the specific events, policies and issues were different to those in the western countries. The focus is not so much about examining the actual buildings as the contextual functions from which the rationale for adaptive reuse evolved. Then in the penultimate chapter the lines of inquiry converge in the case study of the *casas adaptadas* in Havana where the various facets of the argument are explored in detail.

[47] Meaning the use of buildings (that may or may not have been physically 'adapted') that were not originally designed for the function of education.

Chapter 4

Cuba:

The Contextual Focus

Chapter 4:

Cuba – The Contextual Focus

4.1 Introduction – the Contextual Focus

> *In 1492, off the coast of Cuba, Cristóbal Colón recorded in the log of the ship Santa Maria:- "I have never seen a more beautiful place:... [the island] has such marvellous beauty that it surpasses all others in charms and graces as the day doth the night in lustre. I have been overwhelmed at this sight of so much beauty that I have not known how to relate it."* (Gravette, 1988:1)

As the pre-revolutionary period forms the basis from which the current status of education and architecture evolved the main body of this chapter examines the chronological development of education and architecture in relation to various historic events and contextual issues. The investigation will reveal that in both the Colonial and Republican periods locating primary schools in houses and other building types was an established practice thereby setting a precedent. It is important to understand how and why these evolved because the subsequent analysis of the buildings in the case study relates to the architectural forms and urban context developed **prior to** 1959 (rather than the post-Revolution period). The aim here is to show how the political, economic, social and cultural issues had a commanding influence not only on education and the architectural and urban development of the country but also left a legacy in the attitude of society towards using houses for primary education.

The nature of the architectural analysis is drawn from both personal observation and documentation of the existing buildings and also from established literary sources. Interpretation of the educational development is more difficult due to the fact that *"the official version of Cuban educational history does not command universal acceptance or credibility"* (Richmond, 1989:21).[1] Depending upon the various authors' perspectives, specific events and sometimes entire periods are construed differently, which only emphasises the complicated and diverse nature of education in pre-revolutionary Cuba. This complexity and contradiction is compounded by the close relationship between educational trends and the changing political, economic, social and cultural context of the country. Whilst these changes were absorbed slowly in terms of the architecture constructed during this period of more than four hundred years, the effects on educational improvement were more spasmodic and dramatic. Although it is beyond the scope of this study to analyse the evolution of pedagogy in Cuba, it will be shown that cognisance of its development in relation to the historical context contributes to an understanding of the rationale for the continued adaptive reuse of buildings for educational purposes.

This raises the questions that, if the context influenced the architectural and educational development, what are the key components of the context? Why in particular has Cuba attained international recognition and a status of importance that is totally disproportionate to its size? In

[1] Meaning the official versions as recorded by each successive Government.

response to these questions Cuba's location, topography and climate provide an appropriate starting point as these are the main factors responsible for shaping the political, economic, cultural and social development of the island. As one of the determinants for assessing the appropriateness of the buildings for school use includes their response to the climatic conditions, section 4.2 clarifies the design criteria suitable for a tropical climate. The main body of this chapter is then divided into four parts. Sections 4.3 and 4.4 concentrate on the colonial period by first reviewing the development of education in Cuba (4.3) and then, in 4.4, by appraising the architectural response of the colonial houses to the tropical climate. Sections 4.5 and 4.6 focus on the Republican era by first relating the progress of education to the political and economic policies of each regime (4.5). Then section 4.6 gives a general overview of the architectural and urban development of Havana, together with a synopsis of school architecture during this period.

Hence, by giving a concise explanation of the components that form the foundation of the island's development, the subsequent political and economic strategies that eventually shaped both the buildings and the educational system can be better understood.[2]

4.2 The Relevance of Location, Topography and Climate

*"Its strategic **position** earned it the title:- 'the **Key** to the New World';*
*Its **commerce** earned it the title:- 'The **jewel** in the Spanish crown';*
*Its **beauty** gave it the title:- 'The **pearl** of the Caribbean'."* (Gravette, 1988:1)

Cuba is the largest tropical archipelago in the western hemisphere, and the seventh largest in the world.[3] Its size, shape, location and topography, together with the climate, have not only been the major influences on the island's political, economic, social and cultural development from its "discovery" in 1492 by Christopher Columbus through to the present day, but they have also contributed either directly or indirectly to Cuba's architectural and urban development. This section examines the contextual relevance of these elements (Figure 4.1).

During the sixteenth and seventeenth centuries when the European countries were expanding and consolidating their colonies on the American continent the course of the sailing ships both to and from the mainland continents, was dictated by the prevailing winds. Cuba's size and location formed a barrier around which ships returning to Europe laden with gold and silver from Central and South America had to navigate. The quickest route was via the northern side through the narrow and treacherous Straits of Florida. However, the slow-moving, treasure-laden galleons

[2] Meaning, that the location, topography and climate influenced the political and economic policies. These in turn influenced the social and cultural development of the island, which in turn influenced the architecture.
[3] Cuba's nearest neighbour is Haiti - 77km to the east; Jamaica lies 140km to the south; the Yucatan Peninsula of Mexico lies 210km to the west, and Florida, USA is 145km to the north.

could be intercepted easily by pirates and buccaneers. Cuba's main value to Spain lay initially in its strategic location as it offered the first safe destination on the route to Europe where ships could wait for other vessels to form convoys before proceeding across the ocean.

Figure 4.1 Map of Cuba and its Neighbouring Countries
Source: www.mytravelguide.com/g/maps/Caribbean-map

Guarding this passage was of paramount importance to the Spanish throne. As Havana's position made it one of the most important ports in the Caribbean the architectural development of the city focused on its fortifications (Figure 4.2). Aguirre (1974:28-29) explains how even the houses were designed for optimum security in the event of attack. Cuba was effectively the gatekeeper of the European overseas economy thereby making it a politically desirable possession.

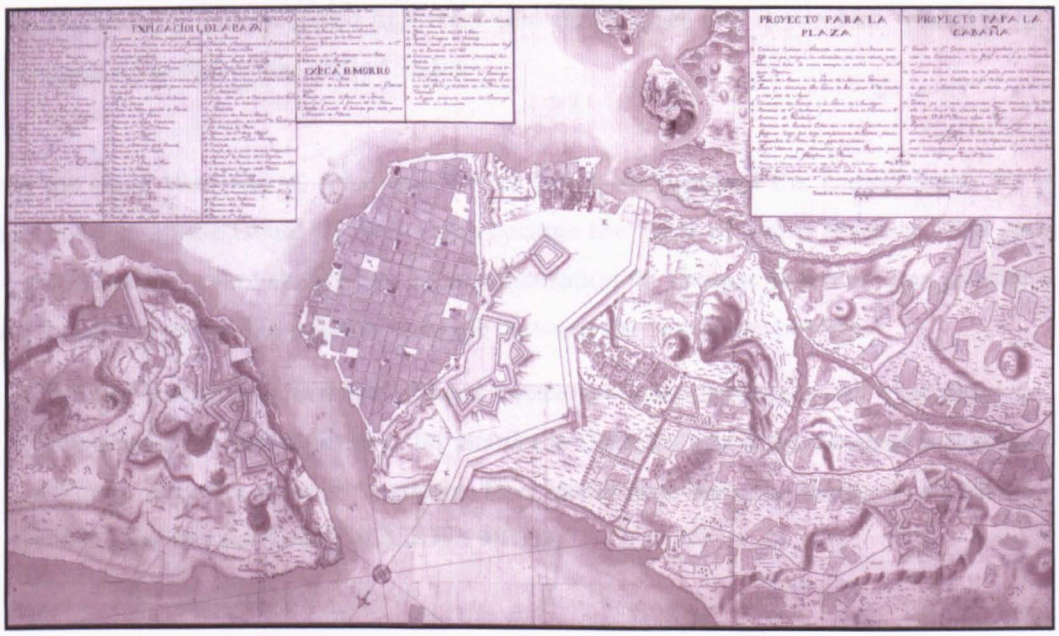

Figure 4.2 Plan of the Port and City of Havana in 1763
showing the fortifications proposed by Engineer Silvestre Abarca
Source: Weiss (1996:188)

The expansion of the sugar and coffee plantations during the nineteenth century was paralleled with an increase in the black slave population required to sustain these industries[4]. The rich mixture of cultures that evolved was drawn together firstly in the fight for independence against Spain at the end of the nineteenth century, and later during the Revolution of 1959.

The political significance of the island's location, particularly in relation to the United States, stems from the late eighteenth century policies of the United States' administration that went beyond mere trade relations that had linked the two countries commercially for some years. *"Despite Spanish efforts to prevent and severely limit this relationship"* (Foner, 1962:124), President Thomas Jefferson argued that, due to Cuba's proximity to the US:-

> *"It **could serve, in American hands, as a bulwark of defence: whilst in other hands, it constituted a danger.** A strong power in possession of Cuba .... would control the trade routes, cut off American trade with the West Indies, block the Mississippi and threaten the eastern coast of the United States."* (Foner, 1962:124)

Since the Monroe Doctrine of 1823 prevented direct intervention, it was in the interest of the United States to help Cuba gain independence from Spain in the hope that the island would voluntarily become part of the Union.[5] After independence was granted in 1898, Cuba was almost totally controlled economically and politically by the US during the Republican period (1898 - 1958). During this period the US also influenced the architectural development of Havana with the construction of high-rise apartment blocks and luxury resort hotels as the city turned into a tropical playground for its rich and famous neighbours. Meanwhile the Platt Amendment (1901) *"secured for the United States ample powers to protect and promote its interests"* (Richmond, 1989:96) and the Reciprocity Treaty (1903) tightened this subservient and dependent relationship of the Cuban economy to that of the United States.

During the Cold War period, when the Soviet Union antagonised the United States by placing nuclear missiles on the island in 1962, Cuba became the focus of world attention. The prediction made two hundred years earlier by the administration of Thomas Jefferson was rekindled. The country became a pawn in a political struggle between the two super powers.

> *"Had the Soviet Union installed an equal number of nuclear missiles capable of reaching the same areas of the United States as the missiles in Cuba, but placed them instead in Siberian territory, forty-five miles from Alaska, there would have been no 'Bering Strait Missile Crisis' - but this was Cuba."* (Cannon, 1981:155)

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[4] The proximity of the island to Haiti meant that it was the easiest place for the sugar and coffee planters to flee to during the Haitian revolution in 1790. By 1861 the black population had reached 46 percent of the total inhabitants (Rodríguez, 1983:20-21).

[5] Foner (1962:124) added that *"from the beginning of the nineteenth century, Cuba's geographical proximity to the United States was to be raised as the excuse for a policy of dominating the island in the interest of her more powerful neighbour .... [and that] Thomas Jefferson [was] .... a constant spokesman for incorporation of Cuba into the Union"*.

It could be argued that not only has Cuba's strategic location been more important to other nations than to Cuba itself, but that it has contributed to many of the economic and political problems which it has encountered during the past two centuries. Whilst the consequence of the island's relationship with Spain, the United States and the Soviet Union is reflected in the social, cultural, political and economic development, the visual legacy of these encounters is evident in the architecture and urban planning.

4.2.1 Topography, Economy and Energy

The influence of topography is most obvious in the economic development of Cuba. Three quarters of the country consists of a low-lying flat plain less than 100 metres above sea level divided by five hundred river basins. There are five mountain ranges. The importance of the mountains to Cubans extends far beyond that of a topographical entity. Politically they have played a significant role in Cuba's historical development.[6] Consequently these areas are still heavily controlled by the military. Mountains also feature as a separate division in the educational sector as the statistics in chapter 5.2.4 and 5.3.2 reveal. Both the Ministry of Education and the Ministry of Construction consider the requirements of education and school buildings in the mountain regions as both a special and a specific entity.[7]

Agriculture forms the basis of the economy and the most important crop grown in Cuba is sugar cane. The dominance of the sugar industry affects all sectors of society. It was mainly **the taxes raised from sugar that resourced educational development** during the Colonial and Republican periods whilst the **grand mansions and public buildings** throughout Havana **were built out of the profits of the entire sugar industry.** Then, as now, the repercussions of a poor harvest extend well beyond the boundaries of the economy as the following sections in this chapter and also chapter five will explain.

The second main commodity, coffee, is grown in the mountain regions whilst the third most important crop, tobacco, is also very site specific. Areas within the central plains are set aside for the cultivation of citrus fruit and for rearing livestock, whilst rice is centred in selected areas across the island. The extensive coastline is conducive to a robust fishing industry with lobster and shrimp providing the main species for exportation from inland waters (Herrera & Benítez, 1978:74-75). In terms of mineral resources Cuba is one of the world's largest sources of nickel and iron, both being mainly located in the North Oriente. In addition, it is rich in both copper and manganese as well as having deposits of other minerals.

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[6] The revolutions of 1868, 1879, 1895, 1953, and 1959 all started in the Sierra Maestra and gained momentum there before proceeding west towards Havana. Escambray was the centre for the counter-revolutionary guerrilla attacks in the 1960s.

There is no coal on the island and existing petroleum resources are inadequate to meet the needs of the country. Prior to 1959 Cuba's electricity consumption ranked high among the American countries after that of the United States with the main domestic fuel being bagasse[8] (Thomas, 1971:1167). Construction of the country's only nuclear power plant near Cienfuegos was abandoned after the start of the Special Period.[9] Most of the rivers flow across the width of the island and are therefore relatively short with insufficient volume to produce hydro-electric power.[10] Although Cuba is suitably located for the utilisation of solar energy, this has not been implemented due to lack of financial capital required to initiate a programme. Wind power is only practical at a small scale level[11].

The combined effect of the embargo on Cuba by the United States and the collapse of the Soviet Union have highlighted the lack of energy resources and shortage of materials. The design of energy efficient and sustainable buildings is of paramount importance. Electricity is particularly vulnerable with resources being reserved for industry and transportation. Consequently as the use of air conditioning for cooling the buildings is discouraged, the aspect of appropriate design for a tropical climate is the next area for consideration.

Viewed holistically, the topography of the country has the potential capability of providing a range of areas suitable for a highly sustainable economy - were it not for the heavy concentration on sugar production. However, lack of energy resources is the major problem facing the island today.

4.2.2 Designing for Climate

Cuba has a sub-tropical climate that, due to its long narrow shape, is tempered by the sea. In addition the country is divided into three regions in terms of a variation in micro-climate - the coastal region, the central plains and the mountain regions, with the hottest and wettest area being in the south-eastern mountain provinces. There are two main seasons; the wet season, May – September and the dry season, November to May.[12] Humidity is high, ranging from 65% during the day to 95% at night. The prevailing wind is predominantly East-North-East and hurricanes occur between June and November. The annual rainfall is approximately 1,400mm, however, this varies considerably not only from year to year but also according to the micro-climate region.

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[7] Chapter 2.1.2 explained how the importance and the sensitivity of the mountain region even influenced the focus of this research.
[8] *Bagasse* is the waste left behind after the sugar cane has been ground and the juice extracted. Hence, the sugar mills produced their own electricity (Thomas, 1971:1167).
[9] The Special Period started in 1991 (see Chapter 5.5).
[10] There are only two small hydro-electric schemes on the island - Río León near Trinidad and Mártires de Girón near Guantánamo.
[11] Small individual wind generators work well, but large wind turbines (and wind farms) are not practical due to the extreme fluctuation of the prevailing winds - i.e. there is either insufficient wind or it is too strong. (Information obtained from discussions between the author and the staff at Expo Cuba Energy Pavilion in Havana in February 1995).

The two critical elements for consideration in architectural design are the sun (protection from solar radiation) and the wind (ventilation and protection from hurricane damage). However, design resolution is complicated by the fact that there are some contradictory criteria for each of these elements. As the response of buildings to climate forms a critical part of the appraisal of the buildings not only in the following historical analysis but also for the case study analysis, an understanding of design appropriateness for tropical climates is essential[13].

Maintenance of the built fabric is essential because damage to buildings on an island caused by the sun and rain is augmented by the harsh corrosive effects of the salt-laden atmosphere. In the Caribbean it is necessary to paint external walls and maintain woodwork at least every two years to avoid deterioration of the fabric. Both glass and aluminium window frames on exposed facades deteriorate over a few years. Hence, the selection of suitable materials needs careful consideration.

Correct orientation is critical for keeping the buildings and the occupants cool. The main objective is to stop the heat from the sun penetrating the building. Insulation materials are expensive and difficult to obtain in Cuba. A more appropriate alternative is the use of shading devices such as canopies, colonnades, pergolas, shutters, grilles and vegetation. As the sun is almost directly overhead during the summer months there is little penetration on the south facing façade but openings placed on the east and west elevations lead to heat gain problems. Windows should be small, and kept to a minimum (but this solution is contrary to the best solution for ventilation). Since the roof is exposed to the maximum amount of solar radiation, a pitched roof is best. The use of overhanging eaves to provide shading would be suitable were it not contrary to the criteria for design in the tropics due to the hurricane factor.

The careful placement of trees nearby and climbing plants either on the building or on pergolas act as a useful shading device. In Havana, small parks and wide tree-lined boulevards with lush vegetation are used extensively as places where people can avoid the intensity of the sun, and where children from the local *casas adaptadas* both play and do physical exercises (Figure 4.3). However, vegetation may not be practical adjacent to the coast due to the salty atmosphere or in confined urban spaces.

In the colonial part of Havana (La Habana Vieja) the tall buildings create shade in the narrow streets, but at mid-day the sun is sufficiently high enough to penetrate to pavement level (Figure 4.4). Due to the compact urban fabric there is little air movement so the temperature in these streets can be almost two degrees higher than in more open areas. Setting the facade of the building back at ground floor level with a colonnade not only provides shade for pedestrians but

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[12] Temperatures average 32°C/90°F in the wet season and 21°C/77°F n the dry season.

also stops direct sunlight entering the building (Figure 4.5). Louvered shutters are an efficient solution. Glass is not a suitable material for tropical climates but if used, tinted or stained glass helps to diffuse the light and prevent glare (Figure 4.6). Painting the external walls in soft pastel colours helps to prevent glare.

Figure 4.3 Park in Havana
Source: Author

Figure 4.4 Narrow Street in Havana
Source: a) García *et al* (1996:28)

Figure 4.5 Portales:- 18th century House (Casa Lombillo) in Plaza Vieja
Source: Carley & Brizzi (1997:108)

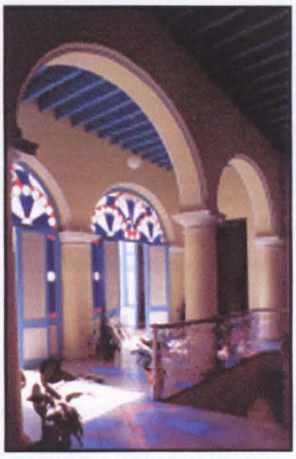

Figure 4.6 Stained Glass Windows and Louvred Openings
Source: Carley & Brizzi (1997:216)

Large window openings placed so that cross ventilation can occur is the best natural method of cooling the building but this is difficult to achieve in the city as the wind tends to pass over the roof-tops resulting in slower wind speeds at the lower levels. One solution is to increase the ceiling height in rooms to at least three metres to create a larger volume. Patios or courtyards within the building also permit cross ventilation, although in high density areas this can also be difficult to achieve (Figure 4.7). In Habana Vieja the use of *"patinejos"* is a common alternative.[14]

[13] I worked as an architect on the semi-tropical island of Bermuda for three years designing buildings that were hurricane resistant.
[14] These are small, chimney-like spaces that improve ventilation but they are too small to allow adequate light penetration into rooms.

The key features in hurricane protection design are weight and mass. Strong winds cause lightweight buildings to lift off or rip apart. Solid masonry walls or reinforced concrete construction perform much better. Internal walls should also be of masonry since this adds to the mass of the building. Windows need to be protected as flying glass can be most hazardous. The roof should also be constructed of heavy materials such as clay tiles on a concrete plate. Eaves should be minimal. Large overhanging eaves give the winds leverage to lift the roof off and should therefore be avoided. Balconies and verandas should be structurally independent of the building as they are most likely components to be torn away (Figure 4.8). Apart from wind, hurricanes are accompanied by torrential rain. Flooding is common, especially in coastal areas. In Havana the sea penetrates several blocks into the city during tropical storms. Consequently it is better to construct the ground floor level at least one metre above pavement level.[15] Many buildings do not have gutters as the rain tends to come in short heavy bursts and cascades from the roofs directly on to the streets.

Figure 4.7 Patio in Habana Vieja
Casa del Conde de Bayona (1720)
Source: Sapieha & Venturi (1990:30)

Figure 4.8 External Façade in Habana Vieja
Casa del Conde de Bayona (1720)
Source: Carley & Brizzi (1997:78)

Hence, in addition to the functional and aesthetic requirements, the successful design of a building in the tropics depends on the selection the appropriate combination of components and materials that modify the climatic conditions into an acceptable living environment.

4.2.3 Summary

All of the preceding factors have contributed to the architectural development of Cuba. Some, such as climate, directly influenced the design of the buildings out of the necessity to achieve a comfortable living and working environment although this aspect of design is not specific to Cuba but is equally applicable to other tropical islands. The geographical elements had a more indirect influence on the buildings through the response to the evolving political and economic policies and the changing social and cultural needs of the people. It is this response that has created the architecture that is unique to Cuba. Sections 4.4 and 4.6 will show in more detail how the architecture responded to these contextual issues during the Colonial and Republican eras.

[15] This causes problems regarding access for ambulant disabled persons.

4.3 Spanish Colonial Cuba: 1512 - 1898

> *"Except for the three busy decades immediately following its colonisation in 1512, Cuba was a colonial backwater .... [in which] educational activities .... were small-scale, patchy, uncordinated and lacking in long-term effects."* (Richmond, 1989:74)

For the first three hundred years of the colonial period a 'school architecture' built by the State simply did not exist. Education was totally controlled by the Church. The lack of both resources and interest in the development of education outside the main cities and the small number of people belonging to the dominant, ruling class (mainly the clergy, administrators and ruling governors), as well as the limitation of building capability and materials, influenced the sparse variety of urban architecture. The wealthy *Peninsulares* and *Criollos*[16] educated their children either at home with private tutors[17] or in convent schools, or sent them to schools in Spain.

The homogeneous plan of the city determined by the dwellings and the convents was only altered by military structures and other monuments such as palaces, churches or major public buildings (Figure 4.9). The **educational centres**, from primary level up to university, **were absorbed within the existing architecture**, assimilated in the only visible alternatives: - the school-convent or the home-school (Segre, 1990:164). In other words, the **use of existing structures for educational purposes prevailed up to the creation of state public schools at the end of the 18th century.**

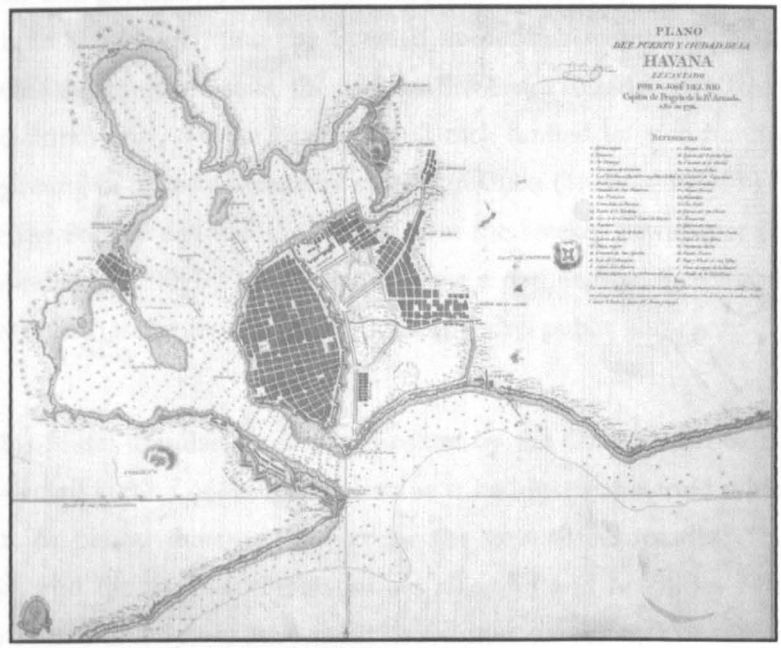

Figure 4.9 Plan of the Port and City of Havana in **1798**
Source: Weiss (1996:208)

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[16] "*Peninsulares*" were Spanish born. They were usually the governmental class or merchants who regarded native born Cubans as inferior (Foner, 1962:52). "*Criollos*" or Creoles were native-born Cubans of Spanish descent or were from intermarriage between Spaniards and Indians or blacks; The term was also used for a black slave born in the Americas.

[17] Sometimes "*private individuals opened schools but these rarely survived their founder's death or departure; [also] a cabildo [town council] would support the establishment and operation of a school, but such assistance tended to be neither generous nor long-standing*" (Richmond, 1989:74).

4.3.1 The Dawn of Educational Awareness: 1790 - 1842

> *"The first public school in Cuba was founded in 1788 by Fernando de Ayerbe, a mestizo priest. That this was 277 years after the beginning of colonisation [and 60 years after the founding of the University of Havana] is significant of the narrow viewpoint of Spanish colonial policy."* (Foner, 1962:60)

The year 1790 was marked by growing prosperity and the arrival of several distinguished figures whose fresh intellectual ideas leading to economic, social and political reforms, scientific innovation, philosophical enlightenment and the expansion of education, were made possible through the patronage and co-operation of the Captain General Luis del las Casas[18]. A number of important organisations were founded in Havana by Royal decree for the purpose of advancing the economic and cultural life on the island. Although semi-political and motivated by the prospect of increasing the wealth of the individual entrepreneurs themselves, these institutions were nevertheless directed towards the development and interests of Cuba rather than Spain.

La Real Sociedad Económica de Amigos del Pais (the Royal Economic Society of Friends of the Country) founded in 1793 was chiefly devoted to educational reform. According to Richmond (1989:75) and Foner (1962:61-62) the *Sociedad Económica* championed improvements in teaching methods and the curriculum, undertook school inspections and surveys of educational provision, collected statistics and generally promoted the importance of education for the progress of the country. Since both the Church and the Spanish authorities were neither supportive of, nor interested in Cuba's educational needs, the *Sociedad Económica* founded two free schools in 1794 - both for white children only, one for each sex and each limited to two hundred pupils, - thus marking the beginning of a free educational system in Cuba (Thomas 1971:75)[19]. To help finance this programme the Society devoted the profits from the weekly newspaper *Papel Periódico*, the first in Cuba, founded in 1790. By 1810 it had become a daily newspaper and the earnings from this had also contributed to the foundation of Cuba's the first public library.

Unfortunately this initial impulse given to education by the Government of Luis del las Casas only benefited a small section of the population as it had just got started when external events created an unstable period that was to last for the next three decades. These included the Napoleonic Wars and the various corresponding alliances and hostilities between the United States, England, France and Spain; the French Revolution; rebellions in South America; and the abolition of slavery. More significantly the decade of revolts and bloody conflict on the adjacent island of Haiti changed the entire future of Cuba.

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[18] The Captain General was the Governor of the island.

[19] About thirty-nine schools already existed in Havana which Thomas (1971:75) describes as *"primitive little tutorial groups directed by mulatto women often scarcely literate themselves - in which about 1,700 children were enrolled [600 of these were boys at the Convent of Belén]."*

4.3.2 The Impact of Sugar, Coffee and Tobacco

> *"Instead of becoming a prosperous land of small white holders who out-numbered black slaves, Cuba became a land of great plantations where the fear of a new Haiti was a constant spectre haunting the slave-owners."* (Foner, 1962:65)

The collapse of the French sugar trade in Haiti meant that more land was turned over to sugar plantations. At the beginning of the nineteenth century tropical forests covered 90 percent of the island; by 1959 only 14 percent remained (Castro, 1978:40).[20] The volatility of a crop that can be harvested only once a year combined with extreme fluctuations in the price of sugar meant that the economy of the country became as volatile as the crop itself. Nevertheless, the expansion accelerated during the nineteenth century. In 1837 the first steam railway was built from Havana to Bejucal and by 1860 almost 400 miles of railway track were completed. Although constructed specifically for the purpose of transporting sugar from the plantations to the ports, the railways effectively opened up the hitherto remote areas of the interior. Another important factor was that the sugar industry relied on slave labour. When the white Haitian planters moved to the island between 1795 and 1805 a *"powerful class of rich sugar planters emerged .... living sumptuously on the wealth created by a swelling number of slaves"* (Foner, 1962:70).

The Haitian revolution also led to an increase in the production of coffee. Since the *cafetales* (coffee farms) were located mainly in the lush mountain areas coffee production provided a parallel industry to that of sugar. In terms of land use it appeared to be both a perfect agricultural and economic combination:- *"El café precisa, para crecer, de la sombra; .... La caña de azúcar no necesita de sombra"* [21] (Aguirre, 1974:8). However, after reaching a peak in the 1840's coffee production went into decline due in part to the greater profits which could be obtained from sugar, and the fact that there was fierce competition from other countries such as Brazil. Whilst coffee declined after 1840, tobacco production increased. According to Thomas (1971:133-4) in 1827 there were approximately 3,500 *vegas* (tobacco farms). These increased to 11,500 in the 1860s. Unlike the sugar and coffee plantations, the tobacco farms were relatively small sized family run businesses with the tobacco being cultivated by "free labour", one third black and two-thirds white labour. In contrast to the farms, the factories that manufactured the cigars were owned by wealthy Spanish immigrants. By 1860 *"there were about 130 cigar factories in Havana"* (Thomas, 1971:134) as tobacco consumption increased in Europe and the quality of Cuban tobacco was acknowledged as being the best in the world. However, when the United States increased the tariff, exports fell, factories went bankrupt and many workers fled to Florida to produce cigars using imported Cuban tobacco. Foner (1962:99) records that in 1817 there were *"625 sugar plantations, 779 coffee plantations, 1,601 tobacco farms and 2,127 cattle ranches"*. Despite the apparent increased prosperity, the large influx of immigrants from Haiti created fear and unrest amongst the bourgeoisie when uprisings

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[20] This meant that other crops like rice and corn subsequently had to be imported - mainly from the United States.
[21] Coffee requires shade to grow: sugar cane does not need shade.

broke out on sugar plantations, particularly on the eastern side of the island because **both** whites and blacks **united** in revolt, demanding equality and the distribution of land to the poor.[22]

Although Thomas (1971:85) considered that *"with rising prosperity, more schools were founded[23]; in 1801 there were seventeen in Havana, with 2,000 pupils"*, he subsequently points out that by 1827, in addition to six schools for mulatto boys and eight for black or mulatto girls, the seven free schools founded by the *Sociedad Económica* and the Convent of Belén, there was a total of 222 primary schools on the island and that only ten percent of "free" children[24] actually attended school, with half of these having their education paid for by their parents (Thomas, 1971:285). The census of 1833 recorded that there were just over 9,000 children enrolled in schools out of approximately 200,000 children under fifteen years old (Thomas, 1971:147). It could therefore be argued that:-

> *"The entire period of Spanish rule in Cuba between 1512 and 1842 was marked by neglect, a judgement with which it is difficult to quarrel."* (Richmond, 1989:76)

4.3.3 Revolution and the End of Colonial Rule

As the Spanish Empire on mainland America began to shrink,[25] Spain began to reassess her policies towards the increasing profitable island of Cuba. **Educational reform was considered a useful way of controlling the colony.** In 1842 the General Plan of Public Instruction was introduced. Various laws clarified the structure of education (primary, secondary and higher levels) and *"defined the corresponding educational powers and financial responsibilities of public authorities at the level of the municipality, the province and Havana"* (Richmond,1989:76). **Compulsory education for six to nine year olds was introduced with free schooling for poor families.**

It was not until the additional enactment of 1880 which decreed the co-ordination of Cuban and Spanish educational practice that the structure altered more radically (Thomas, 1971:285). A Board of Education was set up together with an inspectorate of schools. Regulations for the employment of teachers were established and their salaries were paid by the municipalities. In spite of this, teachers could nominate substitutes regardless of quality and *"some schools were without their regular teacher for years"* (Thomas, 1971:286). Every town with more than 500 inhabitants was supposed to have one primary school for boys and one for girls. Segregation between the races was eliminated and **compulsory education was extended to include all children between nine and thirteen years.**

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[22] According to the 1817 Census *"the white population of Cuba was 291,021 (45.96%) and the black population was 339,959 (54.04%) of whom 33.55% were slaves"* (Foner, 1962:95). The population of Cuba had doubled in less than three decades.
[23] Thomas clarifies that these were not Government schools and that the quality of the education still remained somewhat dubious.
[24] Slaves were not allowed access to education.
[25] Most colonies had gained independence by 1820.

Table 4.1 Number of Primary Schools in Cuba in 1883 and 1895

Year	1893		1895	
CITY / Type of School	Public	Private	Public	Private
Havana	173	101	291	329
Matanzas	95	22	143	117
Pinar del Río	82	18	159	33
Santa Clara	103	18	221	100
Puerto Príncipe	24	4	37	41
Santiago	58	21	125	120
TOTAL	535	184	904	740

Source: Thomas (1971: 286)

Table 4.1 shows the increase in both public and private schools due to the reforms. Although there were 35,000 pupils enrolled in the public primary schools and 25,000 pupils enrolled in the private primary schools, these figures combined to represent still only about 20 percent of the school age population (Richmond, 1989:78). Each of the six provincial capitals[26] also had an institute of secondary education. In 1895, 1,186 children attended these, whilst a further 2,265 were enrolled at the other seventy colleges. In the same year the University in Havana had 671 students and 58 professors (Thomas, 1971:286).

The underlying purpose was to inculcate both the need for obedience and loyalty to the Crown and the ideas and beliefs of the Catholic Church[27], but in reality it only succeeded in emphasising the social discriminations and divisions within the society. The wealthy planters continued to send their children either to schools and universities in the United States or to the private schools on the island. Nevertheless Epstein (1987:6) points out that *"as late as 1893-94, parochial schools accounted for 46 per cent of the total (number of schools) and church-supported education was normally much better endowed in facilities and the preparation of teachers"*.

Although formal teaching in the schools was controlled, it could be argued that education extended beyond the confines of the classrooms when the practice of employing a reader (partially paid for by the workers) was introduced in the tobacco factories from 1864 and this was to have a far greater impact on the country than conventional pedagogy. Thomas (1971:238) records *"the seeds of confusion were already sown since the books [which the reader used] ... were not quite innocent"* - meaning they were politically motivating[28]. Certainly this practice (which still continues) played a part in the subsequent revolutions.

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[26] In the 18th century Cuba was divided into three provinces - Occidental, Centro and Oriental; by the late 19th century there were six provinces - Pinar del Río; La Habana; Matanzas; Santa Clara; Puerto Príncipe (now Camagüey) and Santiago de Cuba.

[27] *"Although there was nominally no connection between the established (Roman Catholic) Church and the public school system, the church exerted a dominant influence in educational matters, continuing to provide much of the education on the island."* (Epstein, 1987:6)

[28] Books such as *"Political Economy"* by Núñez y Estrada; the six-volume *"History of Spain"* by Galeano; and the reformers' newspaper *"El Siglo"* (Thomas, 1971:238).

During the last thirty years of the nineteenth century the situation was made worse by the Wars of Independence[29], which were to impose long periods of inactivity in the schools, specially in the war zones in the interior of the country. Society was divided, not by class or race but by political tendencies into three groups:- those who wanted to remain under Spanish rule (the Abolitionists and Reformists); those who pledged allegiance to the United States (the Annexationists); and the overwhelming majority who wanted independence (the Separatists). Few could have predicted the outcome of the revolution that started in 1895. Three years later the Spanish colonial rule of the island had ended, but Cuba was far from being an independent state. Intervention from the United States came at a price.

The legacy of Spain to the Republic demonstrated the restrictive criteria that dominated education at the basic level during the colonial period (Segre, 1990:167). Moreover, the predominantly humanistic character of higher education, that was a product of the bureaucratic and administrative conception of colonial exploitation, neither satisfied the needs demanded by the economic development of Cuba nor the implementation of new technology in agricultural development. Throughout the Spanish colonial period the attempts to implement some form of educational reformation were too little and too late – as eloquently described by José Martí :-

> *"A serious mistake is being committed in the educational system in Latin America: in villages where people live almost completely off the produce of the land, men are being educated exclusively for urban life and they are not being prepared for the life in the country. And as the urban life only exists at the expense of, and by virtue of the country life, and by the trade of its produce, the result is that the current system of education is creating an army of unemployable and helpless people, one is putting the head of a giant on the body of an ant."* José Martí (1887) (Author's translation from Segre, 1990:167)

4.3.4 José Martí (1853 - 1895)

"At school one has to learn control of the forces with which one has to face in life's struggles.
One should not call it school but workshops.
The pen should be utilised in the afternoons in the schools; but in the mornings, utilise the hoe."
José Martí (Author's translation from Cuba, DESA, 1973: 37)

The most revered figure in Cuba from the late nineteenth century through to the present time is that of José Martí. His talents were extraordinary as, according to Foner (1963:358) he was *"a rare combination of man of ideas and man of action"*. He was a philosopher, an educational theorist, a poet, a lawyer, a distinguished journalist, a great orator, a diplomat and a most prolific writer of exquisite Spanish prose. Yet this giant icon of revolutionary ideology and nationalism spent almost all but his childhood years in exile (Figure 4.10).

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[29] The Ten-year War 1868 - 1878; the Little War 1879 - 1880 and the Second War of Independence 1895-98.

The son of Spanish emigrants he was born in Havana in 1853. At sixteen he was imprisoned for his anti-Spanish activities. On release he was sent to Spain where he studied, first law at Madrid University, and then Government and Law at the University of Zaragosa (MacDonald, 1996:8). He returned to Cuba several times afterwards for short periods but was either deported or left voluntarily. Resigned to a life in exile he lived in New York from 1880 to 1895 and travelled extensively in Europe and South America. As a patriot and a revolutionary in the struggle for Cuban independence and freedom he was both the inspiration for, and leader of the Cuban Revolutionary Party *(El Partido Revolucionario Cubano).* When in 1895 he was shot in the first battle of the war in Granma province north of the Sierra Maestra, the New York *Sun* recorded *"he died as such a man might wish to die, battling for liberty and democracy"* (Foner, 1963:357).[30]

Martí's pedagogical ideas form the basis of the current educational system, and he remains *"the most important single influence on all ... developments in education"* (MacDonald, 1996:10). He opposed the traditional, formal style of education based on rote-learning because he believed that it stifled the individual. His ideas were based on the principles that learning and work should be integrated and relevant to the practicalities of life, and that any educational system should be designed to suit the national characteristics, requirements and culture of each country. As Martí's quotation suggests, in a predominantly agricultural country like Cuba, education in the rural areas needed to focus on agricultural issues in order to be fit for purpose, whilst in the cities he advocated an emphasis on technological knowledge for industrial progress and expansion. The main body of his writings on educational theory and pedagogy are contained in his book *"La Edad de Oro"* (The Age of Gold), a text that is still used in the training of Cuban teachers. The fact that every school in Cuba has a bust of Martí prominently displayed is a visible acknowledgement of his contribution to education.[31]

As a nationalist revolutionary, he hated the Spanish; as a socialist he was *"appalled by the unscrupulous amassing of riches and the political corruption he saw all about him"* (Foner, 1963:336); and as a Cuban patriot living in the United States he gradually became convinced that American imperialism and plutocracy was about to launch an offensive to engulf Latin America and that it would start by swallowing Cuba (Foner, 1963:337). Many would agree that these fears were at least partially borne out by the subsequent events during the twentieth century.

Figure 4.10 José Martí in 1892
Source: Rodríguez (1983:97)

[30] **Martí is the one figure that still unites all Cubans.** He is revered not only by the Revolutionary regime in Cuba but also by the anti-Castro Cubans in the US.

[31] *"Some of his educational principles .... have been integrated with socialist thinking (Marx, Engels and Lenin) in order to provide the philosophical basis for such innovations as the school in the countryside"* (Richmond,1989:18) (see also Chapter 5).

4.3.5 The Legacy of War

> *"It is my duty .... to prevent, by the independence of Cuba, the United States from spreading over the West Indies and falling, with that added weight, upon other lands of our America. All I have done up to now, and shall do hereafter, is to that end .... I have lived inside the monster and know its insides and my weapon is only the slingshot of David."* [32]
> José Martí, 18th May 1895 (translated in Foner, 1963:359)

The war against Spain between 1895 and 1898 was immensely destructive. On the Cuban side it is estimated that the losses accounted for more than 300,000, or a sixth of the population[33]. Of the 200,00 Spanish soldiers more than 60,000 died, whilst United States' casualties amounted to more than 6,000 from March 1898 to June 1899, mostly due to disease (Thomas, 1971:405-413). The economy of the country was in ruins with over 30,000 farms and 400,000 acres of cultivated land destroyed and more than 80 percent of livestock killed, resulting in food shortages and starvation. By 1899 just over 200 of the 1,100 sugar mills survived the war (Thomas,1971:424-428).

Another consequence of the war was the large number of children who failed to survive into adolescence due to the effects during and after the fighting, such that, in 1899 there were only 130,878 children under four years of age and 226,109 between five and nine years old[34]. Less than half the schools were open in 1898; many had been closed throughout the war (Thomas,1971: 423-432). Given these severe circumstances, education could not be considered as a vital priority.

In addition to the devastation, the combination of the assistance (or intervention) given to the Cubans by the United States together with the Platt Amendment effectively meant that ***"Cuba had succeeded only in replacing one form of foreign mastery by another"*** (Richmond, 1989:80). The country became a Republic in name only. Before elaborating the island's progress during the first half of the twentieth century, the next section will review the architecture of the colonial period in order to place the buildings in context and to show how they were used in the development of education, how they are representative of the Spanish ruling class and the wealthy merchants of the period and how they respond to the tropical climate.

4.4 Colonial Architecture – a Contextual Response

Architectural development in Cuba from the 16th to the end of the 18th century was conditioned by an economic differentiation that was characterised in two stages (Segre *et al*, 1986:69-78). The first stage was determined by external economic and political factors, the most important of which

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[32] This was Martí's last and unfinished letter to Manuel Mercado. Martí was shot in a battle the following day. The "*monster*" refers to the United States. When Martí arrived in the U.S., the North American democracy seemed attractive. He wrote "*I am in a country where everybody appears his own master. Here we can be proud of the species*" (Martí, Obras Completas,1931,vol. 1,p.1292; in Foner, 1963:334). After living there for fourteen years, his views changed radically.

[33] The estimated population in 1895 was about 1,800,000. The 1899 census recorded the population as 1,572,797. (Thomas,1971:423).

was the location of the island and of its main port in Havana. This resulted in an architecture of a defensive nature which concentrated on fortification, religious buildings and dwellings. The second stage developed due to the expansion of an exportation economy predominantly based on sugar, coffee and tobacco resulting in the growth of the interior of the country. The focus moved from an inward-looking and protective form of architecture to that of an outward-looking society with increasing international trade relations that continued into the nineteenth century. These factors, together with the consistency of Spanish rule throughout the first four hundred years, are reflected in the architectural style of the buildings which, being constructed on an island, were restricted not only by the materials available but also by the skills and knowledge of a relatively limited labour force. Even when the economy developed external influences were limited in terms of architectural design, due to the fact that the ruling population continued to be predominantly Spanish and the architects of this era were trained in Spain[35].

The purpose of this section is to examine the contextual response of the urban buildings constructed during the colonial period. Due to the relative consistency of the architectural style it is more appropriate to look at the main elemental components. Furthermore, just as the previous section revealed that it is difficult to follow the colonial educational process through the school buildings due to the notable absence of purpose built schools, in this section, an examination by typology of educational buildings is equally inappropriate. Segre's deduction (1990:164) that **the educational centres were absorbed into the existing architecture of convents and dwellings**, is substantiated by the fact that in the extensively detailed analyses of Cuba's colonial buildings up to the end of the nineteenth century by Weiss (1972; 1979 and 1996) there is not one "school" either mentioned or illustrated. The following analysis will therefore first give an overview of convent architecture and then concentrate on specific features of the houses built in Havana during the period of Spanish-colonial rule.

4.4.1 The Convent-School

The convent buildings of the main religious orders, in which the educational centres of the ruling class of Havana were typical examples of the urban colonial convent architecture. The massive volume of these structures, between two and three storeys in height, was focused inwards. The solid external walls symbolized the separation from the external urban environment. This contrasted with the extensive interior area developed around the cloisters identified by the rhythm of arches that defined the shaded galleries that in turn protected the classrooms and dwelling areas. The austere architecture was softened by the tropical vegetation in the courtyards

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[34] Consequently, by the Revolution in 1959, there was a notable lack of men and women over the age of sixty (Thomas, 1971:424).

[35] In 1845 the *Escuela de Arquitectura* (School of Architecture) was created in Cuba under the auspices of *La Real Sociedad Económica de Amigos del Pais* (the Royal Economic Society of Friends of the Country). This was a two year course in drawing and composition after which students were allowed to continue their studies in Madrid (Weiss, 1996:340).

(Segre, 1990:167). These characteristics are repeated in some of the large convents of Havana. Segre (1971:8) observed that in spite of the stylistic and formal differences of these convents certain common conceptual denominators exist which unify them:- the link between culture and religion; social and convent life; the framed spatial reference and the formal ecclesiastical group; and the similar introverted character of the Havana palaces. In this respect he concluded that the architectural cohesion that surrounded the life of the colonial aristocracy corresponded to the unity of objectives of education and the concept of social functions.

Even though the colonial convent architecture constituted the reinterpretation of the construction and styles of architecture imported from Europe, it was modified by local ecological and technical factors, in order to define a dialectic process of development. The resulting theme represented a structure totally alienated from the exterior social and urban life, a culture still connected to medieval traditions by means of the enclosed interior spaces. The solid mass of the convents, framed by the urban grid of the streets, constituted teaching centres (of the privileged class) controlled by a system of values created by the dominant elite which did not extend to the rest of the population (Figure 4.11). The architectural language of the buildings represented a visible manifestation of the distinction between the educated bourgeoisie and the illiterate proletariat (Segre, 1971:8).

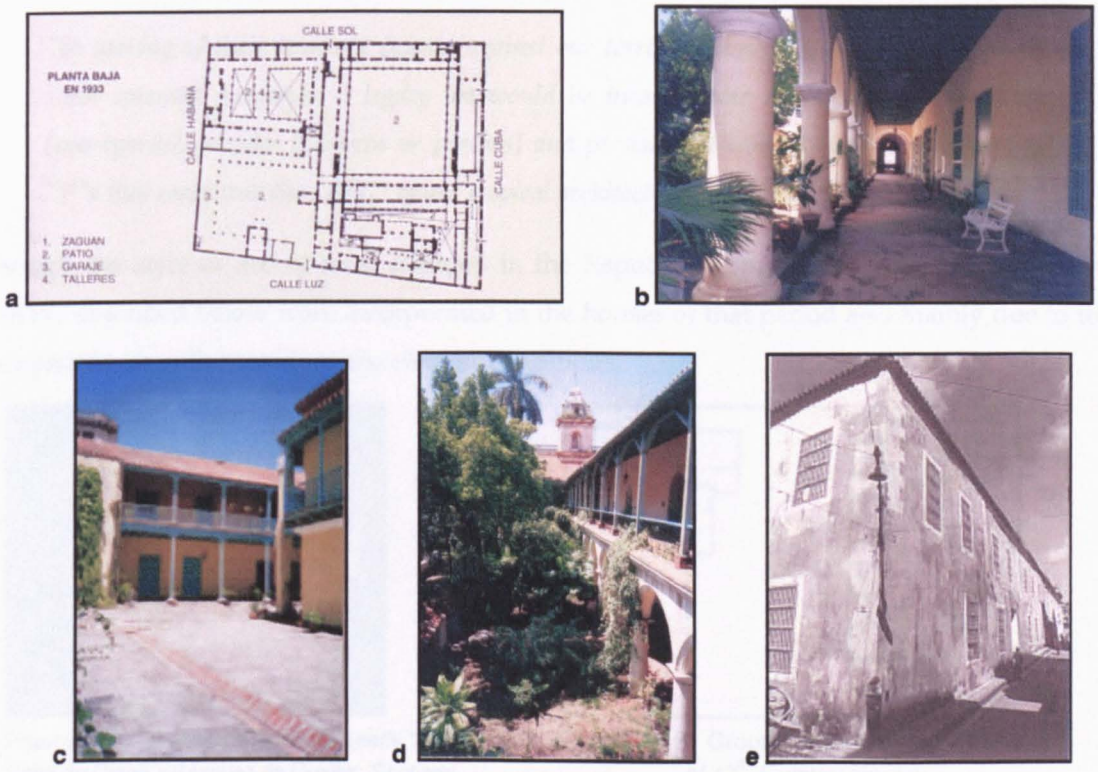

Figure 4.11 Convent of Santa Clara, Habana Vieja

a) Plan; b) Portales; c) Interior view; d) Patio Area; e) External Street Facade

Source: (a & e) Zequeira & Fernandez (1993:42 & 43); (b; c; & d) Author

4.4.2 The House-School

> *Whilst the fortresses exemplified the power of the crown and the military, and the religious buildings, the dominance of the Church,* ***it was the colonial houses that reflected the changing social and economic circumstances in the city as well as the architectural response to the tropical climate.*** (Author's translation from Segre et al, 1986:76)

It is not clear from any of the literature sources examined whether the whole house or only part of the house was used for educational purposes since many residential buildings were subdivided into *cuarterias* and *ciudadelas*.[36] Epstein (1987:7) records that throughout colonial rule, *"preference [was] given to rented houses built without regard to educational needs and purposes."* However, the evolution of the fundamental components and construction remain consistent.

The design of the Cuban houses originated from the Moorish architecture *(mudéjar)* that was prevalent in Andalucia. The dominant Moorish features can be identified in the plan layout of the houses and in the construction of the walls and roofs, especially in the decorative carpentry (Weiss,1972:74) (Figure 4.12). Gradually the various elements were modified to suit the local conditions. During the 18th century elements of Baroque architecture were incorporated in the houses and in the 1800s the style shifted more towards that of the neo-classical. In all cases the result was a considerably refined or modified version of the styles found in Europe at that time.

> *"In making of their houses a defence against our torrid tropical sun, our ancestors found three splendid resources, a legacy we would be inconsiderate not to use today:- patios [courtyards], portales [porticos or porches] and persianas [louvers], these being the three "P"s that constitute the "ABC" of our tropical architecture."* (Batista, 1999:1)[37]

Although the style of architecture changed in the Republican era (see section 5.6) many of the elements described below were incorporated in the houses of that period also mainly due to their appropriateness with regards to the climatic conditions.

Figure 4.12 Mudéjar Influence: (early 1500s) Casa de Diego Velázquez de Cuellar, Santiago
Source: Carley & Brizzi (1997:73)

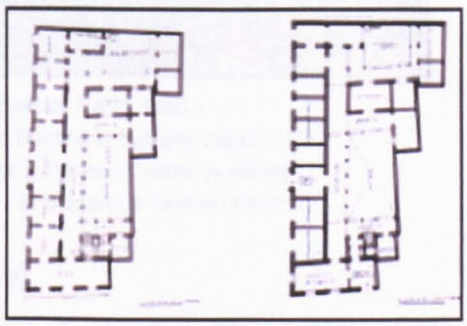

Figure 4.13 Ground and First Floor Plan of 17th Century House
Source: Weiss (1996:89)

[36] These would equate to rented rooms and apartments.
[37] The architect Eugenio Batista practised in Cuba during the 1950s. This quotation was originally published in *Artes Plasticas*, Vol.2, 1960; translated by Raul Garcia.

a) Plan and Patios

The rectangular plan of the houses was determined by the urban grid of the municipalities in the city. The *manzanas* (blocks) in Havana Vieja, the oldest part of the city, are relatively small and irregular in shape compared to other municipalities, hence the houses of the 16th and 17th centuries were long and narrow in plan[38] Although some single storey dwellings existed most houses were two-storey buildings.

The central **patio** formed the fundamental nucleus around which the house was constructed.[39] This led to three basic plan forms - 'L', 'U' and 'O' shaped. In the early years the patio provided the main source of ventilation as the openings on the street elevations were small. The family living quarters on the upper floor were accessed from the patio galleries (Figure 4.13). Doorways were between six and ten feet high (Wright, 1910:158) and the windows facing the patio were also large openings with wooden grilles and/or shutters. In this manner the internal and external areas spilled over into each other. According to Weiss (1972:79) rooms were five metres in width but the length varied from five to eight metres for bedrooms, to between ten or twelve metres in the living rooms in order to accommodate fiestas and meetings that the families held although *"meals were taken in the open areas of the galleries"* (Weiss, 1972:79). Fountains and foliage created a cooling atmosphere. By the 18th century, stone-arched colonnades replaced the timber galleries, but otherwise the patio remained a distinctive feature of the houses in the inner city areas through to the end of the 19th century (Figure 4.14).

Figure 4.14 Examples of Patio Area:-
a) First Floor Gallery of Casa del Conde de Bayona in Habana Vieja (1720)
b) Internal Patio area of the Casa de Obispo y Oficios in Plaza de Armas
Source: a) Carley & Brizzi (1997:79); b) Sapieha & Venturi (1990:117)

b) Entrances, Windows and *Persianas* (Louvres)

The entrance to the house was usually positioned at one extreme end of the front elevation, although later a more central location was preferred. The majestic doorway (*portada*) was extremely large in order to accommodate horse-drawn carriages. Usually there was a smaller door

[38] The length varied according to the number of occupants and rooms in the house, but the width tended to be between 5-6metres from the street facade to the internal gallery of the patio (Weiss, 1972:76).

[39] The patio was the "heart" of the house - it provided illumination, ventilation, circulation and communication (Weiss, 1972:77).

inserted in the main *portada* for people to enter. The *"zaguán"* or vestibule was another traditional Spanish feature of major importance, but instead of acting as a privacy barrier, in the Cuban houses the entrance lobby was usually placed in line with the patio permitting views from the interior patio to the street, thus signifying the evolving cultural differences.

From the late seventeenth century onwards other features of the houses began to change as the realisation that the Spanish-Moorish designs were not entirely suited to either the tropical climate or to the developing social and economic conditions in Cuba. The façade proportions altered in the 18th century as windows increased in size. The minimum height requirement for the ground floor rooms in the 19th century was 5,500mm for houses on main streets and 5,280mm for houses on secondary streets (Weiss, 1996:350). On the street facade the window openings were protected with wooden grilles (later of iron) that, in the absence of glass, acted as security yet permitted the air to pass through (Figure 4.15). Since the openings on the patio side were also large, this provided the high degree of cross ventilation necessary for cooling the rooms.[40] Where space was restricted the *"patinejos"* provided another source of ventilation for the houses.

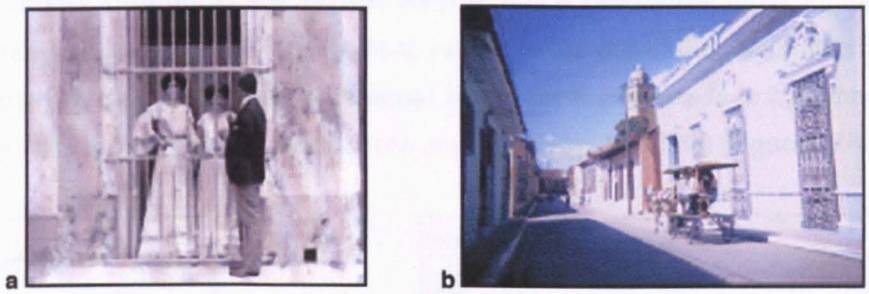

Figure 4.15 Full Height Windows on External Façade
Source: a) Wright (1910:128); b) Author

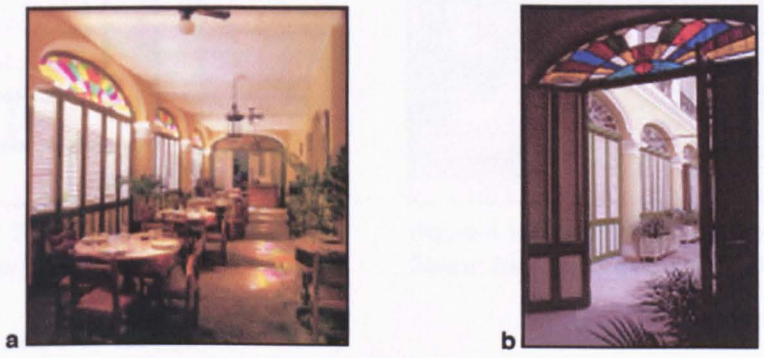

Figure 4.16 Stained Glass and Louvres *(Persianas)*
Source: a) Sapieha & Venturi (1990:118); b) Carley & Brizzi (1997:122)

By the 19th century *"persianas"* (louvres) provided privacy and protection from the sun and could be adjusted to control the amount of ventilation (Weiss, 1996:352). Glass was unnecessary,

[40] Coyula (1996:2) notes that whilst the outside temperature in the district of Centro Havana is almost two degrees centigrade hotter than the average for the rest of the city, the micro climate inside the colonial buildings is more comfortable and cooler than the contemporary detached buildings.

although in the homes of the wealthy Cubans, stained glass was used as a decorative feature as well as to reduce glare and the intensity of light entering the rooms (Aguirre:1971) (Figure 4.16).

c) The House-Store Typology and the *Entresuelo* (Mezzanine)

An important transformation was the evolution of the 'house-store' typology. The rich plantation owners' desire to reflect the power that they had achieved due to the developing economy of the 18th century is expressed in the spatial hierarchy of the their houses (Segre *et al*, 1986:77). The plan became more square-shaped and the accommodation more spacious (Figure 4.17).

As most of the bourgeoisie were merchants, industrialists or traders in agricultural produce they kept their surplus goods stored in the house prior to exportation (Weiss, 1979:18-19). Hence the ground floor was used for storage and servants, whilst the private quarters were restricted to the first floor, access to which was via a stairway located on the interior side of the patio. Between the two floors there was the ***entresuelo*** (mezzanine level) where the servants slept or the owner had his office. The introduction of this additional floor was reflected in the altered proportions of the street facade (Weiss 1979:18) as the houses became much taller than those in the preceding centuries. The *portada* also increased in height to extend to the top of the mezzanine floor. By the 19th century the building codes set the minimum height for the *entresuelo* at 2,780mm. Hence the ground to first floor height was more than seven meters (Weiss, 1996:350) (Figure 4.18).

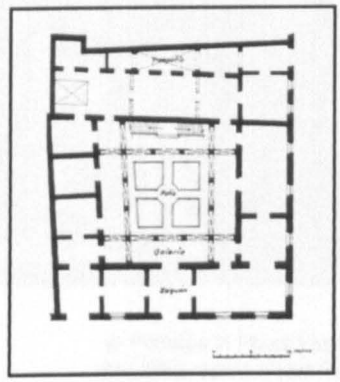

Figure 4.17 Floor Plan- 18th Century House
Source: Weiss (1996: 195)

Figure 4.18 The *Entresuelo* (Mezzanine level)
Source: Zequeira & Fernandez (1993:78)

d) Balconies and *Portales* (Colonnades)

During the 17th and 18th centuries the design of the **balcony** evolved. The earlier ones were an individual projection of a room into the street with simple wooden railings. By the end of the 18th century balconies of wrought iron extended along the street facade with elaborate decorative railings and guard rails (*guardavecinos*) to indicate the change of ownership of property (Weiss, 1979:20) (Figure 4.19). The continuous run of balconies offered shading to the people in the street below, and indirectly led to the development of the ***portales*** (colonnades) in the 18th century.

Figure 4.19 The Evolution of Balconies

a) 17th Century House with Wooden 'single-room' and Tiled-roof Balcony
b) Continuous Metal Balcony on 18th Century Casa del Conde de Casa Barreto
c) Row of Houses with Metal Balconies showing the *guardavecinos* (separating grilles)
Source: a) Zequeira & Fernandez (1993:45); b) & c) García *et al* (1996:36 & 39)

According to Weiss (1972:80-81) the *Leyes de Indias* stipulated that the corners of the *plazas* (main square) where the main streets converged on the square, were supposed to have *"portales to accommodate the traders who gathered there"*.[41] Only a few were constructed in the 17th century. On the one hand the *portales* provided areas for the public to use, either to trade beneath or to walk along in the shade, but on the other hand they were part of a privately owned house. This posed the question, was the space within the *portales* public or private property?. (Figure 4.20).

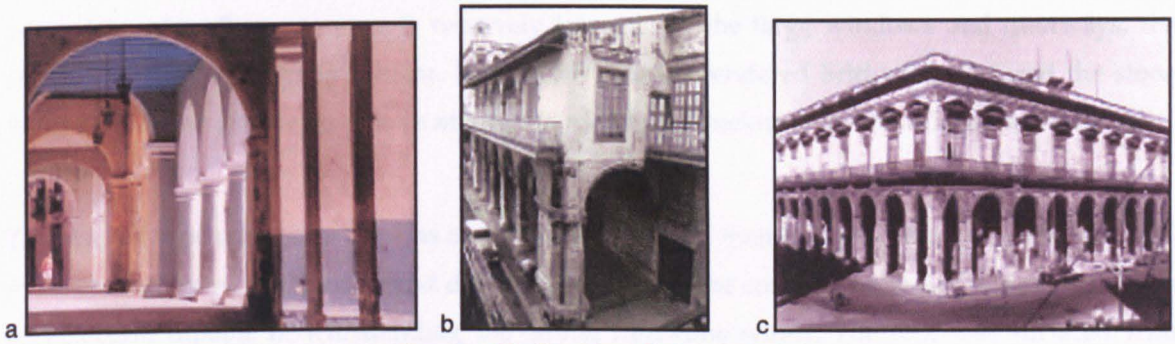

Figure 4.20 *Portales* (Colonnades)

a) Portales in Plaza Vieja
b) Living rooms above Portales of 18th Century house of Conde de San Juan de Jaruco
c) 18th C. Palacio de la Marquesa de Villalba; 10m high *portales* with the *entresuelo* behind.
Source: a) García *et al* (1996:12); b) & c) Zequeira & Fernandez (1993:59 & 109)

By the 19th century the Ordnance of Construction required that *portales* be incorporated into all new buildings constructed outside the city walls on all main streets (Weiss, 1996:354). Havana became known as the 'city of colonnades' and it was possible to walk along a continuous line of *portales* sheltered from the sun on the major avenues. Houses, not only in the new suburbs of Vedado and Cerro but also throughout the provinces, had *portales* although this was a feature (like the patio) for private use only (Figure 4.21).

[41] Laws and Codes of the Colony concerned with building regulations had existed since the 16th century. However, the application of these regulations was slow to materialise partly because the Andalucian houses never had *portales*, and also partly due to other laws dating back to the 16th century.

The importance of the *portales* is not restricted to its climatic function of providing shade. It also provided a social function as a space where people would meet to converse and where street traders and shoe-shine boys set up shop.

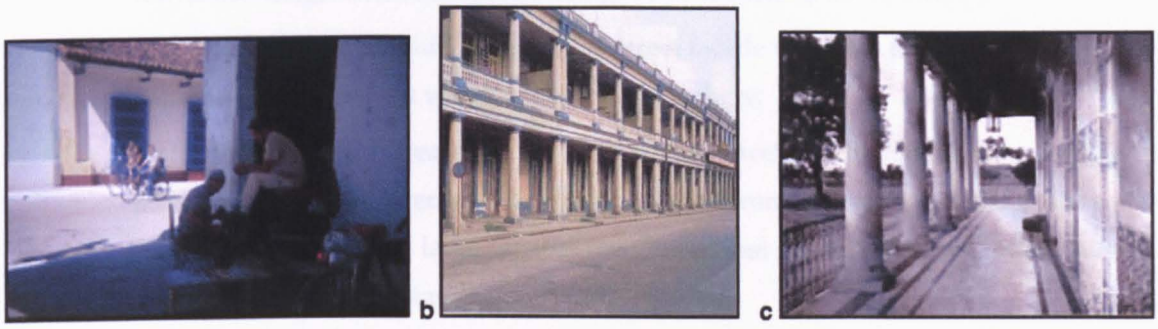

Figure 4.21 *Portales* (Colonnades)
a) Shoe-shine Trader in shade of portales
b) Houses in El Cerro with twin tiers of Portales
c) Portico of a Vuelta Abajo Planter's House in Pinar del Río
Source: a) Author; b) Menocal *et al* (2001:70); c) Wright (1910: 112)

e) Walls and Roof Construction

During the 16th and 17th centuries the external walls were constructed in adobe or wattle and daub with brick or stone courses added for strength. These walls were up to 800mm thick, rendered with a lime-sand stucco that was then painted in soft colours to reflect the light. The construction gave mass and weight as well as protection from the elements[42]. Even though the percentage of wall to openings is relatively low due to the large windows and doorways, the stability of the buildings is evident. In the 19th century rendered brickwork replaced the stone walls used in the 18th century in an attempt to reduce the thickness of the walls to about 500 mm.

The pitched roof used large sections of timber as structural members that were then under-drawn in timber fashioned in elaborate and decorative patterns. The combined effect of this gave a robust construction capable of withstanding the strong hurricane winds. The roof was surfaced with rolled clay pantiles and the eaves tended to have a fairly shallow overhang, often resting on the extended corbelling of the walls[43].

4.4.3 Architectural Appraisal

The elemental components of the colonial house evolved gradually from their Mediterranean Spanish and Moorish origins to result in a style that was appropriate not only for the tropical climate but also for the developing Cuban culture.

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[42] Cárdenas explained that churches were not rendered due to the Spanish influence- cathedrals in Europe were unrendered. However, in Cuba, this is not appropriate as the stone is both soft and porous which, combined with the strong winds and rain, leads to deterioration of the facade. (Discussion between the author and Prof.Arq. Eliana Cárdenas in April 1997).

[43] The Moorish influence is most evident in the roof construction, known as *alfarjes*. By the 19th century the *alfarjes* roofs were abandoned in favour of timber post and beam construction supporting plastered ceilings that were elaborately painted.

The main factors that contribute to the suitability for climate can be summarised as follows:-

- the heavy wall and roof construction provides the weight and mass necessary for hurricane design. Most colonial buildings have withstood all hurricanes;
- the use of patios combined with the enlarged street facade windows permits cross-ventilation in the rooms which cools the atmosphere;
- the floor to ceiling height increased in the living areas to well above three metres, combined with the average five metre width (from the street to the gallery window) resulted in large spatial volumes that contributed to more air movement and the cooling of the rooms;
- the use of louvred screens on windows adequately controlled the amount of light and solar gain as well as preventing wind and rain from entering the rooms; these also eliminated the need for glass in the windows;
- the relatively small amount of glass that was used tended to be coloured, thereby reducing the glare factor and intensity;
- the *portales* (colonnades) shaded the ground floor facade from the sun's rays.

The cultural influence is reflected in various ways such as:-

- the development of the *entresuelo* - for secure storage for goods and servants' quarters;
- the axis of the entrance and the patio - to allow views both from and to the street;
- the use of grilles in windows - for security and to allow the inhabitants to converse with passing pedestrians;
- the use of louvres for privacy whilst still allowing ventilation in the rooms;
- the balconies - as places to sit and converse, and to watch passers-by;
- the *portales* - a place to rest in the shade, or meet people or trade - or perhaps all three;
- the details are less refined than their European counterpart due to the materials and labour that was available on the island.

The buildings had also evolved in a sustainable manner and they were (and still are) energy efficient. In terms of style the European influence is evident. Nevertheless by the end of the nineteenth century the above characteristics had created an architecture that can be identified as being distinctly Cuban.

4.5 The Republican Period (1898 - 1958)

> *" To understand the impact of the United States on Cuba's educational system one must look beyond particular policies and programmes to the whole structure of political and economic relations between the two countries"* (Richmond, 1989:121)

The sixty years between the end of colonial rule by the Spanish monarchy and the start of the socialist revolution is perhaps the most complex and volatile period in the history of Cuba. In spite of its brevity this era had a profound influence on all future aspects of Cuban life. The intention here is to give an overview of these events and issues.

The aim is to disseminate the key issues and developments that influenced the educational system in order to understand why the present regime placed education at the forefront of its policies. It is not intended to be a detailed historical analysis nor does it explore pedagogical issues in depth, both of which are covered in the works of other authors such as Thomas (1971), Aguilar (1972), Domínguez (1978), Pérez (1986), Epstein (1987) and Richmond (1989). The purpose is also to place in context the architecture that emerged from the political and economic policies together with the social and cultural changes that occurred during the Republican period because the schools examined in the case study are located in houses built during this era.

4.5.1 The United States Intervention (1898 - 1902)

> *"Education became an important instrument of U.S. domination through the deliberate cultivation of attitudes supportive of North American interests; in particular, education was used as an effective device for undermining national identity and for promoting sentiments conducive to annexation by the United States."* (Richmond, 1989:19)

Following the war of independence Cuba was directly occupied and governed initially under military rule (1899-1902) by the United States. The first military Governor, General Brooke, was faced with the enormous task of restoring the island from the devastating effects of the war. Education took a low priority despite almost 60 per cent of the population being illiterate (Thomas, 1971:432). Brooke was content to leave the Spanish pedagogical system in place and concentrated on getting the schools open again. Less than 15.7 per cent of 552,000 children between the ages of five and seventeen attended school, with the percentage in the cities being almost three times that of the rural areas[44] (Thomas, 1971:432-433).

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[44] These figures contradict those of Richmond (1989:82) who records that " *in December 1899, there were only 312 school-rooms in use ... (with) ... an enrolment of just 21,435 pupils*".

However, education was to receive a dynamic upheaval when, in December 1899, Brooke was replaced by General Wood. The ratification of the Platt Amendment in 1901 enabled the American government to control Cuba in a way that was hitherto not possible under the constitution of the Monroe doctrine. It penetrated every sector of society and Wood realised that not only was education an urgent priority, but also that it might provide the means of fulfilling United States policy in Cuba.

> *"He sought no less than a cultural revolution, a total reconstruction of society, with education the main tool. Wood's belief in the power of education to reform society was so strong that he fully expected to achieve his revolution quickly and completely by making schools universally available."* (Epstein, 1987:3)

Whether his intention was to give educational democracy to Cuba or whether it was an example of cultural imperialism is, according to Richmond (1989:81-82), an area for academic debate. Nevertheless, there is general recognition that the radical thrust of his policy was the Americanisation of Cuban education and that although it was certainly anti-Spanish it was not specifically anti-Cuban, as Wood genuinely sought *"to give all people an adequate education, [and] to afford each child an equal opportunity to succeed in Cuban society"* (Epstein, 1987:2). However, Richmond (1989, 83-84) cites a variety of processes by which the Americanisation of the Cuban education was achieved. These include:-

- the teaching of English in schools, even in the early grades,
- the use of American text books,[45]
- the adoption of the Ohio state school system as the model for Cuba's new school law,
- scholarships for Cubans who wanted to study higher education in U.S. universities,
- the teachers' manual was from Harvard University, and in 1900 almost 1,300 Cuban teachers and professors underwent a training programme at Harvard University summer school,
- Cuban history was taught from the North American perspective.[46]

To achieve this target, a quarter of the government's national budget (four million pesos) was spent on education in 1900, and 21.2 per cent in 1902 (Richmond, 1989:83).

The teachers and students who trained in the US were selected from the elite of Cuban society (Pérez, 1986:13). Cultivating the desire to join the US voluntarily through the Americanisation and expansion of Cuban schools provided the best means of fulfilling Wood's dream of annexation. The assumption was that North American domination of education and culture would effectively dissipate the Cuban sense of nationalism and attitude towards independence. Certainly the

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[45] These were translated into Spanish but not modified to suit the Cuban culture (see Thomas (1971:1132).
[46] This was *"with the purpose of inculcating in childhood an admiration for the victorious foreigner who had brought Cuba its liberty"* thereby inhibiting any feelings of national pride (Richmond, 1989:19-20).

influence on society lasted for decades, but not as originally envisaged, and it did not diminish the feelings of national pride that Martí had awakened in the vast majority of the Cuban people. In terms of the educational expansion, progress was impressively rapid. By the time of Wood's departure in 1902, *"there were 3,800 public schools with a total enrolment of 255,000, and an average daily attendance of 160,000"* (Foner, 1963:459).[47] Few would argue that Wood (regardless of his motives) deserves immense credit for instigating a substantially impressive and efficient public education system. Unfortunately, the enthusiastic educational crusade was relatively short lived.

4.5.2 The Pseudo-Republic (1902 - 1906)

> *"It is impossible to understand the twentieth century in Cuba if one does not give serious consideration to the Cuban's aspiration toward political maturity by the early 1900s, an aspiration that successive presidential mandates sought to satisfy, each after its own fashion."* (Menocal *et al*, 2001:13)

In 1902 the US military administration withdrew from Cuba but political independence under the ex-schoolmaster President Tomás Estrada Palma[48] was somewhat of a disaster in spite of the rising prosperity of the country due to foreign investment and the gradual recovery from war. Although during his rise to the presidency Estrada's motto had been *"more teachers than soldiers"* coupled with his assertion that *"a people who have achieved liberty through self-sacrifice have gained the right to be educated"* (Epstein, 1987:11) these expectations were never fulfilled.

One interesting policy for the provision of new schools to accommodate the growing volume of pupils was directed towards local initiatives whereby a district was encouraged to provide both a site and a building. However, this did not mean that the number of new purpose built schools increased. In fact **using existing houses for educational purposes appeared to be the more favoured, if not more lucrative, solution** as the following detailed description indicates:-

> *"The owner of a house would arrange with a teacher to provide his property for a school in return for an appointment as janitor - which carried a salary. The teacher used the arrangement as a means of securing his own position ... [due to his] ability to provide a school. The teacher would then use part of his own salary to hire a third person to do the janitorial chores, or would have some of the pupils help with these duties. In this way the district acquired a new school with no financial investment, the teacher manoeuvred his own position, and the house owner received a janitor's fee without having to perform janitorial functions."* (Epstein, 1987:13)

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[47] Richmond (1989:82) estimated that *"46 per cent of children of primary school age were enrolled"*. Within the first year of Wood's administration enrolment had quadrupled from 21,000 to over 100,000 (Epstein, 1987:4).

[48] Estrada had lived in the US and he was an eminent educator teaching language and literature at a boys' secondary boarding school for Cuban exiles which he had established. According to Epstein (1987:11) *"the school gained fame for its innovative*

Unfortunately the initiatives that the American military government had undertaken to make Cuban education more democratic and appropriate to the needs of a changing society were *"reshaped to conform to the old Spanish mould, where aristocracy governed"* (Epstein, 1987:12). The resultant deficiencies can largely be attributed to the dubious methods of selecting teachers and to the individual teachers themselves. The public education sector became a source of corruption, nepotism, bribery and political abuse (Pérez, 1986:88). By 1907, enrolment of school age children was just over thirty per cent with attendance rates being less than the attendance figures in 1902. The only positive aspect was that the literacy rate for children over ten had risen to 56.6 per cent, no doubt due to the reforms by Wood. Although the American influence on education continued in theory, in practice both the state schooling and the educational services deteriorated.

4.5.3 The Second Intervention (1906 - 1909)

In October 1906, President Theodore Roosevelt initiated the second intervention, but this time it was by civilian rule, not military. The Governor throughout this period was a civilian judge, Charles Magoon whose administration was *"marked by the squandering of public funds ... bribery, and financial abuses of all kinds"* and inaugurated *"a sequence of decades. persisting until the overthrow of Batista, in which administrative corruption and venality, social neglect, and the dominance of foreign capital were the defining characteristics of Cuban life"* (Richmond, 1989:20). However, Thomas (1971:484-493) explains that Magoon himself was not a corrupt person, but that his error lay in the fact that he retained the existing civil servants from the Estrada regime and allowed the Spaniards from the colonial period to remain in positions of power.

Magoon's educational policy lacked the vision and drive which was credited to Wood.[49] Many of Wood's programmes such as co-education and night schools for adults were either abandoned or simply collapsed. The implementation of compulsory education was a complete failure in spite of the fact that school-aged children found in the streets during school hours were arrested and shops or factories that employed children were fined. By 1908 almost 200,000 pupils were recorded in the state school system and a further 15,000 in the private sector (Thomas, 1971:492).[50]

Although the second intervention coincided with an economic depression in the US and in spite of a series of natural disasters that ruined the tobacco and sugar crops, the country had made a

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methods and unwillingness to compromise Cuban values and customs in favour of North American ways. It was also highly egalitarian, admitting black children and not charging poor pupils for tuition and lodging".

[49] Opinions vary considerably. Thomas (1971:492) suggests Magoon's educational policy was "*in some ways more effective*" than Wood's. He notes that an inventory of schools was carried out, and with regards to compulsory education he implies that "*the policy worked*". In contrast Epstein (1987:16-18) lists a category of failed policies and emphasises the growing disparity between education in the rural and urban areas and between the public and private sectors.

[50] *"The attendance rate declined to about 50 per cent of pupils enrolled - about 25 per cent below the rate for 1902; (but that) the attendance rate for private schools - the province of the wealthy whites - for 1907-8 was about 85 per cent"* (Epstein, 1987:17-18).

significant recovery from the war. In 1909 the Magoon administration ended and the US handed the political administration of the country over to the Cubans. But this did not mean that:-

> *"The continuing American presence in Cuban life had no influence or bearing upon the pattern of educational development in the years that followed; nor did it mean that Wood's educational programme left no lasting legacy. .... However, responsibility for the formation and conduct of educational policy was to rest unquestionably in Cuban hands; unfortunately, those hands were by no means safe as far as educational democratisation was concerned."* (Richmond, 1989:104)

4.5.4 Educational Doldrums with Political Undertow (1909 - 1925)

> *"This republic is not a creature of Cubans - it was neither fashioned by them, nor by them influenced - but on the contrary it is of all-American manufacture. Americans built it. Americans set it up again when it fell flat. American influence is all that sustains it to this moment. If they discover anything to criticise in it, or its failure, let Americans remember in so criticising that they are dealing with the work of their own hands."* (Wright, 1910:192-193)

Under the Presidencies of Gómez (1909-1913), Menocal (1913-1921) and Zayas (1921- 1925) the development and expansion of education was nominal. On the positive side, a teacher certification law was established in 1909 along with a school law that retained the school system established under military orders. Six agricultural schools were proposed (one in each province), and in 1918 the first home economics schools were established. By 1919 the literacy rate for children over ten years of age had increased to 61.6 per cent and public primary school enrolment increased from 234,038 (28.7%) in 1919 to 269,796 (30.4%) in 1923 (Richmond, 1989:105).

On the negative side there was still an insufficient number of both schools and teachers to support the school age population, especially in the rural areas. Domínguez (1978:25) attributes the apparent stagnation to *"the fact that a sugar economy does not demand a high level of skill in its labour force"* and also to the political problems that the initial Cuban governments experienced.

"The reasons for the abnormal growth of bureaucracy, for the transformation of politics into a struggle for survival, were rooted in the social and economic conditions of the island" (Aguilar, 1972:33). By 1909 about a quarter of Cuba's two million inhabitants were Spaniards who had emigrated to the island from 1902 onwards. They represented the dominant mercantile influence in both the cities and the rural areas[51]. Although there were only 6,700 North American residents in 1909 (Thomas, 1971:500) this figure is deceptive in relation to the enormous political, economic, social and architectural influence which they had on the island, in part because there were many non-

domicile Americans who owned not only large businesses (including sugar production), but also about ten percent of land (Thomas, 1971:600). Therefore, *"with a large part of the land and sugar industry in American hands, and with the Spaniards still controlling most of the centres of trade in the cities, politics was one of the few fields open to Cubans in their own land"* (Aguilar, 1972:33).

The two power blocs that emerged were the Cuban political class and the US government with the associated American financial and business interests.[52] By this time the US considered both annexation and military intervention to be expensive and politically damaging options. Consequently, they saw no benefit in pursuing an active educational policy.[53] The second power bloc, the Cuban political class, had evolved from the *"independentista"*[54] coalition that had opposed both the Spanish and American administrations, but by 1902 it had become fragmented and, lacking any ideological focus, pursued personal advancement and economic security through nepotism in public office at national, provincial and local levels (Richmond, 1989:109).

By the early 1920's a power struggle developed between President Zayas and the US government. This contributed to a wave of nationalism with new groups emerging to pose a threat to the fragile established order.[55] Although each group had its own agenda, the common link appeared to be a hatred of the Cuban political elite and the United States and in 1923 the newly formed Veterans and Patriots Association brought all the groups together. The following year an attempted rebellion against the government failed leaving the movement for reform in disarray (Thomas, 1971: 566-568). Zayas was loosing control, not only in Cuba, but also in his relations with the United States.[56] The country wanted change and reform, and it appeared in the unlikely but charismatic character of Gerardo Machado.

The absence of an educational programme in the period up to 1925 can be attributed in part to the egotistic nature of those in power, since this may have aroused suspicion amongst American investors upon whom the Cubans were commercially dependent. However, as previously noted, education was financed by taxation revenue, the highest contributor being the sugar industry. Both before and after World War I sugar prices rose dramatically as the allies became increasingly dependant on Cuban sugar (Thomas, 1971:537). The period up to 1920 was one of unprecedented wealth[57] albeit that it was financed by enormous loans that the (US backed) banks had encouraged investors to take out when sugar was over-priced (Thomas, 1971:539-540). Even when the bubble

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[52] The Spaniards owned 25% of the sugar mills and had "*considerable investments in tobacco*" (Thomas 1971:500).
[53] After defeat in the war of independence, the merchant class Spaniards appeared to have no political ambitions in Cuba.
[54] The preferred alternative was economic penetration of Cuban internal affairs and public policy by the adaptation of the Platt Amendment known as "the preventive policy", thus ensuring control of the economy and securing U.S. investments
[55] They were the political force that wanted the Americans to leave Cuba and an end to the Platt Amendment.
[56] The four main Cuban groups were:- the new entrepreneurial bourgeoisie; *Grupo Minorista* (a group of intellectuals); the student movement at the University of Havana; and the working class (Richmond, 1989:113-115).
[57] "*Zayas gave corruption a bad name*" (Pérez, 1986:241). In 1924 Zayas "*embarked upon a spree of corruption and graft (which) stimulated a kind of national revulsion ... and disgraced the name of Cuban politics*" (Richmond, 1989:112).
In 1918 the Cuban Cube Sugar corporation was the biggest sugar enterprise in the world (Thomas, 1971:538).

burst due to the inability to repay the debts the aptly termed *"dance of the millions"* continued. [58] Yet education did not benefit from this prosperity as it had done in previous periods of economic growth. Instead the new millionaires built sumptuous mansions whilst monumental buildings were constructed throughout the capital by the government as section 6.6 will illustrate.

4.5.5 Machado's Reign of Terror (1925 - 1933)

General Machado's electoral campaign appeared to appease not only the various Cuban factions but also the American business interests. He offered peace, reform and prosperity, though the means of achieving this were somewhat dubious, given Machado's sinister background. In 1924, his proposed "Platform of Regeneration" focused on *"Roads, Water and Schools"* (Aguilar, 1972: 51-52), and after inauguration in 1925, along with many other promises, his appointed Minister of Education was given the task of converting Cuba *"into the Athens of America"* (Thomas, 1971:573).

Initially this hope of educational expansion materialised in the new types of schools that began to appear between 1925 and 1928, such as the higher elementary schools which offered vocationally-oriented studies, four schools of commerce, a technical school and a School of Arts and Trades (Richmond, 1989:106). Enrolment figures in the public primary schools rose to 433,200 in the 1925-26 school year, which, combined with the 29,600 private primary pupils represented sixty-three per cent of the school age population. This was ***"the highest level of school enrolment ever in pre-revolutionary Cuba"*** and the highest in Latin America at that time (Domínguez, 1978:25). The increase in attendance was reflected in a rise in the literacy rate which reached 71.7 per cent in this period (Richmond, 1989:121).

However by the end of the 1920's the true nature of the ruthless dictator emerged. According to Richmond (1971:116-117) the collapse of the sugar economy from 1927 onwards led to a depression that in turn produced social tension and political antagonisms that erupted into violent confrontations throughout the community. Machado imposed a reign of terror, intimidation and violence that led the country into the bleakest period in its entire history. The first victims for repression were the labour movement and the Cuban Communist Party. When the students at the University of Havana protested, Machado responded by **closing down the university** in September 1930.[59] In what appeared to be a declaration of war on the educational system, ***"Cuba's University and all normal [primary] schools and secondary schools .... were shut down on Machado's instructions for three years from late 1930 onwards"*** (Richmond, 1989:118). Many teachers had already been sacked and salaries had been drastically reduced or suspended altogether in order to reduce public expenditure.

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[58] Thomas (1971:544-556) elaborates on the economic roller-coaster of the 1920s that he describes as the Dance of the Millions.
[59] Machado perceived students, professors and intellectuals as his *"most vociferous and dangerous opponents"* (Thomas, 1971:591). Some mysteriously disappeared, others were murdered and tortured. Over three hundred teachers were imprisoned.

The US had supported and financed the Machado administration, but by 1931 it was obvious that the country was near to bankruptcy. Moreover as Thomas (1971:593) records, *"political bankruptcy was, if anything, nearer"* when other political parties that had previously *"united behind [Machado] in return for a share of the spoils of office"* (Richmond, 1989:117) now turned against him. Although a rebellion by the moderate opposition of the old (nineteenth century) political class was quashed, one consequence of this was the formation of new, more radical and well-armed groups such as the middle-class secret society, the ABC, whose sole objective was to destroy Machado.[60] Two years later, with the country on the edge of a full-scale revolution, both the Cuban army and the US government, under the new presidency of Franklin D. Roosevelt withdrew their support for the dictator forcing him to flee the country in August 1933.

By this time the educational system had been in a state of stagnation for three years. According to Richmond (1989:120-121) the legacy of this period of neglect included: -

- **a lack of purpose built schools and the corresponding use of rented buildings for educational use;**
- an insufficient number of teachers;
- below average enrolment figures for primary education, especially in the rural areas;
- an insufficient number of rural schools;
- limited access to post-primary education;
- an over-prescriptive, formal and inappropriate curriculum particularly in respect of the rural schools and restricted access to higher education

Hence, many Cubans regarded educational reform as one of the country's most pressing needs.

4.5.6 Educational Impasse under Batista (1933 - 1952)

> *"The Revolution of 1933 was conceived not simply as a means of overthrowing Machado but as a way of reconstructing a new world, worthy of Martí's patriotic dreams .... what followed brought many important changes .... the Platt Amendment was abolished .... a new constitution was prepared .... but no political system was achieved."* (Thomas, 1971:1187)

By mid-1933 returning the country to stability[61], rather than educational reform, was, once again, the more pressing need. Yet given that the only common denominator of the various political fractions had been the removal of Machado, which, combined with three decades of nepotism,

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[60] *"Other new anti-government groups joined the swelling ranks of the opposition. Women's resistance groups, university professors, normal school teachers and students became part of a vast underground network dedicated to armed struggle against Machado"* (Pérez, 1986:290). Machado organised a gang of private killers, known as *porristas* (from *la Porra* - the Big Stick) to fight both the ABC and the students. (Thomas, 1971:607).

[61] In Havana in August 1933, *"at least a thousand [people] were killed and three hundred houses weresacked .... scenes of vengeance were enacted ... the bodies of the most famous porristas were even dragged through the streets"* (Thomas, 1971:628).

corruption and violence throughout the entire political society, it is not surprising that the implementation of any changes would occur later rather than sooner. Following the temporary coalition government there were six different Presidents between 1933 and 1940, although from 1934 onwards the real power behind what Thomas (1971:691-705) describes as the 'Puppet Presidents', was Colonel Fulgencio Batista. These years were marked by more revolts and counter-revolutions during which Batista formed a very strong alliance with the Communists[62], who in turn supported him throughout his first term as President between 1940 and 1944. The most significant achievement by the government up to this point in time had been the abrogation of the Platt Amendment[63] in 1934. Also the new Constitution of 1940 marked *"a real attempt at social democracy .... [but that it was] rarely read after it was written"* (Thomas, 1971:720).

The Constitution stipulated that all children were entitled to a compulsory eight years of free primary schooling.[64] In reality this did not occur, firstly because many parents could afford neither the clothes nor books for their children to go to school, and secondly because there were not enough schools. *"The gap between legal form and actual practice, revealed by low enrolment rates and urban-rural disparities in educational opportunity, was one which no pre-revolutionary government overcame"* (Richmond, 1989:126). Regarding higher education, the University of Havana (still the only one in the country) gained autonomous status and independence from ministerial control.

During the Second World War, Cuba experienced some shortages but benefited financially from the exportation of sugar and raw manganese (Thomas, 1971:735). Consequently, education improved slightly during the latter part of the 1940s, as *"to some extent, education was a 'fair weather friend' of the economy"* (Richmond, 1989:135). The dominant figure in Cuban politics from 1933 to 1944 had undoubtedly been General Batista. When his first period of administration ended it was followed by that of Grau San Martín (1944-48) and Prío (1948-52). Rather than duplicate the historical events of other studies, the following synopsis will focus on the two main initiatives attempted to increase access to education for the people during this period. These were:-

a) The rural education scheme, pioneered by Batista from 1936 onwards,

b) The school construction programme of the Grau administration (1944-48).

a) Batista's Rural Education Scheme

A controversial decree issued in 1936 was intended to *"increase rural schooling, reduce rural illiteracy and assist rural development"* (Richmond, 1989:123). The programme was master minded by Batista

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[62] With reference to this relationship Thomas adds that *"this ... close attachment between Batista and the Communists [was] not a mere flirtation ... [but] was even more closely cemented by a visit paid by Batista to the U.S. in 1938"* It is worth noting that in the early 1940s *"the Cuban Communists were closer than almost any other world Communist party to the repudiation of Marx's or Lenin's theories of imperialism and of class struggle. They showed great enthusiasm for co-operation with the U.N. and the United States"* (Thomas, 1971:734). Blas Roca was the Cuban Communist Party Leader.

[63] Only the Guantánamo provision remained.

[64] Primary education at that time was for children between six and fourteen years of age. At fourteen the children could continue their education for a further two years at secondary school.

in response to the growing demand for educational improvement. Yet it was the means of achieving these goals which caused concern, if not alarm.

Batista proposed that non-commissioned army officers (NCOs) would serve as the teachers, providing a basic rural-agricultural oriented education and also be in charge of the new rural civic schools ***(escuelas civico-rurales)*** that would be organised on the basis of military zones known as educational missions. The military bureaucracy controlled both the rural support services and the educational programmes (Richmond, 1989:124). *"The teachers would be sergeants, paid by the army, answerable to the army, and only remotely connected with the Ministry of Education and civil power"* (Thomas, 1971:702). To accomplish this the army needed to increase in size and infrastructure. This provided Batista with the opportunity to nurture support from the rural population for himself and the army, who would be seen as *"the new political class* and *"an agent of modernisation and progressive social change"* (Richmond, 1989:124).

> *"In 1937, the military operated one thousand schools in the interior, with the construction of an additional thousand projected for the following year. The rural education network, devoting day sessions to children, and three evenings a week to adults, served an estimated one thousand persons throughout the island".* (Pérez, (1976:111) in Richmond, 1989:124)

As soon as Batista became President in 1940, he put the rural schools under the authority of the Ministry of Education. By 1942 the number of rural schools had increase to 1,113 with an enrolment of 57,050 pupils (Richmond, 1989:125). The programme appears to have reached a peak by the end of Batista's first period in office when a total of 2,710 schools were recorded, but thereafter the project seems to have gone into decline. Given the illiteracy statistics subsequently issued in the World Bank report of 1951, it is even questionable if the rural education project had any more than a very limited impact on the rural population.

b) Grau's School Construction Programme (1944-48)

It was Grau's good fortune that his term as President coincided with a boom in the economy, based as always, on sugar. The Constitution of 1940 had stipulated that the Ministry of Education's budget *"should never be less than that of any other department, save in an emergency"* (Thomas, 1971:1133).[65] The extra revenue derived from the tax on sugar provided the finances for Grau to embark on an ambitious school construction programme in a response to the 1943 census which revealed that the literacy rate had not advanced since 1931 (Richmond, 1989:126).

There were very few purpose built schools owned by the State. **Most schools were located in buildings which were either donated by private individuals or were rented by the State** at an

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[65] This provision made *"the ministry a centre of graft second to none, exacerbated by the fact that teachers were appointed for life .... (leading to the corrupt practice whereby) they received full salaries whether teaching or not"* (Thomas, 1971:1133).

annual cost of almost $240,000 (Thomas, 1971:1134). According to the World Bank Report (I.B.R.D.,1951:432 in Richmond, 1989:130) by the late 1940s the government owned only 452 school buildings (or 7.2%) out of a total of 6,248; a further 1,370 were rented; and 4,426 were privately owned but donated free of charge of which 72% were located in the rural areas.[66]

Continuing Batista's policy of educational expansion into the countryside, the Grau administration constructed 628 new rural schools. This figure is not so impressive when it is realised that most of these schools were simply one-room brick built buildings with a flat roof. Moreover, according to Segre (1971:169) the schools were arbitrarily placed alongside the main highway with the purpose of making an ostentatious display of the government's public works' policy instead of making them the centre of cultural development and connecting them with the local community. Not many of the poorer rural population had access to transportation and Richmond (1989:126) records that only 37 of these schools were located within reasonable access to the children they were supposed to serve.

The tax on sugar during this period not only made the government very wealthy, but also very corrupt to the effect that the Ministry of Education had not only become a focus of political patronage and graft but also *"a cave of entrenched bandits and of gunmen and an asylum of professional highway robbers"* (Sánchez, quoted in IBRD, 1951:425 in Richmond, 1989:128). The construction programme turned out to be just another source for corruption.

Hence, in spite of the introduction of compulsory education for all children under fourteen years of age in the 1940 Constitution, by 1953, 44 per cent of the school age population (547,000 children) did not go to school (Thomas, 1971:1131-1136).[67] Having had the best primary school attendance record in Latin America in the past, Cuba had now been surpassed by most other countries. Furthermore, **the number of hours of instruction in the primary schools had been reduced** from the customary 4 hours (either a morning or an afternoon session) to just **two hours**.

The figure for secondary education was worse, revealing an attendance rate of only 17% or 92,000 of the 558,000 children between the ages of fifteen and nineteen[68]. Given these facts, it is not surprising that almost 25% of the population was still illiterate, with the rural areas being the worst effected. One consequence of the worsening situation was the increase in private education. Whilst the 1951 Report by the World Bank acknowledged that there had been improvements in some areas it confirmed the retrogressive trend in the educational system from the 1920's noting:-

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[66] Many sugar mill owners built schools.
[67] Non-attendance being higher in the rural areas (more than 60%) than in Havana (33%) (Thomas, 1971:1131).
[68] Cuba's the secondary school attendance figure was amongst the leaders in Latin America but all 21 secondary schools were located in the towns and that there was no free transportation available (Thomas, 1971:1132 -1135).

> *"A smaller proportion of the school-age children are enrolled today than a quarter of a century ago; the number of hours of instruction has been cut; the quality and morale of the teaching and supervisory force have gone down. A general lack of confidence in the public schools is reflected in a disproportionate increase of private school enrolment, with a tendency to intensify social class divisions."* (I.B.R.D. 1951:404)

The country was again in turmoil and ready for revolution. As the 1952 elections drew near Batista considered standing for re-election. Instead, abandoning the Constitution, Batista staged a *coup d'état* in March 1953 forcing Prío, like his predecessor Machado, to flee the country.

4.5.7 From *Golpe* to Revolution (1952 - 1958) [69]

> *"By 1958, although having shown some signs of improvement, the literacy rate had not increased substantially since 1931 ... [and] there is no evidence that the proportion of the school-age population enrolled in school prior to the 1959 revolution went above the level it had achieved in 1925".* (Epstein, 1987:4)

During Batista's second term as President a number of educational reforms were introduced in an attempt to rectify the condemnation of the 1951 World Bank Report. According to Richmond (1989:130) these reforms included:-

- the reorganisation of rural education administration,
- plans for the reforming of primary education (1956),
- the opening of new schools,
- five hundred teachers appointed to work in rural schools,
- a national literacy campaign (1952),
- new universities opened - Las Villas (1952) and Santo Tomás (a private university),
- the educational budget remained high compared to other Latin American countries.[70]

The reforms had little impact on the *"long-standing deficiencies of the educational system [most of which] were left largely untouched"* such that by 1958, on the one hand the school attendance figure had decreased to almost 50 per cent,[71] and on the other hand the Ministry of Education still contained more than a thousand *botellas* [72] (Richmond, 1989:130-131). Compared with the *"other grievances held against Batista's regime..... the inadequacies and inequalities of the educational system do not stand out as being severe or the cause of an unusual degree of discontent and opposition"* (Richmond, 1989:72). Having reached a peak during the early years of the Machado administration, education subsequently endured a period of stagnation, if not actual decline. The focus was on other events.

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[69] *Golpe* is the Spanish equivalent of a *coup d'état.*
[70] *"20 per cent of the educational budget was swallowed up by central administration"* (Richmond, 1989:130).
[71] In 1956 a social survey recorded that 45 per cent of the rural population had never been to school and that, of the remained who had attended, 90 per cent had failed to get beyond the third grade (Thomas, 1971:1135).

Immediately after the *coup d'état* in 1952 it *"became clear even to old admirers of Batista, that in the years of exile, the ex-sergeant had changed"* (Thomas, 1971:791). The Communist Party continued to enjoy considerable freedom initially, for Batista viewed the students as his main opposition. In 1953 Havana University was temporarily closed down. The student movement was not supported by either the people or the other political parties. The aftermath of an unsuccessful assassination attempt on Batista in 1956 revealed that support for Batista from foreign investors, the upper classes and the business community was enormous, and the main consequence of this foolhardy event was heightened repression (Thomas, 1971:930-931). By 1953 a new party was formed under the leadership of Fidel Castro. Their failed attempt to *"spark off a popular rising everywhere in Oriente"*[73] (Thomas, 1971:828) by attacking the Moncada barracks in Santiago and the executions that followed turned public opinion against Batista whilst Castro's trial turned him into a hero. In spite of this Batista was returned to power in the 1954 election.

The second attempt to take over Oriente in 1956 also failed, but this time those who escaped capture re-grouped under Castro in the Sierra Maestra mountains. During the next two years the revolutionary momentum escalated. By 1958 Batista had suspended civil rights, imposed censorship and **closed all the schools**. In an attempt to distance itself from a potential civil war, the United States imposed an arms embargo on Batista. As the people rallied behind the growing army of guerrillas moving towards Havana, Batista's regime collapsed and he fled to the Dominican Republic on 1st January 1959 just twenty-four hours before the Revolutionary army entered the city to take over command,

The fact that within a period of two year a small band of guerrilla rebels had turned into an army capable of defeating the military government was reminiscent of the Wars of Independence in 1868 and 1895 with the figurehead of Castro paralleling that of Céspedes and Martí. Yet in the sixty year period from the end of colonial rule in January 1899 to the triumph of the revolution in January 1959 there had been seventeen different Presidents. Of these only Menocal (1913-21), Machado (1925-33) and Batista (1952-58) had remained in power for more that four years. Given the tyrannical rule imposed by the latter two, both of whom started their Presidencies with promises of reform, there was little to suggest that history of Cuba would not continue the roller coaster ride of aspirations followed by disappointment.

> *"Cubans had little to believe in. Customs and institutions which, in more stable countries, act as a brake on the ambitions of single men and on the emotional expectations of the masses, in Cuba had scarcely existed either during modern industrial society or in the slave society which had preceded it."* (Thomas, 1971:1038)

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[72] *Botellas* = sinecures
[73] As mentioned in section 4.2.1, Oriente had been the centre for the start of both the 1868 and 1895 revolutions.

Indeed the promises made by each successive ruler, which raised the hopes of the people, remained by and large unfulfilled. Just as in colonial times, only the elite benefited, as greed, corruption and nepotism became the norm rather than the exception. Although the educational system had improved in some areas, by 1959 the literacy rate was only marginally better than it had been at the start of the century. Whilst the wealthy few enjoyed the benefits of private schools, prior to the Revolution in 1959, the majority of the people endured a state schooling that was both poor in quality and inappropriate to their needs.

> *"By the 1950s Cuban education seemed to enjoy no prospects of sustained expansion or radical reform .... the coming of the Revolution, however, was to provide the educational breakthrough which had long been awaited."* (Richmond, 1989:136)

In contrast to the plight of education, the urban and architectural development of Havana flourished in parallel with the political and economic events during the Republican period as the following section (4.6) will reveal.

4.6 Architecture in the Republican Period

> *"The 20th century started with the birth of the Republic and the creation of the institutions representative of the new state. The homogeneous environment which existed in the colonial period was replaced by a different topological character, based on functional criteria or on aesthetic and ideological symbols."* (Segre, 1990:167)

The slow evolution of architecture during the four hundred years of colonial rule had paralleled the political, economic, social and cultural progress of the new nation. This, together with an appreciation of the tropical climate, resulted in buildings that were energy efficient, sustainable and appropriate for the Cuban lifestyle of the period. The aim here is to give a comprehensive feeling of the whole city and show how the architecture of the first fifty year period of independence partially mirrored the same contextual parameters but with very different results.

In contrast to the analysis by elemental component of the houses of the colonial era, section 4.6.1 gives an explanation of the changing styles that evolved. This is followed by a synopsis of school architecture in the Republican period. The section concludes with an overview of the rapid urban expansion that took place in Havana. A more detailed description of the specific study area of the municipality of Plaza de la Revolución is given in chapter 6.1.

Cuba's wealth was acquired from the countryside (mainly from sugar), but it was displayed in the elaborate mansions and monumental buildings constructed in Havana during the first half of the

twentieth century. This fact dominated political and economic policies in the post-revolutionary era. It affected the education and construction programmes in Havana and is the underlying reason for the existence of the *casas adaptadas* in the city today, as chapter five will reveal.

4.6.1 The Quest for Architectural Identity

> *"To some extent, shuffling through styles was a trend of the times. But on a deeper level, the idea that Cuban culture could be shaped and improved by studying and interpreting the best of others had long been a current in Cuban philosophical thought. Eclecticism may also reflect a kind of identity crisis in the search for roots by a newly independent country that was not entirely comfortable with its own past."* (Carley & Brizzi, 1997:26)

The Republican era was both complex and far from stable. The lack of consistency is reflected in the buildings of this erratic and turbulent period. On the one hand there was the quest for a Cuban identity and on the other hand there was a reluctance to let go of the past, and at the same time there was the desire to embrace the international approach to modern architecture. The first presidents of the Republic wanted official buildings to represent the national and international power of the State. As such, the existing familiar classical forms portrayed an established expression of authority, submission, order and acceptance of the political system. This is reflected in the neo-classical Capitolio building (1920-1928) (a replica of the US Capital building in Washington D.C.) built to symbolise not only the power of Machado's regime but also the North American political and economic influence (Ferrer, 1994:106) (Figure 4.22).

Figure 4.22 Capitol Building (1928)
El Capitolio
Source: Carley & Brizzi (1997:145)

Figure 4.23 Eclecticism – Association of the Clerks of Commerce (1902-07)
Source: Engels (1999:12)

With the lasting persistence of the neo-classical variations during the 19th century, the only possible alternative to the Spanish heritage appeared to be eclecticism either directly imported from Europe by the architects of the "Beaux-Arts" formation in the early years and later by the architects of the Modern Movement, or from the North American re-interpretation (Segre, 1971:13:). Eclecticism constituted a stylistic model that was freely interpreted during the first three decades of the twentieth century (Figure 4.23). However, it seemed that neither the ruling class in

Cuba nor the new wave of Spanish immigrants in the first two decades was ready to cut the architectural links with Spain. In spite of the newly gained independence there was a growing interest in both the Spanish revivalist and the Andalucian Moorish styles as well as the Spanish colonial architecture of Mexico (Figure 4.24).

Figure 4.24 Examples of Spanish Architectural Influences
a) Hotel Sevilla (1908) – incorporates Moorish / mudejar details
b) Presidential Palace (1920) – eclectic façade with Spanish Revival overtones
c) Havana Central Railway Station (1910) - blends Spanish Revival and Italian Renaissance elements
Source: Carley & Brizzi (1997:29; 148 & 30)

A Catalonian version of art nouveau developed in parallel with the Spanish revivalist movement. Once again adaptations were made to suit the Cuban culture and climate (Figure 4.25). Whilst the influence of art nouveau can be seen in many buildings the curved organic forms were soon transformed into the more linear and abstract Art Deco style favoured in America (Weiss:1947:ix). Starting in the 1920s, it was to provide the pivot between the classical and the modern movements. Whereas classical and neo-classical variations were favoured for major government buildings of importance, art deco was used for a wider range of building types such as hotels, apartment buildings, theatres, hospitals, schools and offices (Figure 4.26). Art deco reached its peak between 1927 and 1935 although it continued to be used through to the 1950s. It reflected both the proximity to Miami and the strong financial links with the United States.

Figure 4.25 Art Nouveau
El Centro de Oro (1910)
Source: Engels (1999:20)

Figure 4.26 Art Deco Influence
Bacardí Headquarters (1930)
Source: Engels (1999:35)

"Havana long remained immune to the spread of rationalism and its building practices continued to teeter felicitously between neoclassicism and Eclecticism" (Menocal *et al*, 2001:102). After a period of economic recession that started in the mid-1920s, from the late 1930's onwards a new architectural direction emerged. The American Streamlined style began to replace Art Deco and, by the end of the 1940s the first rationalist designs started to appear. These followed the principles conceived by the masters of the Modern Movement (Segre, 1990:183). The interest in the Modernist style coincided with the new Law of Horizontal Property (1952) and also the property boom of the mid-1950s resulting in a surge of high-rise office and residential buildings of varying degrees of quality (Figure 4.27). Some of the building designs that were directly 'imported' from the US showed little respect for either the tropical climate or the Cuban culture.

During the 1950s Cuban architects[74] began to combine details and components of traditional Cuban architecture with elements of the International Style to produce a new aesthetic that was more appropriate to both the Cuban climate and culture Some of the best example of this more authentic Cuban style can be seen in the houses of the rapidly expanding districts of Playa and Nuevo Vedado[75] It appeared therefore that, almost sixty years after gaining Independence, Cuban architecture had finally resolved its identity crisis (Figure 4.28).

Figure 4.27 Modernist High-Rise Building
United States Embassy (1953)
by Harrison and Abramovitz
Source: Rodríguez (2000:133)

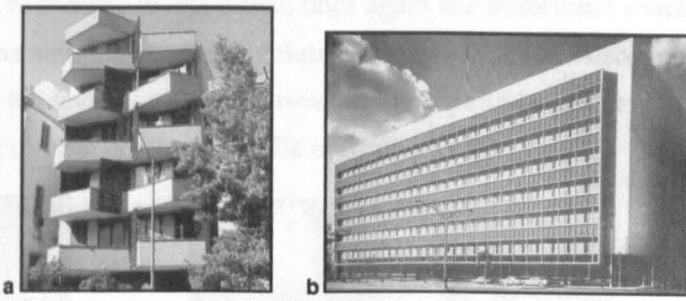

Figure 4.28 Cuban Modernist Buildings
a) Apartment building (1950) by Max Borges Recio
b) Cuba Electric Company (1955-58) by Jorge Luis Echarte
Source: Rodríguez (2000:191 & 198)

4.6.2 School Architecture

> *"The functional and formal identity of the primary school did not change much from the North American intervention in 1898 up until the Triumph of the Revolution in 1959."*
> (Author's translation from Segre, 1971:10)

The Republican period saw a substantial increase in the number of schools partly due to the political policies introduced during different presidencies but mainly because of the demands required to meet the needs of compulsory education[76]. This did not mean, however, that there was an equal increase in the construction of new schools. As in the colonial period, **most of the**

[74] Architects such as:- Mario Romañach, Max Borges Recio, Ricardo Porro, Antonio Quintana, Manuel Gutiérrez, and Frank Martínez.
[75] More example are illustrated in chapter 6.1.

public schools were located in ***"existing buildings*** *scattered throughout the countryside that had been vacated during the war"* (Carley & Brizzi, 1997:157). State schools were funded by the tax from sugar which, as section 4.5 revealed, could not be guaranteed on a regular basis. Moreover, because they were intended for the proletariat they were undervalued by the ruling minority. Consequently the resultant quality of architecture was uninspiring (Cuba, DESA, 1973:27-28). This contrasted sharply with the secular and religious private schools that were constructed throughout the country. Although the style of architecture varied considerably, the aesthetic vocabulary symbolising wealth and power was common to all.

The primary school was least favoured in respect of the architectural field. According to Segre (1990:172) the lack of aesthetic and symbolic value given to primary schools was also because they served the proletariat. On the other hand, the middle class and bourgeoisie, who dominated the growth in the private sector in the provincial capitals and in Havana, preferred to combine primary with secondary education in monumental architectural complexes such as the new College of Belén constructed in 1925 (Figure 4.29). The architecture displays the changing cultural values as the building moves away from the colonial style towards a mixture of Versailles baroque with Germanic and Italian elements built on a platform of neo-classical ancestry (Segre, 1990:174). In the case of those schools remaining independent, once again **the traditional practice of using houses and grand mansions** was the favoured solution (Segre, 1971:10). Also, many buildings used for primary education in Havana in the post-revolutionary period were originally secondary schools built during the Republican era (see Table E2 in Appendix E).

Figure 4.29 Belén College (1925) Classroom and Internal Courtyard Area
Source: Menocal *et al* (2001:130)

The architectural character of the schools also varied according to location as well as social and economic interests. In the early years the symbols of the State were built in the heart of the city, whilst the bourgeoisie created its educational centres in the zones separated from the expansion of the aristocratic dwellings. Later, in the works promoted by Batista the civic-military institutes are linked with a military base situated either at the edge of the city or for the vast complex of Finlay de Mariano,[77] adjoining the camp of Columbia in Havana (Segre, 1990: 181).

[76] The works of Segre (1971 & 1990) and Cuba, DESA (1973) detail the architectural development of schools during this period.
[77] This complex comprised a boarding school and orphanage (*Centro Escolar, y Escuela del Hogar*), Kindergarten teachers' training college (*Escuela Normal de Kindergarten*) and an old people's home (*Asilo de Ancianos*) (Segre, 1990: 181).

This was in sharp contrast to the rural schools most of which were modest structures comprising one classroom adjacent to the teacher's house (Figure 4.30). Some were traditional *bohio* style buildings (Figure 4.31) whilst others were of wood (Figure 4.32). Secondary schools that were built nearer the cities tended to be more monumental in character (Figure 4.33).

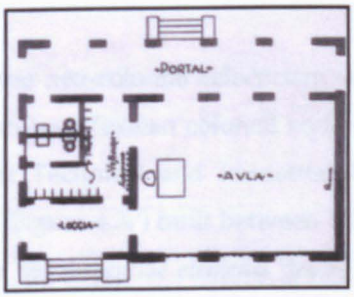

Figure 4.30 Ministry Plan of One-classroom Rural School in the 1920s/30s
Source: Segre (1971:13)

Figure 4.31 Bohío Type Rural School of the 1940s
Source: Segre (1971:10)

Figure 4.32 Rural School of Timber construction built during the Batista Regime
Source: Segre (1971:10)

Figure 4.33 Secondary School in Nueva Gerona
Source: Carley & Brizzi (1997:157)

The variations in school architecture that developed during the Republican period are really only visible in the higher educational sector. The 1901 School of Arts and Apprenticeship (*Escuela de Artes Y Oficios*) designed by Fernando Aguado shows how the Italian Neo-Renaissance style has been transposed into a local language, with a modest rationalist contribution, lacking any eclectic decoration where glass panes could have dominated (Segre, 1971:14) (Figure 4.34).

Figure 4.34 School of Arts and Apprenticeship (1901) by Fernando Aguado
Source: Segre (1971:13)

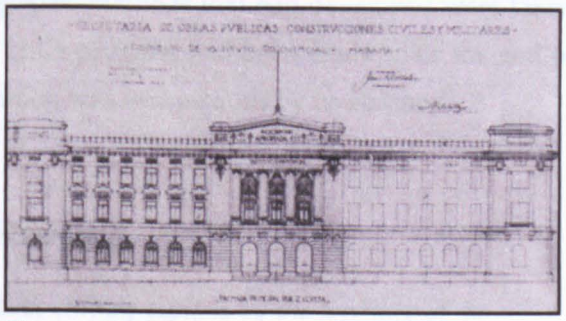

Figure 4.35 Elevation of the Institute of Secondary Education of Havana (1918)
Source: Segre (1971:13)

The Institute of Secondary Education of Havana (1918) (*Instituto de Segunda Enseñanza Superior*) designed by Benjamín de la Vega *"to dominate the area of development near the demolished city walls"* (Carley & Brizzi, 1997:157) is a typical example of the architecture derived from the School of Beaux Arts (Figure 4.35). Although stylistically less rigorous, this was similar to other institutes of

secondary education in the interior, like the one in Camagüey (Figure 4.36). These buildings conformed to the aesthetics of the ruling class as expressed in the ostentatious characteristics of the palaces or the foyers of the opera theatres, but when applied to the schools and colleges the psychological and human requirements of the pupils were ignored (Segre, 1971:14).

Finally, the neo-colonial eclecticism was influenced, albeit to a lesser extent, by the development of Californian-Mexican colonial style during the Machado era. The most notable example of this being the Technical and Industrial College (*Escuela Técnica Industrial de Varones*) in Ranchos Boyeros (Figure 4.37) built between 1928 and 1932. In this building *"the local Spanish-Mexican style applied to the decorative elements denies the expression of the industrial and technological content which was desirable for the schools. In reality, it coincided with the obvious conditions of the country: it was closer to the aesthetic operation of the political demagogue than a truly economic drive based on the development of the national industry"* (Author's translation from Segre, 1990: 176-177).

Figure 4.36 Institute of Secondary Education of Camaguey
Source: Segre (1971:14)

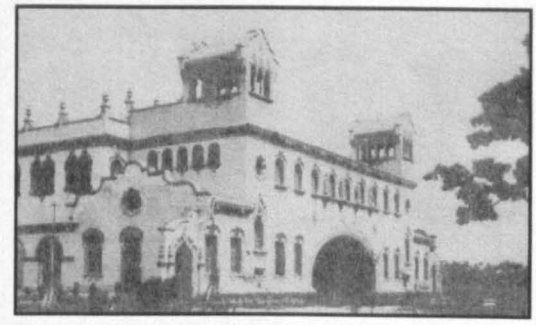

Figure 4.37 Boys' Technical and Industrial College in Ranchos Boyeros 1928
Source: Segre (1971:17)

In summary school architecture was an expression of the power of the State and the dominance of the ruling class that was reflected in the monumentality of the buildings and the luxurious materials and decorative elements that adorned them. Neither the psychological factor that influences the learning process nor the new pedagogical methods that had developed were taken into consideration in the design of the buildings. Little progress had been made since the end of colonial rule. School architecture for primary education was conspicuous by its absence.

4.6.3 The Urban Expansion of Havana

> *"Havana distinguishes itself from other twentieth-century capitals by the legibility of the urban network shaped by its districts which, up until the fifties, added to each other in a continuous growth from east to west. .... Prestige was proportional to the distance from La Habana Vieja – the further, the better."* (Menocal *et al*, 2001:14)

Havana is a city built on a human scale that evolved slowly under strict urban codes. Up to the end of the eighteenth century the 'city' was contained within the walls, although beyond the

fortifications there were dwellings that were little more than shacks for the peasants who worked in the city. In the early 1800s the remaining Creole aristocracy started building summer residences *('quintas')* on the hills to the south-east of the city in the district of El Cerro. This soon became a fashionable area for Havana's rising numbers of the *nouveau riches*. With the expanding sugar industry and resulting economic prosperity of the country in the nineteenth century the city could no longer contain the growing population. The plan of Havana in 1849 (Figure 4.38) shows that, in the westward development, the new urban district of Centro Habana was still separated by the city walls from Habana Vieja, but in 1863 demolition of the walls commenced to accommodate the city's expansion (Fornias: 1990). By the end of the colonial period the city had more than doubled in size. The growth continued slowly west from the centre (Figure 4.39) The new districts of El Carmelo and El Vedado *"were sustained by the growing taste for the sea and because Cuba's new elite wanted to break with the urban patterns of the colonial era"* (Menocal *et al*, 2001:65). They increased in popularity whilst El Cerro declined.

Figure 4.38 Plan of Havana in 1849
Source: Weiss (1996:358-359)

Figure 4.39 Havana and its surroundings in 1898
Source: Zequeira & Fernandez (1993:30-31)

During the first half of the twentieth century the urban development of the city evolved in two main stages. The first coincided with the 'dance of the millions', from the start of the First World War up to the 1930s. In this period the property boom related to the economic expansion of the sugar industry and its associated commercial enterprises and financial dependencies. Lavish, single-family houses were constructed to accommodate the entrepreneurial middle and upper classes that replaced the colonial Creole aristocracy. The suburbs spread further west to Playa and the size of the mansions grew in proportion to their distance from the center of the city.

In 1926, during Machado's presidency, Jean-Claude Forestier was appointed to design a master plan for the city that *"took into account the social, natural, physical* ***and*** *historic context of Havana"* (Carley & Brizzi, 1997:137). Forestier's Beaux-Arts design was indeed sympathetic to the conservation of colonial Habana Vieja but it also proposed a new metropolitan centre set amid landscaped boulevards. However, the scheme was unfulfilled due to the economic crash of 1929

and Machado's fall from power in 1933. Nevertheless, some elements of Forestier's design were completed,[78] and his Civic Plaza proposal was revised during the post-revolutionary period.

The second major stage of urban development was from 1952 to 1959 during Batista's presidency. The city was once again overcrowded so another real estate boom began, but whilst those who could afford to buy property moved to new developments like Nuevo Vedado and the exclusive area of the Country Club (Cubanacán), the enactment of the Law of Horizontal Properties (1952) encouraged investors to build apartment buildings for rent. Consequently many existing buildings in Centro Habana and Vedado were replaced with high-rise blocks of flats[79]. This coincided with the post-World War Two boom in leisure and tourism. Anxious to promote Cuba as a tourist destination Batista set up a National Planning Board in 1955. The Board commissioned José Luis Sert to draw up a new master plan for the city in 1958 that would reflect modernist principles and the Americanisation of the island. Sert's plan drew on the work of Le Corbusier. *"With total disregard for the historic centre of the capital, it called for the demolition of the ground floor facades of the colonial buildings in Old Havana to make room for covered pedestrian walkways. The Plan ignored city topography and outlying districts, while blatantly emphasising tourism"* (Carley & Brizzi, 1997:143). The plan was never implemented due to the Revolution in January 1959.

The map of Havana in 1957 (Figure 4.40) shows the extent of the urban development by the end of the Republican period. The urban grain of the city and the architectural characteristics of the various districts had been established[80] and these would remain virtually unchanged for the rest of the century for reasons that are explained in the next chapter.

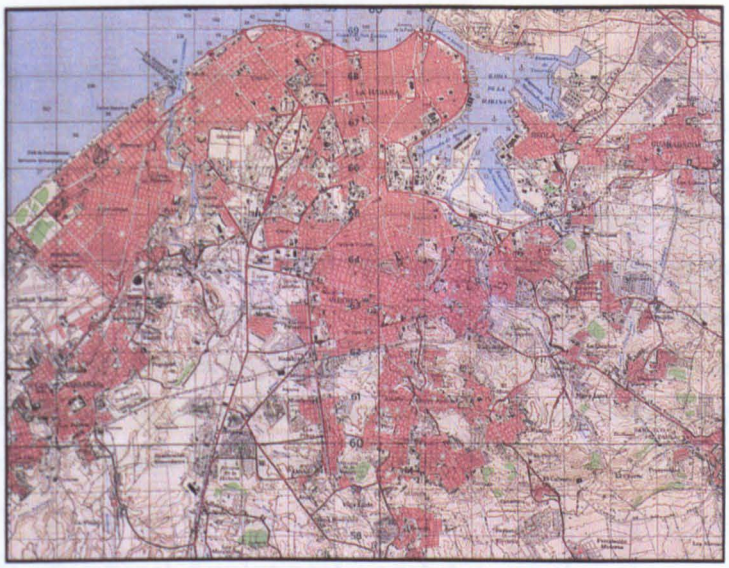

Figure 4.40 Map of Havana in 1957
Source: : Menocal *et al* (2001:16)

[78] These include the remodelling of the Paseo del Prado with spectacular landscaping to complete the north-south axis from the Capital building to the Malecón; the remodelling of the Malecón into a broad promenade running along the coastline; and the creation of a monumental esplanade for the Capitol building.

[79] *"By the end of the decade almost three-quarters of the houses in the capital were rentals"* (Carley & Brizzi, 1997:135).

[80] According to Weiss (1996:360) with the exception of a few modifications and some contemporary buildings, Havana had reached the limit of its urban structure and its architectural characteristics at the end of the nineteenth century.

4.7 Summary

The preceding analysis has demonstrated the intricate relationship between specific contextual issues and the educational and architectural development in Cuba. The geographic location of the island in particular, together with the topography and climate, had a significant influence on, and caused changes in, the direction of the political and economic development over a period of almost five hundred years. Government strategies evolved and subsequently permeated all aspects of society at the social and cultural level. The study has drawn particular attention to the fact that the geographical, topographical, climatic, political, economic, social and cultural issues are so inter-related that a generalisation of, or concentration on, any one component can lead to incorrect assumptions and misinterpretation. That is why the purpose of this chapter was to take an holistic approach to all these contextual functions in order to clarify both why and how the educational system and the architecture developed.

The changes that occurred in education were reflected on a different time scale compared with the changes in the built environment. Nevertheless, there are certain similarities between them. During the Colonial years the focus was generally towards the east, particularly Spain, whilst in the Republican era the attention was more towards the north, specifically the United States. The architecture that dominates the inner city of Havana today is the legacy of the ruling aristocracy and rich merchants of the Colonial era and the wealthy middle class entrepreneurs and North American companies of the Republican period. Similarly it has been shown that, during both periods, education was the prerogative of wealth and power.

The architectural appraisals highlighted the differences between the two eras. The colonial buildings evolved into an architecture that was appropriate to both the climate and the Cuban culture. There was a consistency that permeated throughout the period as section 4.4 explained. By way of contrast, the fact that the eclectic buildings of the Republican era appear to lack any consistency and rationale substantiates the link between the architecture and the political mood of the time as section 4.6 illustrated. Although not all buildings were totally inappropriate in terms of climate and culture, but many were certainly less energy efficient and less appropriate than those of the colonial period. However, the architectural quest for Cuban identity, suited to both climate and culture, eventually evolved in the late 1950s.

The analysis of the educational development revealed a complex picture of neglect, reforms, corruption, expansion and decline. The discontinuity and turbulence paralleled that of the political policies and to some extent the economy that centred on the sugar industry. *"The cycle of hope and disappointment gave every appearance of being unbreakable"* (Richmond, 1989:136). More importantly, the change from Colonial rule to independence did little to alter the status of

education. Common to both eras were poor enrolment and attendance figures, a high illiteracy rate, an inadequate number of trained teachers, insufficient accommodation and a gross imbalance in educational aspirations and delivery between the private sector for the wealthy and the public sector for the poor.

With regards to primary school accommodation, it has been repeatedly stressed that there were few purpose built schools. In some instances the primary sector was incorporated within a secondary school, but in most cases primary education was carried out mainly in houses, either privately owned or rented by the State. Most sources seem to regard this as a failure of the policies of successive governments, implying that the lack of primary schools contributed to the poor quality of education. Yet this presupposes that quality equates with quantity. From the insufficient quantity of facilities (substantiated in the statistics) it is reasonable to deduce that without a place in which to carry out the learning process, the quality of education would suffer. However, as the previous chapter illustrated, the two functions of 'educating children' and 'building schools' are only linked by a typology of school architecture that evolved over a relatively recent period of time. Moreover, if the basic function is to 'educate children', then 'building schools' is only one solution of providing this function; 'using houses' is an alternative. The argument regarding the quality of education is a pedagogical issue. From the evidence reviewed it would appear that the poor attendance rates and an insufficient number of trained and dedicated teachers contributed to the unacceptable standards. On the one hand the private sector education, that was carried out in 'house-schools', achieved acceptable results as many of the children from the wealthy families progressed to secondary school and some continued to university, if not in Havana, then in Spain or the United States. On the other hand public sector education, especially in the rural areas, had poor results in spite of the fact that the number of purpose built schools increased substantially in these areas during the Republican period.

Consequently it could be argued that, had houses not been available for educational purposes, the educational statistics would have been much worse. For four hundred years using houses for primary education provided a much-needed solution to solving the problem of 'educating children' in both the Colonial and Republican eras. In the next chapter on Post-Revolutionary Cuba it will be shown that in spite of a massive campaign to improve the educational system which was paralleled with an enormous increase in the number of purpose built primary schools, the 'house-school' would remain a key factor in improving education in the inner city areas of Havana. A well-entrenched precedent had been established, both physically and in the minds of the people, a precedent that would not be easy to abandon.

Chapter 5

Revolution and Education

Chapter 5:

Revolution and Education

5.1 Introduction - The Evolution of a Revolution

> *"Few events in Latin American history have exercised as much influence as the Cuban Revolution - whether in international politics, educational reform, or cultural innovations. For this reason a discussion of the revolutionary process is a controversial matter. There are few neutral views about the Cuban Revolution: you are either totally opposed to the subordination of individual liberal values to the rights of the masses, or you praise the collective gains made by the majority at the expense of the minority..... While some .... highlight the dramatic advances and improvements gained by the Cuban people, others detail negative aspects of the process. Both viewpoints must be presented if we are to comprehend the nature of the Cuban phenomenon, which has had a major impact on the world .... [so that] a more rational understanding of the Cuban experience will result."* (Halebsky & Kirk, 1985: 3-4)

The aim of this chapter is to give a chronological account of the contemporary context in Cuba from 1959 to 1999 in order to understand the educational system, how it evolved and its physical accomplishment in the form of the school buildings. The analysis of the case studies in chapter six will verify that the rationale for, and the continued use of, locating the primary schools in *casas adaptadas* in Havana was based on seemingly unrelated political and economic policies that are explained in this chapter. A thorough appreciation of these background issues and events is therefore considered to be an essential component in the evaluation process.

The literature on post-revolutionary Cuba is extensive, especially regarding political and economic issues. Compared to the colonial and Republican periods, the polarity of opinions on these topics is even more pronounced. On the one hand this rich range of material is precisely what makes contemporary Cuba such an enigma, but on the other hand evaluation of the material is more difficult. Hence in the analysis of each section every attempt has been made to examine information from as wide a range of sources as is possible within the constraints of the research.

The structure of this chapter was determined after reviewing the existing literature. It is also tempered by the strong belief that the study of the adaptive reuse of buildings for educational purposes in isolation of the overall context can lead to serious misinterpretation of the facts. As *"an educational system is symptomatic of the society it serves, brought into being by that society as a means of preserving and validating its governing values"* (MacDonald, 1996:118), it would be difficult to justify an analysis of the primary schools based solely on architectural criteria. The function of providing a spatial environment is neither specific to, nor dependent on the function of educating children as chapter three demonstrated. The criteria for the satisfying the latter may incorporate the former, but social, pedagogical, political, economic, cultural and ideological functions often predominate thereby making it necessary to take a more holistic approach to the topic. Because

"the structure of the Cuban educational system ... must be seen in the context of its on going history" (MacDonald, 1996:15), the aim therefore, is to reveal not only how education in post revolutionary Cuba formed an integral part of various decision making policies in areas as wide ranging as health, housing and agriculture, but also how and why, in order to succeed, the implementation of educational strategies had to be sufficiently flexible to meet the constantly changing political and economic circumstances. It also explains how political and economic functions specific to Cuba permeated the educational system and why they have resulted in the continued use of houses for primary education in Havana.[1]

As a starting point it was considered appropriate to extrude three specific topics that have a unique and fundamental bearing on the development of education in Cuba and to incorporate these in this introductory section. The first is an explanation of why the Cuban Revolution differs from other socialist revolutions of the twentieth century. The second describes how the 1961 National Literacy Campaign not only provided the springboard for educational improvement but more importantly how it succeeded as an exercise in mass national unification. The third acknowledges the two figure-heads, José Martí and Ernesto "Che" Guevara, who have dominated the philosophical approach to education in Cuba. These set the foundation upon which the educational system and consequently the school construction programme were built.

For each decade the main socio-economic and political events are outlined prior to giving an account of the development in the primary educational sector.[2] This format is one favoured by many authors such as Mesa Lago (1978); Griffiths & Griffiths (1979); Richmond (1989); and MacDonald (1996), because, given a degree of flexibility, it mirrors the main stages of development, particularly with regards to education.

The first decade was a period of intense and diverse activity when the country transformed from a capitalist to a socialist/communist regime. As the evolving political ideologies and economic strategies permeated all sectors of society, including education, section 5.2 refers briefly to selected policies and events that provided the context for the new educational system and the rationale behind the school building programme. The section on the 1970s (5.3) concentrates on the rationalisation and consolidation of the regime's policies and the pedagogical philosophies that were formulated in the first decade. The intention is to illustrate the evolution of the overall framework of the educational pyramid, which, by the end of the 1970s, had been completed. The section on the 1980s (5.4) focuses on the Rectification Process, and the implications it had on education. The events of the 1990s set the education system in the current context. Like the first decade, major international political and economic events predominated, but unlike the dynamic

[1] Functions such as:- inculcate ideology; construct society; eliminate inequality; eradicate illiteracy; develop economy; improve living standards; improve health care; increase skilled workforce etc.

and progressive 1960s, the 1990s regressed into stagnation. Knowledge of the sequence and consequences of these events gives a better understanding of the *status quo* in which the case study analysis was undertaken.

Section 5.6 clarifies the structure of the national educational system before giving a more detailed account of primary education. Section 5.7 then gives an overview of the architecture and urban development followed by an account of the primary school buildings during this period. The chapter concludes with a summary of the key issues from the start of the Revolution to the end of the twentieth century.

5.1.1 Why the Cuban Revolution was Different

> *"Cuba is generally seen as a positive example of socialist development ... achieving substantial material successes - in the economy, in health care, and in education."* (MacEwen, 1985:420)

Whilst some aspects of the economic, social and political policies resemble those of the former Soviet Union and the Eastern bloc countries, it is generally recognised that Cuba is different from most other socialist countries[3]. An understanding of the characteristics that make Cuba different clarifies the philosophical approach to, and successes achieved in education and of the rationale behind the adaptive reuse of buildings for educational purposes. It also explains why the revolution not only succeeded but also why the new regime outlasted the collapse of the Soviet Union and why it has survived into the twenty-first century.

What makes the Cuban revolution different is not so much the politics as the people. In the past neither a single sector of society nor any groups of social classes had been able to overthrow the domination of imperialism imposed first by Spain and later by the United States. During the nineteenth century Wars of Independence opposition to Spanish colonial rule came from all sectors of society - slaves, merchants and large land-owners etc.. In the twentieth century the revolts against the dictatorships of the 1930s and 1950s were also supported by a wide-ranging composition from various social groups - students, farm-workers etc.. The country *"had a history of broad class alliances and extensive popularity on which to build .... [thus making it] unique among socialist revolutions [as] opposition arose in virtually all social groups"* (MacEwen, 1985:425). By 1959 the struggle for power was therefore by no means new. Although this collective opposition was central to the initial success of the revolution itself, the historical precedent merely provided the

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[2] Other sectors of education are included where appropriate in order to maintain the contextual continuity.

[3] *"Outstanding symbols of these differences are the high degree of politicisation of the Cuban people and the far-reaching social and economic equality ... [which] go a long way toward limiting bureaucratic and repressive practices"* (MacEwen, 1985:420). Although the latter are present in Cuba they are much less dominant than in other socialist countries.

context for the future development of the country. The continuance of its success would depend on other factors that built on this context.

MacEwen (1985:421-427) draws attention to two specific aspects of Cuban life in the late 1950s that differentiate this revolution from others during the twentieth century. The first is that Cuba was not only a modern but also a totally capitalist country. The second factor was that it was an urbanised society. The rural areas were devoted to agriculture on peasant farms[4] where production was both specialised and market oriented. These two factors are in marked contrast with other countries such as Russia and China that had revolutions to establish a socialist society. *"Their economies were not capitalist: they were not urban; they were not modern. Cuba has the distinction of being the first and only capitalist nation to experience a socialist revolution"* (MacEwen, 1985:422).

Although the early years of the new regime appeared to lack any systematic structuring a number of profound reforms were instigated that had wide-reaching implications. Many sources (Edwards, 1979: Morton, 1979; MacEwen, 1985; Brundenius, 1985: Stubbs, 1989; Eckstein, 1994) agree that the policy of rural urbanisation had the most dramatic and lasting effect in that it changed the demographic structure of the country, the life-style of the rural people, the housing, roads and transportation programmes and it effected the subsequent educational and medical care reforms. It was initiated by the Agrarian Reform Laws (1959 & 1963) in parallel with the Urban Reform legislation (1959 & 1960). The result was that the towns in each of the provinces were able to provide facilities[5] for the local population that previously had only been available in Havana. Within the context of this study the effect was a concentration on educational building development and expansion in the rural areas at the expense of the capital city of Havana[6]. The number of new schools built throughout the island increased, and although new schools were constructed in Havana, **adaptive reuse of existing buildings provided alternative educational facilities for a large percentage of the inner city schools.** The reason why houses are still being used for primary education in Havana (four decades later) can largely be attributed to the rural urbanisation policy as chapter seven will also verify.

The combination of these policies and reforms brought about an overwhelming redistribution of income, far greater than other socialist revolutions had achieved. In addition, the introduction of a rationing system,[7] for all Cuban citizens ensured that everyone received a basic diet of essential

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[4] *"As opposed to sugar plantations, cattle ranches or other wage labour-employing activities"* (MacEwen, 1985:421).

[5] The facilities included hospitals, polyclinics, local doctors' surgeries, day care centres, primary and secondary schools and provincial polytechnics and training centres.

[6] Edwards (1979:111-112) notes that *"Havana grew rapidly in the years immediately after 1959, but has expanded subsequently at a rate slower than the national population - a remarkable achievement when contrasted with the disastrously high rates of growth in other Latin American capitals"*.

[7] The ration book, or *libreta*, is distributed to each household each year. Although intended as a temporary measure, the ration book system continues to this day.

foods. Within a decade, malnutrition had virtually been eradicated.[8] The speed with which these achievements were accomplished was acknowledged in a study of the Cuban economy by the Joint Economic Committee of the United States which stated that:-

> *"The genuine socio-economic and political accomplishments of the Cuban revolution have attracted international attention. These accomplishments include:- a highly egalitarian redistribution of income that has eliminated almost all malnutrition, particularly among children."* (Brundenius, 1985:193)

Hence, the successful implementation of major government policies in respect of the Agrarian and Urban reforms, the redistribution of income and the rationing system of food all within the first two years of the revolution had an equalising effect on the whole population. Undoubtedly, it was the poor who gained the most. The following statement succinctly summarises what made the Cuban Revolution different.

> *"The material benefits that the working people received from the revolution were very clear, and there is no doubt that in this sense the Cuban Revolution was a revolution* ***FOR*** *the working class. At least in the early years, however, it was* ***not*** *a revolution* ***BY*** *the working class. The immediate struggle for power had not directly involved the masses of the people, and, by and large, the early reforms were instituted from the top down. .... The literacy campaign of 1961 did provide, at least in part, a notable exception."* (MacEwen, 1985:426)

5.1.2 The 1961 National Literacy Campaign

> *"Among its many achievements, the [literacy] campaign helped to integrate almost the entire population into the revolutionary process, and in so doing, it linked the Revolution with a strong sense of national pride and identity."* (Richmond, 1989: 166)

As the national literacy campaign of 1961 is well documented the intention here is to show that it had implications beyond that of a single historical event that were to permeate the following four decades yet which were intrinsically related to the process by which it was carried out.

How does the Cuban campaign differ from other literacy campaigns? MacDonald (1996) explains that although a substantial drop in illiteracy was achieved in most other countries during the initial period, within ten years their illiteracy rate had returned to their original level. This did not occur in Cuba as *"the Cuban campaign involved something that made large numbers of illiterate adults* ***want to learn to read and to want to keep reading"*** (MacDonald, 1996:58). The population's quest for knowledge continued to grow. This enthusiasm for self improvement was the first and most significant reason for the success.

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[8] In 1951, the World Bank had estimated that malnutrition was as high as 40 percent in the urban areas and more than 60 percent in the rural areas (Collins & Benjamin, 1985:63).

The second factor attributed to the campaign's success in Cuba was *"the comparative lack of pedagogical policy behind it .... It was mediated by a large number of enthusiastic amateurs .... whose only contact with teacher training had been a quickie eight-day course on how to use teaching materials .... (that) had been quickly and badly produced"* (MacDonald, 1996:58). This is in contrast to other more efficiently organised campaigns that had qualified teachers and UNESCO produced materials.[9] The Cuban achievement relied instead on the enthusiastic mass participation of the people. Language represented another contributing factor. Spanish is phonic in its orthography *"teaching (a person) to read it would be relatively simple"* (MacDonald, 1996:59). The psychological benefit for an individual to be able to reach a basic level of reading and writing within a short period of time gives the person self esteem and encouragement to continue developing these skills.

All these factors together with the fact that the Literacy Campaign was *"a deliberate exercise in national unification"* (Holly, 1979:173) not only contributed to its success but also set it apart from similar efforts in other countries.

a) Why and How the Campaign Evolved

During the formative period of the new government there was an exodus of the wealthy, educated and middle-class professionals of Hispanic background that was to have a considerable bearing on the implementation of educational reform. *"About 50 percent of the entire teaching population in Cuba left for the United States during the early 1960's"* (Richmond, 1989:198). Yet when Fidel Castro addressed the United Nations in September 1960 he promised that:-

> *"During the next year, our people intend to fight the great battle of illiteracy with the ambitious goal of teaching every inhabitant of the country to read and write ..... Cuba will be the first country of America which, after a few months, will be able to say it does not have one person who remains illiterate."* (Castro quoted in MacDonald, 1996:67)

With over one million illiterates and a dwindling number of trained teachers, the promise to make education available to everyone required revolutionary tactics on an enormous scale.[10] The government's request for volunteers to teach literacy skills produced a response from more than 100,000 people by the end of 1960. Many of these were children, aged between 10 and 19, had an educated bourgeois background and came from the urban areas.[11] In contrast, most of the illiterates were adults living in poverty in the rural areas. The campaign was therefore as much about changing social attitudes between the rich and the poor, and between urban and rural ways

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[9] MacDonald (1996:58) cites the South Pacific, El Salvador, Nicaragua and Grenada as *"nations (which) had experienced conventional literacy programs before, but none had succeeded"*.

[10] The estimated total teaching force in Cuba was 35,000 (MacDonald, 1996:68). Logistically, the figures did not make sense:- even a ratio of one teacher for five illiterates would require 200,000 teachers.

[11] Cannon (1981:189) explains the significance of this;*"Given the threat of invasion .... the murder by counterrevolutionaries of several thousand teachers, and the Spanish family tradition that would never have imagined allowing young children to leave home ....it showed that parents had confidence in the Revolution to protect their children."*

of life, as it was about education. By April 1961 it was realised that many more volunteers were needed to accomplish the programme within the year. Most primary and secondary schools were closed for the next eight months to enable the teachers and some of the students to participate in the campaign. The popular slogan became, *"If you don't know,* ***learn.*** *If you know,* ***teach.***" (Cannon, 1981:187) A training camp was established in Varadero as the volunteers, or *"brigadistas"* began to arrive in thousands[12]. During the eight to ten day course they were taught basic survival skills as well as teaching skills. Then dressed in military style uniforms and armed with two books, a hammock and a gas-powered camp lantern they were dispersed throughout the country to small rural settlements for three to six months before they returned home (Figures 5.1 and 5.2).

Figure 5.1 Young Brigadistas
Source: Kolésnikov (1983: 72)

Figure 5.2 Brigadistas teaching in the Literacy Campaign
Source: Cuba, MINED (1975: a) 46; b) 48; c) 49; d) 50)

[12] The first week there were 1,000 volunteers; two weeks later, 7,500; and two week after that 12,000 started (MacDonald, 1996:74).

The following extract from an interview (thirty five years later) gives an insight into the impact which this experience had on a young *"brigadista"* :-

> *"My family was quite wealthy and had lived in Florida for some years, so I spoke English and Spanish. As my parents supported the Revolution, we returned to Cuba in 1959. I was twelve years old when I volunteered. My parents were concerned because I was so young and because many teachers had been murdered by the counter-revolutionaries, especially in the mountain regions. I attended the course in Varadero. Afterwards I was taken to a small village at the foot of the Escambray mountains where I had to teach five families to read and write. I was the only volunteer there. I will never forget the squalor and dirt. I lived in a bohio that had an earthen floor and only a few pieces of rough wooden furniture. I slept in my hammock. Before starting any literacy work, I had to show the families how to dig a latrine and how to wash in order to improve their sanitation which was non-existent. I didn't know people could live in such conditions. By the end of my stay, my families had passed both the reading and writing tests to prove they were literate which pleased me. My parents were very proud of me. After the campaign tens of thousands of brigadistas gathered in Plaza de la Revolución in Havana to celebrate the end of illiteracy. It a was wonderful experience."* (Prof. Arq. Gema Fleitas Corona, Havana, 1996, Personal Interview) [13]

b) The Significance of the Literacy Campaign

The 1961 Literacy Campaign embodies the philosophical and ideological principles of the new era. It united the nation as the social barriers between the urban and rural dwellers began to crack. The literate urban volunteers saw what needed to be done in the countryside and the rural peasants realised what they could achieve through knowledge. The fact that the campaign continued in spite of the attack at the Bay of Pigs in April 1961, and despite the appalling and dangerous condition the volunteers had to endure, illustrates the determination of the people to succeed. Richmond (1989:166-167) records the impressive facts as follows:-

> *" 929,207 illiterates were identified, the great majority living in rural areas;*
>
> *" a diverse voluntary teaching force of over 280,000 was amassed;*
>
> *" a total of 707,212 of the illiterates contacted were made literate during the campaign;*
>
> *" the national illiteracy rate reduced from 23.6 percent in 1953 to 3.9 percent in 1961"*

However even these statistics are outweighed by the social significance of the campaign.

> *"Far more than from lectures or classes in political education, a whole generation of the intelligentsia of Cuba learned materialism at the cane-roots, so to speak. The present educational establishments of Cuba, from the Ministry downwards, are staffed with this generation."* (Holly, 1979:173)

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[13] Prof. Fleitas Corona was a Lecturer in the Department of Architecture at ISPJAE in 1996.

Twenty years later, Holly's observation still holds. The real significance of the National Literacy Campaign is that many of both the *'brigidistas'* who taught, and the people who were taught, are currently in a position of power and influence such as teachers, lecturers, and government administrators. It is these memories that have kept the country united for almost half a century. The campaign showed that this revolution was for the people, by the people in every sense.

5.1.3 The Influence of José Martí and Ernesto Che Guevara

> *"To be educated is the only way to be free."* (José Martí, 1884, in Cannon, 1981:187)
>
> *"Society as a whole must become one huge school."* (Che Guevara, in Cuba, DESA, 1973:4)

The influence of José Martí (1853-1895) (see chapter 4.3.4) and Che Guevara (1928-1967) permeates many aspects of contemporary Cuban society in spite of the fact that Martí died sixty-four years before the revolution and that Guevara, an Argentinian, only arrived in Cuba in 1956 and left six years after the new regime came to power. Their influence on post revolution education in particular was, and still is, profound. To understand how and why this is, is to understand the men themselves.

Martí 's influence is evident in his writings on educational theory and pedagogy, particularly in his book *"La Edad de Oro"* (The Age of Gold). His concept, that education should be 'fit for purpose', manifested itself in the secondary schools in the countryside and vocational schools of the 1970s. Che Guevara's influence on education is more complex as McLaren (2000:42) explains, *"to understand Che's pedagogy is not to dredge his corpus of writings*[14] *for explicit references to his philosophy of teaching."* This is because *"Che's pedagogy was his teaching through personal example"* McLaren (2000:79).

a) Ernesto Che Guevara (1928 - 1967)

> *"Many will call me an adventurer, and I am, but of a different kind - one who risks his skin in order to prove his convictions."* (Che Guevara, 1965, quoted in Gerassi, 1969:568)

Ernesto Guevara was born in Rosario, Argentina in 1928.[15] Although Che suffered from chronic asthma and did not start school until the age of seven, he was top of his class every year. Later he studied medicine at the University of Buenos Aries. When his parents divorced Che chose to stay with his strong-willed, liberal mother who had become a Marxist. He worked his way through university and spent the summers travelling extensively around Latin America[16]. He married

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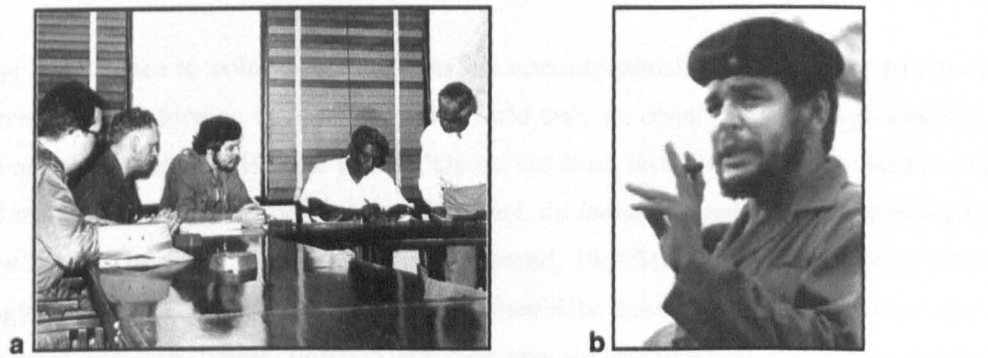
[14] Unlike Martí who was a prolific and eloquent author who wrote specific texts on education, Guevara did not write any specific pedagogical works. Apart from a text book 'Guerrilla Warfare' most of his writing is in the form of his diary and speeches.

[15] Guevara was the first of five children. Both his parents had aristocratic ancestors. His father was a businessman who *"made and then squandered minor fortunes"* (Gerassi, 1969:24).

[16] He travelled either by motorcycle, on foot or hitch-hiked, frequently stopping to work in hospitals and at the leper colony. The travels interrupted his studies but he eventually received his M.D. degree in 1953.

Peruvian Hilda Gadea[17] in 1955 and through her was introduced to Cuban exiles from the 26th July Movement and later he met Fidel Castro, *"an encounter which would irrevocably change Che Guevara's destiny"* (Sandison, 1996:26). Guevara became the revolutionary force's doctor during the ill-fated *Granma* attack in 1956 but managed to avoid capture in spite of being shot. After two years as a guerrilla leader in the Sierra Maestra mountains where he *"gave literacy classes to his peasant recruits and would occasionally read aloud to them from various sources such as Cervantes, Robert Louis Stevenson and the poetry of Pablo Neruda"* (McLaren, 2000:73) he was promoted to the rank of *commandante*. He led the march on the Escambray mountains and the battles of Las Villas which became the turning point of the revolution and on 2nd January 1959, Guevara assumed command of Havana's La Cabana fortress, which effectively made him head of the military. On 9th January 1959 Guevara was officially made a Cuban citizen[18].

Though his image remains that of the romantic revolutionary, he was also a pragmatist and theorist. Aware of the potential hostility towards the new regime by the United States, he met Vice-President Richard Nixon in Washington D.C. in April 1959 after which he addressed the General Assembly of the United Nations in New York. He toured Africa, the Soviet Union, the Far East, Europe and South America to secure political and financial support through negotiating trade agreements (Figure 5.3). As chief of the Industrial Department of the National Institute of Agrarian Reform (INRA) he worked on the agrarian reform policies. In November 1959 he also became head of the National Bank. An ascetic person, he pursued both jobs with endless dedication. Even the United States Treasury Department acknowledged Che's in-depth understanding of finance and economics.[19] In 1960 he established more commercial agreements with Czechoslovakia, Russia, China and Korea. (Gerassi, 1969:43). The following year he was appointed Minister of Industry.



a b

Figure 5.3 a) Che at a meeting in Ceylon b) Che circa 1964 – the familiar image
Source: a) Sandison (1996: 58); b) McLaren (2000:2)

In the formation of his political and economic strategies Guevara departed from the conventional Soviet approach in favour of an idealistic philosophy that was *"influenced by the system of the*

[17] Later, in Cuba, he divorced Hilda and married the Cuban revolutionary Aleida March.
[18] At that time he chose to legalise 'Che' (notably without an accent over the 'e') as part of his name (Gerassi, 1969:40).
[19] Walter Sauer, vice-president of the Export-Import Bank, an official arm of the U.S. Treasury, said that talking to Che about finances was *"just like talking to another banker, except that the son of a bitch is an orthodox Marxist"* (Gerassi, 1969:42).

Maoist 'Great Leap Forward'" (Mesa-Lago, 1993:6). He believed that theory and practice should be linked and that individualism should be eradicated, preferring *"the proper utilisation of the whole individual at the absolute benefit of the community"* (McLaren, 2000:75). His speeches repeatedly stress the need for everyone to work for the good of the country, not for material gratification.

> *"He saw volunteer labour as an important ingredient in breaking down elitist outlooks among professionals and intellectuals - teaching them how the surplus that provided for cultural activity was generated. More basically, he saw this as a key element in creating bonds between manual and mental workers to avoid the emergence of a "new class" based on the superiority of the intellectuals."* (Petras, 1998:16)

This was not just rhetoric; he led by example.[20] He often harvested the sugar cane with the workers (Figure 5.4). For Che, *"there was no life outside of the revolution, and that life ... was grounded in a 'love of a living humanity'"* (McLaren, 2000:75). Although not formed until after his departure both the microbrigades and the schools to the countryside *(escuelas **al** campo)* are representative of *"collective voluntary labour, consistent with Guevarist principles"* (Eckstein, 1994:158).

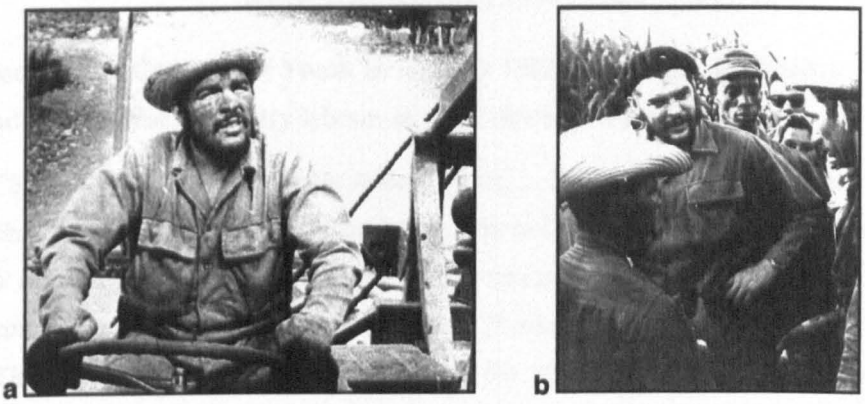


Figure 5.4 Che Guevara working in the sugar fields and talking to the sugar cane workers
Source: a) Sandison (1996:57); b) McLaren (2000:88)

Of equal importance to voluntary work was his uncompromising commitment to education. He considered that the forging of the New Man could only be constituted through reading, writing and the act of studying. In 1965 he wrote; *"On the one hand, society acts upon the individual by means of direct and indirect education, while on the other hand, the individual undergoes a conscious phase of self-education"* (Che Guevara, 1965, translated in Gerassi, 1969:540).[21] Whilst his views followed the pedagogy of Marx, Che stressed that learning should be based on observing what one **did**, not only on what one **said** (Petras, 1998:17). His own love for learning was enormous, and the passion with which he expressed this thirst for knowledge filtered through to the young Cubans.[22] He was the inspiration for the Young Pioneer Movement and the force behind the creation of the *Circulos*

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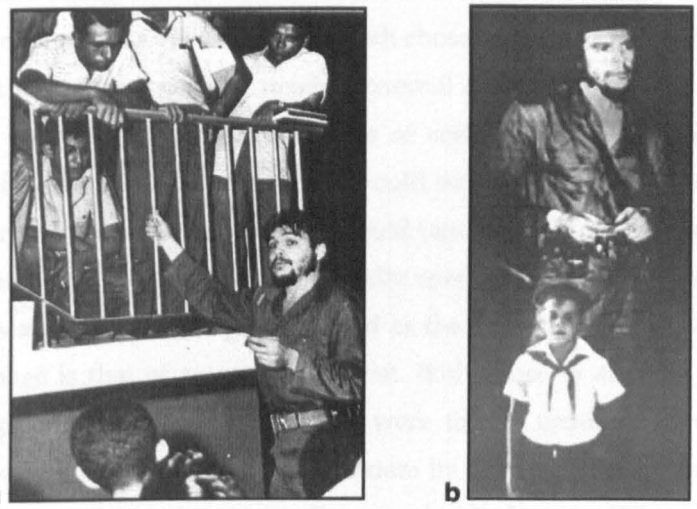
[20] In addition to his official duties, McLaren (2000:75) records that during the construction of the Camilo Cienfuegos educational complex Che, not only worked in the quarry breaking rocks, but also travelled to the site on Sundays, spending up to eight hours building the school.

[21] This was later published as Che's most famous work entitled "*El socialismo y el hombre en Cuba*" (Man and Socialism in Cuba).

[22] Che was a prolific reader. He read the works of RL Stevenson, Jules Verne, and Dumas; Boccaccio, Baudelaire (in French), Zola, Lorca, Jung, Freud, Machado, Steinbeck, Proust, Sartre, Martí, Milton, Churchill, de Gaulle and Gandhi, thus illustrating the range and depth of his knowledge. He also took classes in economics and mathematics (McLaren, 2000:72 -76).

Infantiles (Day Care Centres). *"Che's presence has always been intensely felt in Cuba. .... The Pioneer Organisation of primary and secondary school children has the motto "Seremos como Che" - (We will be like Che)"* (Stubbs, 1989:13) (Figure 5.5).



a b

Figure 5.5 a) Che talking to youths in 1960 b Young Pioneer in front of a photograph of Che
Source: a) McLaren (2000:120); b) Stubbs (1989:71)

His speech to the Communist Youth in October 1962 emphasises the need to work, the need to learn and the need for voluntary labour, as the following extracts reveal:-

> *"Study at all levels is one of the tasks of youth .... Study mixed with work, as in the case of those young students who are harvesting coffee in Oriente, who utilise their vacation to pick a crop which is important not only to our country's foreign trade, but also to us, who consume great quantities of coffee every day. This work is similar to eradicating illiteracy. .... These works are very important because the Young Communists .... learn from the experience of new human contacts. From the peasants in the field they find out about life and work in remote areas and about all that must be done to elevate those regions to the level of our more habitable rural areas and our cities. This is .... a form of education in which work ceases to be the obsession it is in the capitalist world, and becomes a pleasant social duty. .... We all must work every day, work in the direction of inner improvement, of augmenting our knowledge and increasing our comprehension of the world around us."* (Che Guevara, 1962, translated in Gerassi, 1969:303-312)

Che was an idealist. As a believer in permanent revolution his *"fulfilment lay in fighting great causes on the military front"* (Stubbs, 1989:70). This was the driving force that led him to depart from Cuba in 1965 and go in search of other worthy revolutionary causes. To many his image was that of a Quixote and in a farewell letter to his family in 1965 he wrote, *"Once again I feel Rocinante's bony ribs beneath my legs. Again I begin my journey, carrying my shield"* (Che Guevara, 1965, translated in Gerassi, 1969:568). His capture and subsequent execution by the militia in Bolivia in October 1967 lent him the qualities of a heroic martyr.

b) Martí and Che – Two Heroes, Two Eras, Two Revolutions - One Cause

The fact that both men considered education to be a fundamental issue in the fight against poverty, repression and under-development is only one of the factors that unite them. Both were from middle class backgrounds, well educated and could have had prosperous careers. Neither needed to get involved in a revolution, yet both chose to fight to make Cuba independent.[23] Both recognised that the country initially needed external assistance in order to survive economically, yet both were equally aware of the dangers of seeking that outside help in the struggle for freedom. Each foresaw, correctly, that there would be a price to pay for too much dependency on a foreign power for assistance, and that this could (and did) ultimately turn against the interests of Cuba.[24] Both men travelled extensively, actually spending a relatively small proportion of their time in Cuba. Martí has always been regarded as the patriot of Cuban nationalism. On the other hand, Che's image is that of an internationalist. Both chose to actively participate in combat in spite of their physically weaknesses which were totally unsuited to the strenuous nature of warfare. Both were killed in the battle for freedom by the opposing forces. The fact that both were passionately committed and charismatic figures who died young (Martí was 39 and Guevara was 42) contributed to raising their status to that of heroes and martyrs not only in Cuba, but in many other countries.

The following sections of this chapter will reveal not only the ways in which Martí and Guevara influenced education but also how the 1961 National Literacy Campaign and various other political and economic policies permeated the educational system during the first four decades of the new revolutionary regime.

5.2. Transformation - The First Decade (1959 - 1969)

> *"There was no revolutionary blueprint, no inevitable course of revolutionary development; rather, there was a dedication to revolutionary change itself. .... Education was sucked into this radicalising process."* (Richmond, 1989:149)

Although educational reform was one of the priorities of the new regime, similar to previous governments, it was not the most pressing concern. Political stability, economic development and reducing the inequalities between the rich and the poor and between the urban and rural areas were of paramount importance, but as the above quotation suggests, educational reform both contributed to and benefited from the changes in all these issues. To understand how this happened this section starts by outlining the overall context at the macro level and the key issues

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[23] Free from Spanish colonisation for Martí; and free from domination by the United States in the case of Guevara.
[24] Martí warned of the self-centred interests of the United States (see chapter 4.3.5) and in a speech delivered on 18th June, 1960, Guevara warned of the reliance of the USSR for petroleum (Gerassi, 1969:149).

within which education evolved during the first decade. This is followed by a description at the micro level of how selected levels of education responded to these changes.

5.2.1 Setting the Scene for Educational Transformation

For the Revolution to succeed immediate action was needed and the government responded with remarkable speed. First and foremost *"in order to secure the reformist regime, the revolution became socialist"* [25] (Edelstein, 1985:177), the consequence of which affected all aspects of society. Within the first few months the government initiated the first Agrarian Reform policy. This together with a wave of nationalisation of both domestic and foreign enterprises in the summer of 1960 led directly to an embargo by the United States on all imports from and exports to Cuba followed by the severing of all diplomatic relations between the two countries in January 1961. Cuba became economically and politically isolated, having lost its main trading partner within the space of two years. Were it not for the foresightedness of Che Guevara as head of the National Bank to transfer all Cuba's gold reserves and dollars from the US to Canadian and Swiss banks in November 1959, Cuba would have become bankrupt when the US government seized all the country's assets in the United States (Gerassi, 1969:41).

The embargo meant that spare parts for maintenance of industrial equipment and agricultural machinery, most of which came from the United States, were not available. European metric components were not compatible so mechanisation gradually decreased. To sustain productivity, permanent production brigades were formed to carry out labour intensive work, most notably the *zafra* (sugar harvest) because no market for the sugar meant no access to hard currency. The economic outlook appeared bleak until the Soviet Union offered to buy the 1959 sugar quota on advantageous terms for Cuba.[26] In retrospect, however, the real price that Cuba paid was the transfer of its economic dependency from the United States to the USSR.

> *"In the stream of history, few partnerships have been more integrated, stronger, or more durable than that of the USSR and Cuba..... What drew them together was less ideology than perceived state interests. The central tie was shared hostility to the United States."* (Blasier, 1993: 64-65)

In February 1960 an official trade agreement was made between the Soviet Union and Cuba, whereby the former provided *"a one hundred million dollar credit over a period of twelve years for which the Cubans had only to pay 2.5 percent interest"* (Jordan, 1993:98). Thereafter more agreements were negotiated, notably with regards to technology in the form of knowledge, skills and equipment. Although the economic problem regarding trading of goods and materials was

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[25] The Revolution was about nationalism and humanism. It was not until April 1961 that Castro first used the term *"socialist"*. *"Seven and one-half months later he declared himself a Marxist-Leninist. Despite this rapid ideological transformation, the central goals of the revolution had not changed."* (Edelstein, 1985:177).

[26] Diplomatic relations with the USSR were officially re-established in May 1960 (Stubbs, 1989:xi).

temporarily resolved, the interdependency of various policies created a chain reaction of problems to be solved as the whole infra-structure of the country was primitively inadequate. Edwards (1979:111) explains how *"the pressure on Havana's deep births and on trunk roads and railways became overwhelming"*.[27] Improvements in the road transportation system were needed not only for trade but also for the implementation of the education, housing and health care programmes as envisaged in the rural urbanisation strategy. Both the scale of, and speed with which, the changes were implemented in Cuba during the first decade were remarkable for a developing country.

5.2.2 Rural Urbanisation and Equalisation of Income

Cuba was more urbanised than most Latin American countries with Havana being the concentrated centre for migration, and also the centre of wealth and development, as chapter four explained. The revolutionary government's rural urbanisation policy was considered a *"way of providing small rural communities with the economic, social and cultural amenities associated with urban life"* (Stubbs, 1989:29). The capital city of each Province would be expanded to provide places of work and other facilities for the local population thus making life more attractive than the lure of Havana. The intention was to slow down the expansion of the capital. The policy worked, for it did in fact stop the growth of the city. Castro's rural urbanisation strategy was put into effect almost immediately such that:-

> *"Between 1959 and 1962 [the government] built eighty-three new towns and settlements, housing, on average, three hundred to five hundred people each .... they included services found .... only in the better-off urban neighbourhoods. .... The planned communities were built with schools and medical facilities and the dwelling units had electricity and sanitary facilities .... [and] offered employment opportunities .... especially when associated with agricultural development projects."* (Eckstein, 1994:152)

Although the economy focused on export agriculture, Stubbs (1989:29) explains that *"less than 30 percent of the population is defined as rural ..... [as] the census definitions .... are based less on numerical size, than on the public services attached to the community."* [28] This is particularly relevant to the interpretation of the data on the school building programme and educational development on which the agrarian and rural urbanisation policies were to have a significant effect. With regards to this study, it clarifies why all the municipalities in the City of Havana are classified as 'urban' (as defined in chapter 2.2), even though most of the low density municipalities are extremely rural in character. It also explains why fewer new schools were built in the capitol and why using houses provided a solution for primary education, as it had done in the previous eras.

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[27] Previous trade with the US required only low-tonnage shipping for the relatively short distance to Cuba. Sugar was exported directly from ports nearby the plantations (such as Matanzas and Cienfuegos) eliminating the need for roads to transport the cane to Havana which *"was the only port capable of taking long-haul ships, [and] the national transport network was poor"* (Edwards, 1979:110-111).

[28] According to Stubbs (1989:29) this is how the term 'rural urbanisation' evolved.

The strategy of redistribution of income was paralleled by the policy of universal access to education *"through the determined efforts to eradicate all discrimination based on economic standing, sex, race, or place of residence"* (Richmond, 1989:155). To achieve this, not only was all education free but by mid-1961 all private schools were abolished.

5.2.3 *Seguimiento* – The Follow-up

After the 1961 National Literacy Campaign there was a period known as *seguimiento* (follow-up). From 1962 to 1973 various adult education programmes were set up to help raise the educational level of all under-educated adults in what became known as the "Battle of the Sixth Grade" (Leiner 1985:29). By 1967, *"1.7 million adults had reached the fifth grade level and by 1968, 365,720 had completed the sixth grade"* (Richmond, 1989:167). This was achieved by the continuous creation of centres and new courses designed specifically for workers such as those for craft, agriculture, trade, professional, domestic and secretarial workers as well as secondary courses for those who had passed the sixth grade. In 1962-63 the *Facultad Obrera Campesina* (FOC) (Faculty for Farm Workers) was established to promote education and technical skills through to university level specifically for agricultural workers (Cuba, SH, 1973:11).

The concept of worker-student /student-worker was nurtured as Cubans *"acquired a social obligation to raise their individual levels of educational attainment so as to make a greater contribution to the society which made the right to education a reality"* (Richmond. 1989: 156-157). In the rural areas classes for adults started at 5.00am prior to going to work, and in the urban areas ***"other buildings - factories, offices, showrooms, churches - were used for classrooms when they were not serving their intended purposes"*** (MacDonald, 1996:94). Classes also took place outdoors and in people's houses (Figure 5.6). **For millions of Cubans, 'School' was somewhere to be educated, not a building.**

The significance of the geographic and economic context (see chapter 4.2) becomes apparent in the evolution of the three calendars that were created during 1966 in order to increase the accessibility of education for over half a million the workers. According to MacDonald (1996:94), these were:-

- in **urban areas**:- classes followed the standard academic year from September to July.
- in **rural areas**:- to accommodate the sugar harvest, classes operated from June to December *(tiempo muerto)*.[29]
- in **mountain regions**:- classes ran from January to October so as not to conflict with the harvest of the coffee crop.

[29] The 'dead period' - i.e. when the cane was growing, prior to harvesting.

Figure 5.6 *Seguimiento* –Teaching the adult workers to read and write
Source: Cuba, MINED (1975: a) 59; b) 61; c) 65; d) 63)

On the negative side, most teachers were inexperienced volunteers[30]. Consequently there was a lack of pedagogical theory and a lack of understanding of educational psychology. The situation was far from perfect but the programme was driven by enthusiasm and mass participation that helped to counter balance the relatively poor standard of education.

5.2.4 Primary Education

After the eradication of illiteracy and the follow-up programme for adult education, the expansion of primary education was perhaps the most notable reform in main stream education during the 1960s. *"In 1956-57 only 56.4 per cent of children between 6 and 12 years of age were enrolled in school; by 1971-72, 96.4 per cent of this age bracket were enrolled"* (Richmond, 1989:167). Table 5.1 shows just how rapidly the regime's policies for increasing access to education for all children, particularly those in the rural areas, were put in place.

Considering that during the first three years there had been a major change in political ideology, complete disruption to the economic strategy, reforms to income, housing and agricultural policies, various counter-revolutionary attempts to regain power, as well as the National Literacy campaign, it is worth extracting some of the figures for further comment.

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[30] The training of primary teachers in the early 1960s was based on "*tough romanticism*". A guerrilla type image with familiarisation of the rural conditions was "*the most distinctive, almost dramatic, feature of formal education in Cuba*" (Jolly, 1964:237).

Table 5.1 PRIMARY EDUCATION in the First Decade (1959 - 1970)
Number of Pupils; Teachers and Schools

	1958 - 59	1959 - 60	1961 - 62	1962 - 63	1964 - 65	1966 - 67	1968 - 69	1970 - 71
Total No.Pupils	**717,417**	**1,050,119**	**1,166,267**	**1,207,286**	**1,332,773**	**1,361,942**	**1,466,286**	**1,664,634**
Urban	500,939	591,886	646,497	651,841	765,218	779,994	864,370	994,693
Rural	216,478	458,233	519,770	497,644	458,957	463,851	481,557	542,364
Mountain	-	-	-	57,801	108,598	118,097	120,359	127,577
Teachers	**17,355***	**24,443***	**33,809**	**36,613**	**39,177**	**43,621**	**49,525**	**60,592**
Urban	12,019	14,135	19,054	21,752	22,859	26,230	30,952	36,091
Rural	5,336	10,308	14,755	14,218	13,532	14,110	15,463	20,825
Mountain	-	-	-	1,643	2,786	3,281	3,110	3,676
Schools	**7,567**	**10,381**	**12,843**	**13,780**	**14,028**	**14,464**	**14,882**	**15,190**
Urban	2,678	2,026	2,709	2,634	2,633	2,648	2,530	2,607
Rural	4,889	8,355	10,134	9,704	9,193	9,294	9,817	10,145
Mountain	-	-	-	1,442	2,202	2,522	2,535	2,438

Source: Cuba, SH (Series Históricas) (1973: 18; 45 and 38)
(* Statistics which do not include the private sector schools)

First, the number of teachers more than doubled within five years, from 17,355 in 1958-59 to 39,177 in 1964-65. Whilst in the urban areas the number increased significantly, in the rural and mountain regions combined the figure more than tripled. Secondly, the number of pupils enrolled in the urban schools increased by over 52 per cent and the number enrolled in both the rural and mountain regions increased more than 162 per cent.[31] Rates of attendance also improved from 60.8 per cent in 1956-57 to around 90 per cent in 1965-66, and from 1963 the school year was extended from 36 to 40 weeks. Finally, the number of schools almost doubled between 1958-59 (7,567) and 1964-65 (14,028). Although new schools were under construction there was insufficient accommodation to meet the escalating demand during the early years. Hence the government turned, yet again, to the people, in a call for classrooms.

Adaptive reuse provided the solution as abandoned country houses, army barracks, factories and trade union halls offered accommodation, such that by 1962 ten thousand new classrooms had been created (Cannon, 1981:189). Another concept was the *Ciudad Escolar* (city of learning) that evolved from the adaptive reuse of Batista's military barracks in the early 1960s. The scale of these complexes was enormous. They were like a self-contained city where students not only studied, but were also accommodated. One of the most famous was the Moncada garrison[32] in Santiago de Cuba which became *la Ciudad Escolar "26 de Julio"* containing five primary, one secondary and one pre-university schools. The Columbia army barracks in Havana (Batista's headquarters) was transformed into *Ciudad Libertad*, the largest teaching centre in Latin America with over 14,000 students (Kolesnikov, 1983: 99-100). The success of these led to the construction of new 'city schools' throughout the country. In August 1961 Che Guevara noted that:-

[31] Even allowing for the fact that in 1958 there were *"665 private primary schools with an estimated enrolment of 120,000 and a teaching force of 7,000"* which the government absorbed into the State system in 1961 (Richmond, 1989:169).
[32] See also section 5.7.4.

> *"In one year .... seven regimental headquarters have become school campuses; twenty-seven **barracks have become schools;** and all of this while there was danger of imperialistic aggression. The Camilo Cienfuegos school campus at the present time had five thousand pupils from the Sierra Maestra, and is building units for twenty thousand pupils; we intend to build a similar campus in every province; each school campus will be self-sufficient in food, thus initiating the farm children in agricultural practices."* (Che Guevara, 1961, quoted in Gerassi, 1969:254)

The number of urban schools remained fairly constant during the 1960s but there was a 90 per cent increase in the number of rural schools. Most of these consisted of just one classroom but they were located within a short walking distance of the local community.[33] By 1964 there were also 2,202 schools in the mountain regions whereas prior to 1962 there had been no schools at all.

In 1964 the curriculum was broadened to incorporate productive and socially useful components as well as education work (Richmond, 1989:170). This was a direct reflection of the shift in political ideology because during the period from 1962 to 1965 *"a debate took place over what kind of socialism Cuba would attempt to develop"* (Edelstein, 1985:180).[34] However, from 1966-1970 the Cuban government commenced a communist approach to decision making even though *"Cuba was not yet a communist society, communism existed with socialism"* (Edelstein, 1989:182).

There were, on the other hand, negative aspects that caused the government concern. The severe shortage of trained teachers was a major problem. As with adult education, the quality of teaching at primary and secondary level was similarly disadvantaged being dependent on teachers who were educated to a level only a few grades higher than the classes that they taught.[35] The mass exodus of teachers in 1959-60 gave rise to an emergency plan for training teachers although the five year tough residential course continued well into the second decade. MacDonald (1996:121) records the first establishment to commence the programme was at Minas del Frio in the Sierra Maestra. After one year the students progressed to the remote Manuel Ascunce Domenech Detachment which, by 1970, had more than 7,000 students. Most new teachers who taught secondary pupils from the late 1960s through to the mid-1970s were students who undertook in-service training whilst pursuing their studies at the Detachment. *"Without these student-teacher volunteers, it is unlikely that the growth of secondary education and the guarantee of continuity could have been secured"* (Richmond, 1989:183-184). The main expansion of teacher training followed in the footsteps of these two centres in the next decade.

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[33] Unlike the rural schools during Batista's rule (see chapter 4.5.6).
[34] There were two approaches:- Castro preferred the more conservative, decentralised form of administration, whilst Che Guevara favoured the opposing central budgeting form (Edelstein, 1985:180-181).
[35] *"In 1968, of 30,000 teachers active in Seguimiento programs, only 8,000 either already had some pedagogical training or were in the process of getting it"* (MacDonald, 1996:95).

Other causes for concern related to attendance, progression and dropout rates, all of which were unacceptably poor as the following quotation reveals:-

> *"During the first five years following the Revolution, a dropout rate of about 80 percent was recorded between each cohort starting first grade and reaching sixth grade .... [and] of the 387,000 pupils who were enrolled in the first grade in 1965-66, only 124,000 survived to enrol in the sixth grade, and of these, only 82,300 graduated [that is only 21.3 per cent of the original enrolment]."* (Richmond, 1989:171)

In spite of the initial meritorious improvements, it was apparent that much more needed to be done for primary education before it could be regarded as having successfully reached the envisaged goals. In addition to the focus on primary education there were significant developments in other areas of main stream education such as secondary, special needs and teacher training. Analysis of these is beyond the scope of this study. However, because many primary schools have a kindergarten unit, it was considered appropriate to include an overview of the development in pre-school education.

5.2.5 Pre-School Education

Prior to the Revolution, any form of pre-school education was virtually non-existent, except for some expensive private nursery schools. In the 1960s all children under six years of age were classified as pre-school. The impetus for day care centres (*Circulos Infantiles*) and pre-school education came from two sides, the *"extremely militant ... and vociferous"* group known as the *Federacion de Mujeres Cubanas* [36] (FMC), and the Department of Schools for Women's Educational Improvement (MacDonald, 1996:114 &126). Other sources (Richmond, 1989; Stubbs, 1989) confirm MacDonald's surmise that the motive was not so much to do with educating the children as it was to give freedom to the women to work both in industry and in agriculture, to be educated and to eradicate the sexual inequalities that existed. Hence from as early as 1960, the first pre-school facilities started to appear and *"between 1965 and 1970, pre-school provision became virtually complete in all of the major cities and towns, even those in the interior"* (MacDonald, 1996:126).

In order to cope with the tremendous demand for places, Kindergartens *(jardines infantiles)* for children between 3 and 5 years of age were also created but by the 1980s they were phased out in favour of the *Circulos Infantiles* whose facilities were far superior. The importance of the development of the *Circulos Infantiles* cannot be overstated. It extends beyond the boundary of education to the social, cultural, political and economic levels.[37] Between the late 1960s and the

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[36] Cuban Federation of Women.

[37] The fact that children were spending an increasing amount of time away from home (first in the *circulos* and later in the primary and secondary schools) is one of the causes attributed to the great strain and rising divorce rate (8.5% in 1959 to 30.2% in 1974) within Cuban family life. However, the latter could equally be attributed to the growing liberation of women. The *"great surge in female employment began in 1968-69"* (Padula & Smith, 1985:84)

mid 1970s the number of women both in the work force and in higher education had increased and by the early 1980s, 46 percent of the total university population were women (Leiner, 1985:31). Their contribution in the professional areas as doctors, nurses, scientists and architects was substantial. Hence, having achieved the initial aim of liberating the women, between 1962 and 1969, the second related but distinct motive and eventually **the fundamental function** of pre-school education was the inculcation of socialist-communist ideology.

5.2.6 The Turmoil of Transformation - Summary of the First Decade

Sweeping reforms at the start of the decade heralded a transformation that was based on ideological principles. The Revolutionary government was young and inexperienced, driven by commitment to the people for radical change and reform. However, the leaders were flexible and open to change. Each time a strategy failed, they resorted to an alternative system. Political and economic strategies kept changing in an attempt to find a solution to the mounting problems that various policies had created.

The ideological push for Communism in the mid-1960s, after the departure of Che Guevara, was a disaster not least because the population was not ready to embrace Guevara's concept of the 'New Man'. The strategy of moral, rather than material incentives failed to stimulate the people to work purely for the aspiration to develop society. Work productivity was low, absenteeism was high and earnings that had increased at the start of the decade, fell by 12 percent between 1966 and 1971 (Eckstein, 1994:38). *"The late 1960s was a period of severe austerity for the entire Cuban population"* due to the dismal economic record of the decade (Edelstein, 1985:185). The government admitted to the errors made as indicated in the following statement:-

> *"In certain cases we tried to make more headway than we were prepared for .... if you try to go farther than you can, you are forced to retreat .... There are many examples to show us we are not yet prepared to live in communism .... We should have the courage to correct idealistic mistakes we have made in the past"* (Castro: 1973:2-11)

In spite of the hardships, the growing population continued its support for the Revolutionary government.[38] The urban and agrarian reforms, the equalisation of income policy, the *seguimiento* programme, and improved health care were tangible evidence of what the new regime could deliver. For a large sector of the population these provided a better quality of life than under any previous government. Most significant were the wide-ranging improvements that had been made throughout the entire country within the education sector. The eradication of illiteracy was an outstanding achievement. There had been a substantial development in both primary and pre-

[38] Such was the confidence of the people that during the 1960s there was a 'baby boom'. Between 1960 and 1974, the number of living births per annum was over 200,000. A peak was reached in 1965 with 267,611 births. Thereafter the numbers started to decline to 203,066 in 1974 and from 1975 to 1989 the numbers remained below 200,000 (Cuba, AE, 1976:4 & 1989:6).

school education and the process of secondary education had started to evolve in a way that was specific to Cuban needs. Special needs education, which had not previously existed, began to gain momentum. Although an emergency plan existed for the training of teachers, this was recognised as an area of weakness that needed to be addressed in the next decade. Also, adult education, both at the basic academic level and for vocational training, was made part of the Cuban way of life. The overall emphasis on continuing educational development for everyone ensured the success of the education reforms. The construction of new schools was progressing throughout the country. **Adaptive reuse of other buildings was essential to the success of the programme** as this provided the much-needed teaching accommodation. **'Educating people' and 'providing space' in which to educate the people were the primary functions; 'building schools' was the secondary function.**

Many of the problems that occurred were due to the sheer scale of the programmes and most were related to pedagogical issues. The government was unable to meet the demands in terms of teachers required by the overwhelming enthusiasm of the whole population to be educated. Although more school buildings were needed to cope with the demand, adaptive reuse of existing buildings for educational use provided a solution to the shortage.[39] *"Revolutionary ideals were expanding much faster than material conditions could accommodate .... what were thought of as relatively long-range plans for education were found to have solved one set of problems only to create another which required different policies"* (MacDonald, 1996:99). The system was still far from perfect, but solid foundations had been laid. It would be in the next decade that education would flourish.

> *"By opening the doors of education to everyone, the Revolution had burst the dam that kept the vast majority of Cubans in a stagnant pool of illiteracy and ignorance. When the dam broke, a tide of students began to sweep upward through the educational system."* (Cannon, 1981:192)

5.3 **Rationalisation** - The Second Decade (1969 - 1979)

> *"The struggles for survival on the economic, ideological and political fronts in the 1960s were in large part responsible for the improvements achieved in the 1970s - the real economic advance and consolidation of political strength inside and outside Cuba".* (Griffiths & Griffiths, 1979:13)

In an attempt to turn the economy around the whole country became obsessed with its traditional export crop - **sugar**. Production targets for sugar cane were increased and Castro set the goal of a ten-million-ton harvest (more than twice the average output) for 1970 in spite of the shortage of

[39] The criticisms of the education system by the government in the 1970s relate mainly to pedagogical and socio-behavioural issues. I have not found any criticism specifically targeted at the policy of adapting buildings for educational purposes.

labour and machinery that would be required. Neither the strategy nor the ten-million-ton target was successful[40]. The enormous nation-wide effort put into the sugar harvest gave rise:-

> *"to widespread economic dislocation and waste, popular discontent and labour disaffection .... [such that] .... in his major speech of 26th July 1970, in which he admitted the leadership's mistakes and the failure of the economic strategy, Castro turned to* ***education as a potent symbol and example of the benefits*** *that the Revolution had brought the Cuban people."* (Richmond, 1989:173)

The government embarked upon rationalising its policies in an effort to resolve the problems.

5.3.1 Setting the Scene for Rationalisation in Education

> *"Let's not do as we have done so often, when we get an idea .... putting it into practice without further ado, only to discredit the idea later because .... it was taken from the brain to the world of reality where it died for lack of minimal [objective] conditions .... Some [unrealistic theorists] try to impose their ideas on reality, rather than reality on their ideas."* (Castro, 1970:2-3)

Eckstein (1994) refers to this decade as the 'retreat to socialism'. The government took heed of the mistakes made in the 1960s. Instead of making quick decisions, long term strategies and policies were put in place, such as the enactment of the first socialist Constitution (1976); a complete reorganisation of the government structure (1976-77); the division of the country into new political-administrative sectors (1970 and 1976); and the establishment of the new political system *Poder Popular* (People's Power) (1974-76), most of which had a positive impact on education. The benefits of this approach were reaped in the mid to late 1970s when the economy made a substantial recovery and an explosion of activity occurred that affected every sector of society.[41] There were also numerous significant events that had a direct influence on education[42] and on planning and building construction[43].

Education came under particularly fierce scrutiny. At the First National Congress of Education and Culture in April 1971 a plethora of deficiencies were highlighted, whilst at the Second Congress of the Young Communists (UJC) in April 1972, Castro, who was noted for being the most severe critic of the system, *"criticised the failure of the schools to produce enough graduates oriented towards the sorts of skills and careers most needed for economic development .... problems of*

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[40] The 1970 harvest produced 8.5 million tons (the previous record was 7 million tons in 1952), but the low market price in 1970 and the failure to reach the 10 million target meant the strategy was considered a disastrous failure.

[41] Improvements in health-care sector alone, including:- an increase in the number of Doctors (to 13.9 thousand in 1977 - equal to one doctor per 694 inhabitants), an increase in nurses and other medical staff; by 1977, 251 hospitals, 349 general poly-clinics and other specialist units had been constructed throughout the provinces (Parellada, 1979:76); the eradication of malaria, poliomyelitis and diphtheria; substantial reduction in infant mortality etc. (Ochoa: 1978:92-93).

[42] These included:- The First National Congress of Education and Culture (1971); First Congress of the Cuban Communist Party (PCC) (1975); the Family Code (1975); and the Code on Children and Youth (1978);

attendance, dropout and repetition, the small proportion of suitably trained teachers and the inadequate level of consciousness of many students as revealed by their attitudes and behaviour" (Richmond, 1989:177-178). The dropout problem was partially alleviated by three disincentive measures.[44] Offences carried tough penalties. Nevertheless, the strategy led to a significant improvement. By 1976, the dropout rates had reduced to 2.0 percent in Primary schools, 6.7 percent in Junior High and 3.4 percent in Secondary High, whilst progression rates rose to 97.3 percent, 96.1 percent and 95.9 percent respectively (Griffiths, 1979:165-166).

Resolving the other problems required a more systematic diagnosis and prognosis of the entire educational system and structure. The Government liaised with Soviet and East European educational specialists. The result of the investigation was in the form of a five year improvement plan (1976-1981) known as the *Plan de Perfeccionamiento del Sistema Nacional de Educación* (The Improvement Plan of the National System of Education). It contained 3,106 recommendations. The new Structure of the Educational System (see section 5.6.2) followed in 1977-78. Through these proposals and related qualitative and quantitative changes many of the pedagogical problems were alleviated. The Plan also addressed the issue of school buildings needed to cope with the demands of the increasing enrolments, especially at secondary level. To pay for all the recommendations the state budget allocation to education almost quadrupled *"from 350 million pesos in 1971-72 to 1,340.8 million pesos in 1980-81"* (Richmond, 1989:180).

Finally, in order for the Plan to work, education was made everyone's responsibility. The problems of motivation, attitude and behaviour that had deteriorated in the late 1960s were addressed not only in the schools but also in the homes. Organisations that were formed in the first decade such as the *Comité de Defensa de la Revolución* (CDR) and the *Federación de Mujeres Cubanas* (FMC), together with the new *Poder Popular* (OPP) became more involved in helping children develop a social conscience, whilst the Family Code established the extended family as that of child, parent and teacher all in active communication with each other. The children themselves contributed to raising the standards especially in the Primary schools as it was realised that if the younger children could develop the qualities of Che's 'New Man' there would be fewer problems at secondary level in the future. Young Pioneers played an important role in the school as did the class monitor. As model students they set an example by assisting the teacher with administrative duties in the classroom and by reading extracts from the daily newspaper to the class each morning.

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[43] Including the five year plan of the national agency for planning and guiding the economy (JUCEPLAN) (1976) and the establishment of the Microbrigades in 1971 (see section 5.7).

[44] These were:-a) Stepping up recruitment in Compulsory Military Service (SMO) and the Young Centennial Column, as well as inaugurating the Youth Army of Work (EJT). b) Extending *"compulsory education after sixth grade to cover the age bracket [thirteen to seventeen] with the highest dropout incidence"* (Mesa-Lago, 1978:104) and c) The age of legal liability was reduced to sixteen in order to stamp out the high juvenile delinquency rate.

5.3.2 Primary Education

The 1960's focused on the expansion of primary schools. In the 1970s the emphasis was on rationalisation and improving attendance and progression rates and the quality of education.

Table 5.2 PRIMARY EDUCATION in the Second Decade (1970 - 1979)
Number of Pupils; Teachers; Non-teaching staff and Schools

	1970 - 71	SH	1973 - 74	AE:	1976 - 77	AE	1978 - 79	AE
Population 6-12 yrs	*1,587,159*	note X	*1,557,297*	note X	1,690,642	'76:71	1,696,779	'78:100
TOTAL No.Pupils	1,664,634	'73:18	1,780,775	'76:8	1,899,032	'76:74	1,626,386	'78:104
No. Boarders- Internos	*n/a*	--	*46,915*	'76:10	*51,254*	'76:10	*53,521*	'78:10
Urban	*994,693*	'73:18	*n/a*	--	*1,180,998*	'76:74	*1,004,869*	'78:104
Rural & Mountain	*669,941*	'73:18	*n/a*	--	*718,034*	'76:74	*621,517*	'78:104
Primary Teachers	60,592	'73:45	71,906	'76:18	85,620	'76:85	86,738	'78:114
Urban	*36,091*	"	*n/a*	"	*49.025*	"	*51,507*	"
Rural & Mountain	*24,501*	"	*n/a*	"	*36,595*	"	*35,231*	"
Non-Teaching staff	*n/a*	*n/a*	20,348	'76:19	19,161	'78:19	21,682	'81:23
Schools	15,190	'73:38	15,561	'77:16	14,163	'76:88	13,117	'78:118
Urban	2,607	"	*n/a*		*2,706*	"	*2,589*	"
Rural & Mountain	*12,583*	"	*n/a*		*11,457*	"	*10,528*	"

Source: 1970-1971 Cuba, SH (1973) Page indicated to the right of each reference)
Source: 1973-1979 Cuba, AE (Year and page indicated to the right of each reference)
Note X : Author's calculation of the population statistics from Anuario Estadístico (AE) (1976:3)

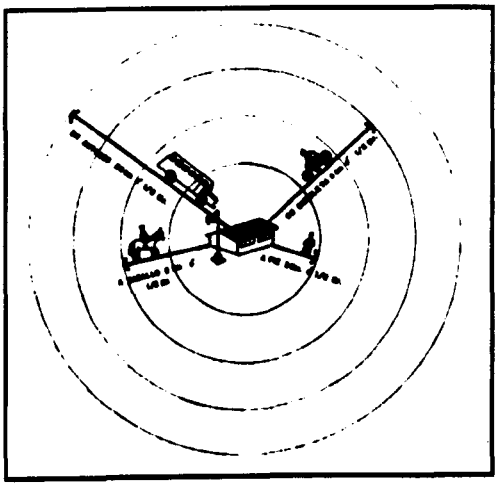
In the school year 1971/72, *"**over half of the children** enrolled in Cuba's primary **schools were over-age repeaters**. The first grade, for example, contained over 400,000 children - **more than twice** the number who should have enrolled according to the relevant school age population (and) around 720,000 pupils were at least two years behind their appropriate grade level"* (Richmond, 1989:171).

Table 5.2 shows that by 1976-77 there were about 200,000 more pupils enrolled than the number of children in the Primary school age range, but that by the end of the decade the number enrolled was less than the 6-12 age population[45]. As previously mentioned, the baby boom peaked in 1965 and from 1975 onwards the number of births continued to fall. Correspondingly, enrolment peaked in 1975 and the number of pupils, teachers[46] and schools started to decline thereafter. The drop in pupil enrolment between 1976 and 1979 was therefore due to the combination of improved progression rates and a reduction in births.

Another significant change was that, *"close to 100 percent enrolment and attendance rates .... began to be regularly recorded, promotion rates reached 93 percent and, as a sign of the improvement in graduation rates, between 1975-76 and 1979-80 over 1,290,000 pupils graduated from the sixth grade, 3,000 more than during the first fifteen years of the Revolution"* (Richmond, 1989:181). The number of boarders *(Internos)* in Primary schools was relatively small as most schools were located near the local

[45] It is possible that of the 70,393 shortfall (4.15 percent) some pupils were registered in the Special Schools.

communities or at least within 30 minutes travel distance (Figure 5.7). Nevertheless, in remote areas daily attendance was not always possible. In spite of this disadvantage, enrolment, attendance and progression rates were considerably better than the previous decade. During the 1970s the efficiency of the mostly small single or double classroom rural schools improved, even though many lacked the facilities of their larger urban equivalent.



On foot = 3km or 1/2 hour;
On horse = 5km or 1/2 hour
On bicycle = 6km or 1/2 hour;
By bus = 20 km or 1/2 hour

Note:- I have driven through the countryside in the remote province of Pinar del Río on several occassions and found that I pass a Primary School every 6 minutes.

Figure 5.7 Maximum Travel Distance and Duration of Journey to School from Home by Various Modes of Transportation for Rural Primary Schools and *Circulos Infantiles*
Source: Cuba, DI-MINED (1988: 18) and Cuba, MINED (1988:57)

Although the figures show a decline in the overall number of pupils, teachers and schools in the rural and mountain regions, it must be borne in mind that this is due partly to the fact that the infrastructure of the country, in terms of housing, electricity, sanitation etc., was improving. Hence, communities that had previously been defined as 'rural', were **re-classified as 'urban'**, even if the number of residents had not increased. By the end of the decade, 281 completely new communities were constructed throughout the country mostly in rural areas. Though the population in each settlement averaged only a few hundred, a full range of facilities and services was provided. Hence, they were also classified as urban.

The quality and quantity of teachers were two main concerns that the regime addressed during the second decade. Eckstein (1994: 162) notes that at the start of the 1970s, in the primary schools, the pupil: teacher ratio was better in the rural areas than in the urban schools, but the overall shortage of trained teachers had reached crisis proportions.[47] In order to increase the number of teachers *"teacher training was decentralised (and) centres began to emerge all over the island "* (Leiner, 1985:37). By 1977 thirteen centres housing between 1,000 and 4,500 students specifically for primary level teacher training, had been constructed, most of which were located near to the capital city of each Province.

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[46] The number of teachers actually rose slightly in the year 1978-79, but declined thereafter.

In spite of the deficiencies the system was no less perfect than in other countries even in the developed world. Primary education had been thoroughly rationalised during the second decade and it became the base of an educational pyramid that subsequent levels built upon in this and in the following decades.

5.3.3 Pre-School Education

The 1971-72 structure put everything below primary grade into one pre-school sub-section whose pattern of development paralleled that of the primary level. The emphasis was on rationalisation and expansion. The government's goal *"was to educate the 'whole child' .... [and] to provide a strong basis for later growth in reading, mathematics and science"* (Leiner, 1985:31-32). The ideas, beliefs, attitude and behaviour of the very young were directed in the socialist-communist theories. Under *"Perfeccionamiento"* the nation guaranteed at least one year of pre-school education for all children (Leiner, 1985:32). By the end of the second decade approximately three-quarters of the under-five's attended pre-school educational centres. The *Pre-escolar* sector was part of the primary school but the *Circulos Infantiles* were in separate accommodation. Table 5.3 shows the combined number of all pre-school pupils in 1976-77, and also reflects the peak in the baby boom.

Table 5.3 PRE-ESCOLAR and CIRCULOS INFANTILES In the Second Decade (1972 - 1981)
Number of Pupils (under 6 years of age); Teachers; and Schools

	1972-73	AE	1974-75	AE	1976-77	AE	1978-79	AE	1980-81	AE
Pupils	119,506	'76:8	122,099	'76:8	151,294	'76:8	134,848	'80:10	123,741	'80:10
Teachers	n/a		n/a		n/a		n/a		20,222	'84:19
Schools	n/a		n/a		n/a		n/a		832	'84:21

Source: Cuba, AE, (Anuario Estadistico) (Year and page indicated to the right of each reference)

In the 1977-78 revised structure plan pre-school education was separated into two areas according to age:- *Circulos Infantiles* (for infants from 45 days old up to four years of age); and *Pre-escolar* (for children between five and six years of age). Clarification of the differences between the two sectors is given in section 5.6.3. The data for each sector appears separately in the next decade.

5.3.4 Reaping the Benefits - Summary of the Second Decade

> *"It was the increase in enrolments in intermediate [secondary] education .... which most clearly expressed the **quantitative** aspect of the process of educational democratisation, while the Perfeccionamiento best expressed its **qualitative** aspect."* (Richmond, 1989:185)

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[47] In the early 1970s thousands of sixteen year old students joined the *destacamentos pedagógicos* (educational shock-troops). Most had just graduated from secondary school and they taught in the Primary schools whilst simultaneously undergoing courses at the pedagogical institutions (Holly, 1979:177-178). This arrangement continued for most of the decade.

The second decade was a turning point for education in Cuba. Although the groundwork had been put in place during the 1960s, many problems existed at the start of the second decade, not least the system itself. Other countries that initially had made a successful effort to develop educational programmes frequently failed to sustain standards and subsequently regressed to their original status. The fact that Cuba's progress, in terms of the quantity and quality of education, not only continued to improve but also expanded with remarkable speed, within two decades, is due to several factors.

First was the enormous investment in terms of finance and resources that the government injected into education. With the 'retreat to socialism' Western trade and also foreign investment increased, both of which generated the much needed hard currency. The opening up of a market economy occurred at a time when relations with the Soviet bloc countries had improved considerably. In 1974, *"when the world market sugar price reached a record high .... Cuba's export earnings spiralled"* (Eckstein, 1996:51). In view of a favourable economic outlook the government increased bank borrowing (a strategy which later proved inappropriate). **Education was one of the main beneficiaries** of the buoyant economy attained in the mid 1970s. The budget for education in 1976 was ten times the amount per capita than the 1958 budget. The scale and development of the secondary and tertiary level schools would not have been possible without such substantial fiscal support.

The second factor was the five year *Plan de Perfeccionamiento* (1976-1981). Its thoroughness and realistic approach to a long term strategic plan for education was effective. Thirdly, and without which the former two alone could not have succeeded, was the enthusiasm of the people to be educated. By making education available for everyone, whilst making everyone responsible for education, the promises made by the revolutionary regime in 1959 were at last showing real results. The progress of education in Cuba during the second decade reveals how education was not only symptomatic of the society, but also how it was the means of preserving and validating the political and ideological aims of the regime. This it did in various ways as the following synopsis explains.

The secondary schools in the countryside (ESBECs)[48] contributed to the rural urbanisation policy. The majority of pupils came from urban areas, yet half the ESBEC curriculum involved agriculture work. The ESBEC concept was drawn directly from the pedagogical beliefs and writings of José Martí. Consequently, from the mid-1970s, every adult who attended an ESBEC was fully aware of the hardship involved in farming. Also rural children who attended the secondary schools were able to mix with the urban pupils and had the opportunity to develop a wider range of skills and knowledge from which they could either find alternative work or

progress to Higher Education.[49] The concept of everyone contributing a proportion of their time to labour intensive activities in addition to their normal work and schooling follows the principles of socio-moral responsibility defined by Che Guevara. The disparities of wealth dividing the rich and the poor had been eroded in the 1960s. It is accepted that some differences will always exist between urban and rural areas. However, in Cuba the enormous barriers separating the urban and rural population were breached in the 1970s and this was mainly due to education.

Although the regime rejected many of Che's Marxist economic policies during the 1970's, his influence still permeated some of the major reforms. The formation of the Microbrigades reflected Che's theory of voluntary labour as an essential contributing factor for creating a new social consciousness. The Constitution together with the Family Code and the Code on Children and Youth reflect Guevara's ideological principles on society. The emphasis that these reforms placed on the integration of adults, teachers and children, on the importance of the role model and on social behaviour, all contributed to alleviating some of the problems that had evolved in education during the first decade.

In conclusion, it could be argued that the second decade reaped the benefits achieved during the first decade, and subsequently made a concerted effort to build on those achievements, especially in education where the main focus was on quantitative expansion of resources and facilities at all levels, as is summarised in the following quotation:-

> *"By any measure, the last 20 years of Cuban education have been remarkable .... illiteracy has been virtually eradicated, and about one-third of the entire population is enrolled in some type of formal education ..... the Cubans [have made] an heroic effort to raise their level of education and make learning a natural part of their everyday lives. Few, if any other nations, can claim the use of schools to achieve such a pervasive transformation of social, political and economic life."* (Comment by Erwin Epstein, President of the Comparative and International Education Society, quoted in Leiner, 1985:29)

5.4 **Rectification** - The Third Decade (1979 - 1989)

The contextual aspect of the first half of the third decade differs little from that of the second decade. With regards to education, the 1980s could be considered a period of consolidation of the successes achieved in the previous twenty years. The only main area of expansion was in higher education. However, in 1986 there was a major shift in political, ideological and economic

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[48] *Escuela secondaria básica en el campo.*
[49] The continuation of the schools to the countryside programme *(la escuela al campo)*, meant that most of the urban population participated in at least one form of harvest, be it coffee, tobacco, rice or citrus fruits.

strategies known as the Rectification Process (RP), the effects of which had a long-term impact on the country both at a national and an international level. This section first outlines the rationale for, and the events that led to, the Rectification Process prior to giving a brief explanation of some of the changes made during the latter part of the decade. The remainder of the section reviews the main educational developments and the status of primary and pre-school education.

5.4.1 Setting the Scene for the Rectification Process

The retreat to socialism and the return to economic pragmatism continued into the third decade, even though economic growth declined from 1977 through to 1980, mainly due to a slump in the price of sugar. The government had borrowed hard currency in the mid-1970s when the price of sugar was high and commercial interest rates were low. The strategy of continued growth based on borrowing and on trade with the West, combined with increased fiscal expenditure started to backfire when *"world market conditions turned all too quickly against Cuba"* (Eckstein, 1994:58). The island's dependency on sugar due to the artificially high price paid for it by the Soviets restricted Cuba's ability to diversify export commodities capable of generating hard currency. *"The Western debt rose from $660 million in 1974 .... to $2,100 in 1977"* (Eckstein, 1994:52). Nevertheless the economy began to recuperate in the 1980s. A $3 billion investment in the sugar industry between 1981 and 1985 by the Eastern bloc countries contributed to a 12 percent increase in sugar output (Mesa-Lago, 1993: 213). The main contributing factor of the recovery was the re-exportation of Soviet crude oil.[50]

Even though the economy initially remained stable, other problems began to emerge, some of which can be attributed to the successful policies and achievements of the revolution. There had been a radical change in the demography of the country mainly due to the large investment in health care. The population in Cuba rose in a fairly consistent pattern from 6,900,888 in 1959 (Cuba, AE, 1976:3) to 9,810,671 in 1979 (Cuba, AE, 1981:4). Life expectancy had risen from 57 years in 1958 to 73.5 years in 1983, whilst infant mortality reduced to 16.8 per thousand both due to the reduction in malnutrition and diseases associated with poverty and improved medical care (Collins & Benjamin, 1985:64). The Family Doctor Programme was initiated in 1984. By 1989 it *"was extended to workplaces, schools and day-care centres"* (Eckstein, 1994:131) and there were *"over 31,000 physicians in Cuba including 6,000 family doctors [increasing at the rate of 2,000 a year] and 3,000 working in some 30 foreign countries"* (Stubbs, 1989:95).

By the late 1970s children born in the first years of the revolution had reached working age (Eckstein, 1994:49). According to Fraga (1979:39) in 1977 the average age of the population was

only 27.4 years; 35.05 percent of the population were under 15 years of age, only 9.87 percent were over 60 years and 55.08 percent were of working age (between 15 and 59) although some of these were at higher or further education colleges and others were in military service. Effectively this meant that the fiscal expenditure to support almost half the population in terms of medical care, education and housing was exceedingly high.

Apart from the demographic shift, unemployment was rising. In 1981 Castro allowed the emigration of Cubans to the United States through the port of Mariel. A total of 141,742 Cubans emigrated resulting in a negative population growth (Cuba, ONE, 1995:164). Of greater relevance was the liberal approach to market openness adopted in the 1970s that had led to the opening of private businesses more akin to a capitalist rather than socialist economy. Housing, agriculture, industry and construction all embraced pockets of legal private enterprise, but this was at the expense of the State. The government's response was, yet again, another about turn in political policies, ideological principles and economic strategies, *"a shift it justified in the name of both Marxist-Leninist and Guevarist principles"* (Eckstein, 1994:59).

5.4.2 The Campaign to Rectify Errors and Negative Tendencies

> *"We're rectifying all those things - and there are many - that strayed from the revolutionary spirit, revolutionary work, revolutionary virtue, revolutionary effort, revolutionary responsibility; all those things that strayed from the spirit of solidarity among people. We're rectifying all the shoddiness and mediocrity that is precisely the negation of Che's ideas, his revolutionary thought, his style, his spirit and his example."* (speech by Fidel Castro in 1987, quoted in Stubbs, 1989:8)

The Rectification Process (RP) was a campaign to rectify the errors and negative tendencies that the regime considered had emerged between the mid-1970s and mid-1980s. It is beyond the scope of this study to elaborate on the complex issues and repercussions of the Rectification Process as this is well documented by other authors (Eckstein, 1994; Mesa-Lago, 1993; Stubbs, 1989 etc.). Nevertheless, it had such an impact on the future of Cuban society that a basic understanding of what occurred during this fundamental shift in strategy is essential. In essence RP centred on the closure or suppression of the 'free' markets, private enterprises, small businesses and *"avenues of possible individual enrichment"* (Stubbs, 1989:6) and the re-emphasis on collective labour organisations and the philosophical values, revolutionary spirit and ideological principles which Che Guevara expounded twenty years earlier in his vision of the New Man.

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[20] The Soviets allowed the Cuban government to re-export some of the oil supplied by the USSR in the 1980s. This not only represented ten percent of the total exports between 1979 and 1984, and was the major source of hard currency, earning more than sugar exports (Mesa-Lago, 1993:218-219).

Policies included the re-introduction of the microbrigades and voluntary labour[51] not only for housing construction but also for building day-care centres, health care facilities and other special projects. There was a clampdown on private sector housing. Private businesses and street vending were banned, a move that affected suppliers, traders and consumers. Farmers were encouraged to join co-operatives and in 1986 the farmers' markets were closed. The right to guaranteed wages, job security and unemployment were overhauled in order to make the work places more efficient. Managerial and administrative jobs were reduced in an attempt to trim down the bureaucracy.

"The national leadership turned to ideology to help legitimate policies that it had material reasons to implement, policies that would have been politically risky to implement if not ideologically justified" (Eckstein, 1994:60-61). This implies elements of contradiction between some of the political policies adopted and the ideological principles of a socialist-Marxist regime. The increased price of food, goods, petroleum and electricity and simultaneous reduction in wages all contributed to a higher cost and lower standard of living. But, whilst rationing goods for the domestic market, the government simultaneously increased the exportation of the same items for sale in the hard currency markets abroad. It also denounced any private business for individuals, yet encouraged the promotion of the entrepreneurial investment not only with Western (capitalist) companies but also by the semi-autonomous state agencies (SAs) (*sociedades anónimas)* in various enterprises such as the tourism industry. *"While inexplicable at the ideological level, the policies are explicable at the political and economic levels .... [being] rooted in an effort to address fiscal and political concerns"* (Eckstein, 1994:71).

In reality, the RP resolved neither the economic nor the political problems. With regards to the economy, Cuba's total external debt by 1989 was estimated to be $34.2 billion. Hard currency debt almost doubled during the decade to reach $7.3 billion dollars in 1989. The debt to the USSR and the Eastern bloc countries had also risen to $24.4 billion and $2.4 billion respectively (Mesa-Lago, 1993:152). Also, because the domestic economy was closely linked to external borrowing, the government was unable to raise sufficient domestic revenue to meet fiscal expenditure. This resulted in the fiscal deficit increasing to 1,624 million pesos in 1989 (Eckstein, 1994:222-223).

From the political perspective the measures taken and resultant austerity were very unpopular. A black market quickly emerged and expanded whilst corruption extended to the bureaucratic elite. Yet unlike the Eastern European countries that were rapidly forsaking their communist principles in the movement towards democratic capitalism, there was comparatively little outward opposition by the Cuban people.

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[51] Section 5.7.3 details the role of the microbrigades. In 1987 more than 400,000 responded to the request for everyone to contribute 40 hours towards voluntary work on community projects, resulting in more than 20 million hours of voluntary labour (Eckstein, 1994:63).

At the international level, RP was a policy *"that set Cuba against the world-wide socialist current of market reform"* (Mesa-Lago, 1993:4). During the second half of the 1980s the gap in Soviet-Cuban relations began to widen. Gorbachev's approach to perestroika and glasnost did not sit easily with Castro's renewed commitment to the Marxist-Leninist system[52]. Cuba became more isolated as the market reforms in the Soviet Union led to improved relations with the United States resulting in peace between the two superpowers (Mesa-Lago, 1993:4). Castro had grave concerns about the future. During speeches in 1989 and 1990 he emphasised that *"the dramatic changes occurring in Eastern Europe and the USSR posed sinister political and economic threats for Cuba"* (Mesa-Lago, 1993:6). Most of his concerns and predictions would be verified in the next decade.

5.4.3 Completing the Educational Pyramid

> *"Cuba is beginning to reap the benefits of their 25 years of educational strategy, and has become one giant school through heavy budget commitments and public and social will."*
> (Leiner, 1985:33)

By the start of the third decade all levels of the educational system had been established. In terms of quantitative progress, the first decade focused on primary education whilst the second decade concentrated on secondary and tertiary education. To complete the educational pyramid the third decade was characterised by the expansion of enrolment in higher education (see Table 5.4).

Table 5.4 The Cuban Enrolment Pyramid

Enrolment Percentages in Primary, Secondary and Higher Education, Selected Years

Sector	1959-60	1975-76	1982-83	1985-86
Primary	90.0	72.9	53.6	43.1
Secondary	7.8	23.9	40.4	46.2
Higher	2.2	3.2	6.0	10.7
Total	100.0	100.0	100.0	100.0

Source: adapted from Jimenez (1984) in Richmond (1989:181 and 188)

By the mid 1980s forty-six universities were established throughout the country, compared with the three which existed at the start of the revolution. The number of students entering secondary education continued to increase although by the end of the decade the growth had levelled off being proportionate to both the birth rate and the more stabilised progression rate from the primary sixth grade.[53] The programme of adult education also continued into the third decade, although many of the original objectives, such as basic literacy skills and the 'battle for the sixth grade', had been completed. The new targets focused on the 'battle for the ninth grade' and for re-training in specific technical and vocational skills, particularly those linked to agriculture. Special Needs education also expanded.

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[52] According to Blasier, 1985:69), *"it was glasnost that broke the harmony .... Castro feared, probably correctly, that glasnost in Cuba would endanger his political dominance, as ultimately happened to leaders in the USSR."*

[53] By 1986 an estimated 4,000 foreign students were studying in Cuban universities and a further 30,000 foreign students were enrolled in primary, secondary, technical and vocational schools in Cuba, although about 60 percent of these were located at institutions on the Isle of Youth (Richmond, 1989:342 - 343).

In spite of the efforts of the previous decade, the overall quality of education had not improved. From 1986 onwards education was drawn into the Rectification Process. At the third Congress of the Cuban Communist Party in February 1986, Castro praised the quantitative achievements of the past twenty years, but he then vehemently attacked the quality of education. Raising the issue at the Congress *"guaranteed that his criticisms would bear extra significance"* (Richmond, 1989:376). As part of the RP, education acquired a significant role in the inculcation of moral values, socialist beliefs and the study of Marxism. In order to resolve the mainly pedagogical issues with regards to quality, the focus returned to teacher training.

Teachers were expected to be role models for pupils, which meant being good socialists as well as being good teachers. Entrance to teacher training for primary education was on completion of ninth grade, and most primary school teachers were properly qualified by the mid-1980s.[54] By 1985-86 there were 107,000 students enrolled in teacher training, representing an increase of 77 percent from 1980 (Richmond, 1989:374). In spite of the quantitative improvement, qualitative improvements were slower to emerge and more complicated to resolve.

In addition to the political and ideological aspects of the Rectification campaign, education also felt the impact of the country's growing economic crisis. The State Budget allocation to education fell to 1.61 billion pesos in 1987 (Richmond, 1989:391). Relatively austere measures were taken to reduce fiscal expenditure. Parents had to pay monthly contributions of 25 pesos towards their children's education at a time when it was estimated that the average monthly wage was only 150 pesos; the provision of free school uniforms ended; various services and facilities such as transportation, accommodation and meals were no longer issued to everyone free of charge. Nevertheless *"the communist principle of distribution - each according to his need - had not been totally abandoned in relation to the free provision of basic social services .... the government's commitment to the democratisation of education remains fundamentally intact .... no person is prevented from studying due to the lack of economic resources"* (Richmond, 1989:245-246).

5.4.4 Primary and Pre-school Education

Primary education had experienced two decades of expansion, rationalisation and consolidation. It was the first sector to reap the benefits of the revolution and it had evolved into the most stable area of the system. Many of the previous problems had been alleviated, if not fully resolved, leaving the system more streamlined as *"sustained improvement in internal efficiency meant that bulges in enrolment due to dropout and repetition were unlikely to recur"* (Richmond, 1989:187). The fact

[54] The main problem was that only 42.7 percent of basic secondary school teachers and 77 percent of pre-university teachers were qualified as entrance to training was on completion of the twelfth grade (Richmond, 1989:200).

that a greater number of pupils attended both morning and afternoon sessions at school also helped to improve progression rates.

At the Third Congress of the Cuban Communist Party in 1986, *"Castro drew attention to the programme for using a reserve of over 10,000 primary school teachers as a device to enable practising teachers to attend full-time courses, on full pay, in order to update skills or to reach a higher level of professional qualification"* (Richmond, 1989:375). Primary education was the only sector where all the teachers had completed a training programme and were qualified, although the debate concerning both the quality of teaching and the quality of the curriculum still remained.

In addition to these pedagogical issues, the birth rate had reduced and stabilised at about 1.4 percent per annum. All these factors combined to reveal a decline in the number of pupils in primary education as illustrated in Table 5.5. There was a corresponding reduction in both the number of teachers and schools although the number of non-teaching staff actually increased. The annual statistics confirm the reduction in the number of pupils aged between six and twelve years was mainly due to the success of, and the advances in primary education.

The main change that occurred due to the Rectification Process was the emergence of a new type of education based on the principles of socialist pedagogy. According to Richmond (1989:187) this involved, *"a large amount of formal ideological training in Marxism-Leninism"* that commenced at the pre-school level and continued through to higher education.

Table 5.5 PRIMARY EDUCATION in the Third Decade (1981- 1990)
Number of Pupils; Teachers; Non-teaching staff and Schools

	1981- 82	AE:	1983-84	AE	1985-86	AE	1987-88	AE	1989-90	AE
Total No.Pupils	1,409765	'81:110	1,282,989	'83:94	1,077,213	'85:120	936,914	'87:100	885,576	'89:108
No. Internos	44,033	82:14	38,278	87:14	33,361	87:14	29,282	87:14	22,470	89:16
Urban	916,285	'81:110	841,954	'83:94	734,033	'85:120	654,609	'87:100	633,943	'89:108
Rural & Mountain	493,480	'81:110	441,035	'83:94	343,180	'85:120	282,305	'87:100	251,633	'89:108
Teachers	83,113	'85:19	83,424	'85:19	77,111	'89:21	73,874	'89:21	71,887	'89:21
Urban	n/a		n/a		n/a		48,996	'87:105	48,425	'89:113
Rural & Mountain	n/a		n/a		n/a		24,878	"	23,462	"
Non-Teaching Staff	21,283	'85:20	22,226	'85:20	23,425	'89:22	22,961	'89:22	22,679	'89:22
Schools	11,771	'84:21	10,866	'87:21	10,187	'87:21	9,617	'87:21	9,417	'89:23
Urban	2,462	'81:122	2,354	'83:101	2,350	'85:128	2,306	'87:104	2,278	'89:112
Rural & Mountain	9.309	"	8,512	"	7,837	"	7,311	"	7,139	"

Source: Cuba, AE, (Anuario Estadístico) (Year and page indicated to the right of each reference)

It was not until the third decade that the statistics for pre-school education were separated into the two sectors:- Day-care *(Circulos Infantiles)* and Pre-school *(Pre-escolar)*. Table 5.6 shows the number of births recorded five years earlier in order to place the figures in context. This suggests that

about 87 percent of five year olds attended *Pre-escolar*. **The majority of *Pre-escolar* pupils were located in the primary schools**[55].

Table 5.6 PRE-ESCOLAR (5-6years old)- in the Third Decade (1981- 1990)
Number of Pupils and Teachers; Number of Births 5 years previous

	1981-82	AE:	1983-84	AE	1985-86	AE	1987-88	AE	1989-90	AE
Total No. Pupils	123,302	'85:10	107,660	'85:10	108,881	'85:10	136,211	'89:12	144,710	'89:12
of whom in C.Is	13,780	'85:10	13,420	'85:10	12,487	'85:10	12,703	'89:12	14,991	'89:12
Pre-escolar Teachers	5,248	'85:19	4,898	'85:19	4,847	'89:21	5,794	'89:21	6,224	'89:21
Births- 5yrs. before	188,118	'76:4	148,249	'81:5	136,900	'81:5	159,759	'83:5	166,281	'87:4
% 5yr olds in grade	72.87		81.67		88.65		93.21		96.04	

Source: Cuba, AE, (Anuario Estadístico) (Year and page indicated to the right of each reference)

The fact that pre-school was not compulsory yet continued to expand despite the additional costs to parents and to the State (in terms of fiscal expenditure) is an indication of the importance that both the Cuban people and the government placed on educating the very young.

5.4.5 About Turn - Summary of the Third Decade

The country experienced an improvement in the standard of living through to the mid 1980s. This was due to many factors such as the increase in medical care, education, sports and recreational facilities and housing. Although rationing of food still existed for essential items, additional supplies could be obtained on the open market. However, it has been shown that the enormous fiscal expenditure required to provide these services and facilities was well beyond the financial capability of the government. So long as the former USSR was prepared to back the mounting debt incurred by the Cubans, the country could continue its expansion. On the other hand, borrowing capital from the Western countries on the assumption that interest rates would remain stable proved to be a major mistake. Even so, this in itself might not have had such a dramatic effect were it not for the fact that the relationship between Cuba and the Eastern bloc countries was beginning to widen mainly due to the latter changing their political focus. At a time when the Soviets were moving towards a more open and capitalist economy and away from the communist ideology, Castro's introduction of the Rectification Process in 1986 was not only an about turn in policies and strategies for Cuba, but it was also a step in the opposite direction to the Soviets which only exasperated the growing tensions between the two countries. In the next decade, it would be the Soviets who would do an about turn with devastating effects for Cuba.

With regards to education, this section has illustrated that the rationalisation of the system continued throughout the third decade whilst expansion was limited mainly to the pre-school and university levels. As in previous years, education both responded and contributed to the changing circumstances that the country faced. The educational pyramid was not only completed but

[55] Only about 10 percent of the *Pre-escolar* pupils were located in *Circulos Infantiles* during the 1980s.

consolidated. Castro freely admitted that from the start of the Revolution the emphasis had been on quantitative expansion rather than on the quality of education. The former had claimed precedence whilst the latter had to bide its time. By the middle of the third decade, that time had come. Some argue that this was a fundamental mistake which led to, if not actually caused, the emergent difficulties; others argue that it was more important to have the system, structure and facilities in place first, as these could be revised later. Within the scope of this study it has only been possible to outline the context of this complex debate in order to maintain a holistic perspective of the development of the educational system.

> *"The austere economic conditions facing Cuba in the late 1980s may have helped Castro in his battle to revitalise moral incentives and the spirit of voluntarism. In these circumstances, the effectiveness of schools in nurturing and promoting virtues and socialist values is unlikely to escape close scrutiny."* (Richmond, 1989:391)

5.5 Stagnation - The Fourth Decade (1989 - 1999)

> *"Cuba is the only country left in the world (with the possible exception of North Korea) with both an orthodox Communist regime and a socialist Command economy .... Fidel Castro .... has become virtually the last defender of orthodox Marxism-Leninism. Some observers believe that ....he is willing to sacrifice the entire country defending the revolution and Communism."* (Mesa-Lago, 1993:3)

For thirty years progress had been rapid and many reforms had been successful, although mistakes had been made along the way in the rush to achieve the targets set and there had been intermittent periods of austerity. However, a prolonged period of almost complete stagnation occurred from 1991. In order to evaluate the primary schools accurately and to place education in the context of contemporary Cuba at the end of the twentieth century both the reasons for and the resulting consequences of the events are outlined in the following sections.

5.5.1 Setting the Scene for Educational Stagnation

Although the 1990s are almost the antithesis of the 1960s there are parallels to be drawn between these decades. Both were directed by forces beyond the control of the Cubans, namely the United States and the Soviet Union. From 1959 the stance of the US government towards Cuba had remained consistently negative but during the 1990s more stringent measures were imposed to tighten the stranglehold on the island.[56] Although this made trading more difficult for Cuba,

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[56] Torricelli's Bill, the Cuban Democracy Act, *"not only prohibited US overseas subsidiaries from trading with Cuba; it also banned ships that landed in Cuba from the US ports for six months .... [that] hurt Cuba the most, [as] transportation costs rose some 40 percent"* (Eckstein, 1996:94). The Helms-Burton legislation was designed to prevent any foreign company who trades with Cuba from trading with the United States.

having learnt to survive under the constant shadow of the US, these measures alone could not be considered the cause of the sudden stagnation.

On the other hand, the collapse of the USSR in 1991 and the formation of the Commonwealth of Independent States (CIS) [57] had an immediate and devastating effect on the country. From that time onwards Cuba entered what is described as the 'Special Period'. The complex range of issues affected every aspect of life on the island. It even generated a resurgence of investigative writing on Cuba. Writers such as Mesa-Lago (1993), Blasier (1993), MacDonald (1996), Svejnar and Pérez-López (1993), Linden (1993), Jordan (1993), Eckstein (1994), Ridenour (1994), Calderón (1995), Deere (1995), Pastor and Zimbalist (1995), and McFadyen (1995), represent a cross section of authors who reported on the deepening crisis. Most of these concentrated on the economic, political and social aspects of the Special Period, with the exception of MacDonald (1993) who focused on education. By 1993 the crisis had reached unparalleled proportions. Towards the end of the decade some of the problems were alleviated slightly due mainly to the expansion of the tourist industry. The latter contributed to more publications on Cuba such as Carley & Brizzi (1997), Engels (1999), Rodríguez (2000), and Nichele & Renaudeau (2001) etc..

My first study tour to Cuba was in August 1993, at the height of the crisis. I think it is therefore relevant to include the following brief personal reflection of the country at that time, since the deep impression it made on me was the main generator for this research.

> *The two most noticeable features were lack of energy and shortage of food. Arriving in Havana late at night, there was evidence of what lay ahead, for a city of over two million inhabitants had less illumination than an English country village. I was awakened early the following day by a cockerel, which I thought odd considering I was in the city centre. I was informed that due to the food shortages many city dwellers kept livestock (pigs and hens) in their apartments. Lack of food was obvious from the emaciated physique of the people. Later I learnt about the stringent food rations on which the majority of people were expected to live.*[58]
>
> *The lack of energy manifested itself in two main forms, electricity and petroleum. Electric power cuts were daily, lasting from two to twenty hours. Most evenings were spent sitting outside under the stars. Torches and candles were a prized possession. The petroleum shortage had an equally dramatic impact. City streets and country roads were empty and silent. The only vehicles moving were a few tourist coaches, fewer trucks and thousands of bicycles. Open trucks were crammed with people going to work in the city, whilst every bicycle carried two or three persons. Our coach driver had petrol coupons, but as we toured*

[57] The Commonwealth of Independent States (consisted of eight former Soviet Republics) was declared in December 1991.

the country, not every petrol station had fuel, and those that did had no electricity, so the passengers took turns to pump the petrol by hand. The schools, farms and hospitals we visited were all lacking materials and electricity, yet in spite of the hardship continued to operate. The school children were all cleanly dressed in school uniforms. When I handed out some pencils and crayons, the children cut them into smaller pieces to divide amongst their friends, just as the adults did with bars of soap. The atmosphere everywhere was surreal, a cross between a dream and a nightmare. And my final poignant image of Havana - the "Key to the New World" - the largest port in the Caribbean - a port without a single ship. (Notes from the author's diary, 1993)[59]

5.5.2 Causes of The Downward Spiral

It appeared that Che's concerns during the 1960s about Cuba's economic reliance on the USSR and Castro's predictions in the late 1980's on the implication of the USSR becoming a capitalist state were about to be verified. Nevertheless, there were two pressing questions:-

First, what had caused this situation to happen **in such a short space of time?**

Secondly, for how long could the country survive this situation?

In response to the first question, from the first months of the Revolution Cuba was almost totally dependent on the USSR and the Eastern bloc countries. Neither the rift that developed with the latter in the 1980s nor the ideological separation from the Soviet Union in 1991 was the cause. Two specific events led to the end of the thirty-year partnership.[60]

The first, and more important, was the Soviet-Cuban economic agreement of December 1990, just one year before the disintegration of the USSR. Unlike previous five-year plans, this agreement was for one year only, and, for the Cubans, the terms were crippling. The four critical components which Blasier (1993: 88-90) describes in detail, are précised below:-

1. *"Soviet oil deliveries were cut from 13 million to 10 million tons".*[61]
2. *"Soviet payments for sugar were reduced from 850 to 500 roubles per ton".*
3. (The USSR) .... *"will deliver no more consumer durables like refrigerators and other electrical appliances to Cuba".*
4. (Purchases made by Cuba for) .... *"machinery and equipment will be conducted through individual enterprises, not through centralised ministerial structures. Cuba is to pay 10 percent of shipping."*

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[58] In 1993-94 the average Cuban consumed less than 1,800 calories per day (Brenner & Kornbluh, 1995:35). The recommended adult daily consumption is approximately 2,500 calories.

[59] The last sentence refers to the importance of ships for the importation and exportation of goods to and from islands, together with the fact that I was brought up on an island and later worked in Bermuda.

[60] Blasier (1993:59-98), Mesa-Lago (1993:133-197) and Eckstein (1994: 88-127) give detailed accounts of these events.

To place these terms in context one needs to remember that, *"the Soviet Union [had been] the main supplier of such important products as oil and oil products (100 percent), fertiliser (91 percent), grain (94 percent), iron and non-ferrous metals (70 percent), trucks and light vehicles (70 percent) and buses (37 percent)"* (Blasier, 1993:73). Reducing trade and increasing the cost of goods to Cuba, which in 1990 had the largest debt to the USSR of all socialist and non-socialist countries, was guaranteed to bring the country to a halt (Mesa-Lago, 1993:60). **Oil was the key issue.**[62] With insufficient natural resources Cuba is totally dependency on oil as the means for generating power and for transportation. The Soviet's reduced quota was certain to cause major problems.

The second event had more political than economic significance. *"Gorbachev unexpectedly announced [in September 1991] that many Soviet troops would be withdrawn from Cuba without previous consultation with Castro"* (Blasier, 1993:90). Since almost all Cuba's military equipment was supplied by the USSR, with supplies cut off and no access to parts for maintenance, it was rendered ineffective.

These two events signified the initial economic and political severance with the Soviet Union. Furthermore, in 1992, Yeltsin terminated all economic aid to Cuba, as did the newly unified Germany. Eckstein (1994: 95) points out that in 1992 *"Cuba was the only Latin American country to receive no EEC aid."*[63] Trade with the former USSR was drastically reduced and economic relationships with Eastern Europe ended (Pastor & Zimbalist, 1995:11). Moscow insisted on commodity trade at world market prices, and the repayment of the aforementioned debt all in hard currency. Castro had no intention of repaying the debt, if, for no other reason, than the fact that Cuba did not have the resources. Within two years the cumulative effect of all these events produced an economic downward spiral resulting in the crisis situation that the Cubans faced from 1991 onwards.

5.5.3 The Race for Survival

In response to the second question (for how long could the country survive?) many of the literature sources previously mentioned considered that the government would collapse within a period of six to eighteen months. Cuba expanded its trade relations with China in 1990, but as Eckstein (1994:93) notes, *"trade between the two countries amounted only to about one-fourth the value of the island's total market economy trade, and it too was denominated in hard currency"*. The government's attitude hardened. Publications were banned. The most critical period was from

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[61] Over 90 percent of Cuba's oil requirements had been supplied by the USSR (Blasier, 1993:88).
[62] A comparison could be made both with the 1973 and 1979 oil crises in the UK and also with the oil tanker drivers' strike in 2000 in the UK when the volatility of the nation's dependency on oil was illustrated.
[63] Spain continued to aid Cuba but this was reduced from $2.5 million to $500,000.

mid-1993 to the end of 1994. October 1994 witnessed the exodus of the *balseros*[64] whilst more Cubans applied for visas to go to the United States. Although emigration escalated from 3,800 in 1991 to 47,844 in 1994 (Cuba, ONE, 1995:164) the regime seemingly turned a blind eye to those wishing to leave. The main concern was alleviating the problems for those Cubans who remained. The hardship is also reflected in the declining birth rate. The government was faced with the demographic ageing of the population as indicated in Table 5.7.

Table 5.7 Evolution of the Ageing Population in Cuba 1970 - 1993

Year	Percentage 0-14 years	Percentage 15-60 years	Percentage over 60 years	Average Age
1970	36.9	54.0	9.1	27.0
1981	30.3	58.8	10.9	29.5
1993	22.2	65.5	12.3	33.5

Source: Cedisac (1997: PT21)

The government vigorously pursued market-type reforms externally in the form of joint ventures. Biotechnology and genetic engineering and nickel production were two sectors that attracted foreign investment (Ridenour, 1994:158) but the major growth was in tourism which having grossed $165 million in 1989, generated $850 million in 1994 (Pastor & Zimbalist, 1995:8). The economic success of tourism was counter-balanced by many negative social repercussions as detailed by McFadyen (1995). Also, much of the income that the government received was reinvested in the tourist areas so that many Cubans did not benefit from this resource. In 1993 the government legalised the US dollar in an attempt to curb the escalating black market[65]. But this created more problems as a two-tier economy (dollars and pesos) evolved.[66] The gap between Cubans who had access to dollars (for example, taxi drivers, waiters, tour guides etc.) and those who did not (for example, doctors, teachers, office workers) widened. Despite the disadvantages, tourism provides the second largest source of hard currency, and its expansion escalated throughout the decade.

In an attempt to stop the food shortage crisis in 1994 free agricultural markets were re-opened. Deere (1995:13) suggests that this move was responsible for *"promoting the growth of a new class of merchants and exacerbating inequality,"* meaning that those with access to food sources were able to sell goods for legalised hard currency. The policy was a reversal of the Rectification Process and a return to the market economy of the late 1970s. In addition, the *"contingentes"* were increased in numbers and redirected to agricultural work[67]. Urban dwellers were encouraged to utilise gardens for growing food, and to keep livestock such as hens and pigs although finding food for the animals was equally problematic.

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[64] *Balseros* (rafters) were Cubans who fled the country on home-made rafts and rubber tyres. More than 6,000 *balseros* arrived in the US in August 1994, but many others did not survive the journey. They set sail from Havana's promenade, the Malecón, in broad daylight watched by friends, family and the police who made no attempt to prevent their exodus. "*In 1993, even a daughter of Castro's left*" (Eckstein, 1994:120).

[65] I was in Cuba the day that the US dollar was legalised. Chaos ensued; nobody knew what price to charge for goods.

[66] Eckstein (1994:125) notes the illegal dollar economy almost equalled the sugar exports.

[67] The *'contingentes'* were similar to the microbrigades except that they were much larger and their work was not confined to construction projects.

By the end of the 1990s the country had started to regain some of its momentum mainly due to new and improved trade links with Western countries that were willing to invest in Cuba and take advantage of the lack of competition from the United States. The supply of electricity was more consistent, transportation increased as new buses were built. Cars and other commodities were imported from Europe and Japan, although all of these goods were sold in dollars. However, the agricultural 'free' markets provided food sold in pesos. There are still many difficulties for the majority of Cubans, but the worst of the crisis appears to be over.

5.5.4 Architecture and Education in the Doldrums

> *"Despite the crisis, Castro remained committed to providing social services, He prided himself in speeches for not closing a single school, day-care centre, or hospital, and for not leaving a single person destitute."* (Eckstein, 1994:99)

During the 1990s only those construction projects financed by foreign investment capital, such as hotels, continued to be built. In 1991, *"out of the 174 Soviet projects in Cuba, 80 were completed, 70 remained unfinished and 20 were shelved"* (Mesa-Lago, 1993:151). The last large-scale development financed by the Cuban government was the Villa Pan-American project east of Havana. The completed complex, designed to accommodate the 1991 Pan-American Games, has a variety of impressive sports facilities (Figure 5.8). As materials were in short supply, the number of dwellings built by the micro brigades was reduced from the intended 20,000 units.[68] Virtually all other construction work was postponed as this took priority (Figure 5.9)[69].

Figure 5.8 Stadium for Pan American Games (1991) at Villa Pan Americana near Cojimar
Source: Carley & Brizzi (1997:209)

Figure 5.9 Worked Stopped on High-rise Apartment Building in 1995
Source: Author

Construction of 250 new schools that were in the process of being built stopped during the Special Period, and at the time of writing there was no indication of when these buildings would be

[68] *"Cuba had committed itself to holding the Games in 1986 when the economy was in better shape"* (Eckstein 1994:166).
[69] ExpoCuba, a large permanent exhibition centre in Lenin park in Havana was also constructed at this time. Many Cubans were angry that these two 'show-case' projects took preference over more essential construction works such as housing.

completed. The problem was due to the lack of hard currency required to purchase materials at the full market value (compared to the heavily subsidised prices available from the old Soviet Union). The fact that a secondary school costing one million pesos to construct in 1989, would cost 3 million pesos in 1997 illustrates the inflationary problem (ref. Barbosa, meeting at MINED, 20th May 1997). Every year the costs increase, so the school building programme continues to fall further behind schedule. More new schools in the mountain regions are required and day care centres are needed in the urban areas. In addition, many older buildings required substantial maintenance and repair work to be carried out, for which some money was made available. Nevertheless the budget for educational buildings was drastically reduced throughout the decade.

The number of students entering universities continued to be scaled down during the Special Period. The rising levels and standards of education that the government had created could no longer be met by the fiscal cost. With rising under-employment and unemployment it also meant that there were fewer suitable jobs for the increasing number of trained professionals.

> *"Can we develop without manual labourers? Should we go on turning out tens of thousands of university graduates when we already have over 380,000 professionals? Not everyone should be an engineer, a professional or an intermediate-level technician."* (Title of an official article in Gramma (26 May 1991:8) quoted in Eckstein, 1994:99)

The revolution had raised people's expectations and there was a strong resistance to the implied downward mobility for their children (Eckstein, 1994:125). *"Whereas 60 percent of the vacancies for ninth-grade graduates had been in university-track senior high schools and 40 percent in polytechnics prior to the Special Period, the Ministry of Education called for a reversal of the proportions"* (Eckstein, 1994:99). Although ESBECs were converted into agricultural polytechnic colleges to steer students towards specific careers, many students enrolled in polytechnic education with the intention of progressing to university afterwards.

Table 5.8 Initial Enrolment (in thousands) at Various Selected Levels of Education (1985-1995)

Level of Education	1985-86	1990-91	1994-95
Pre-school	108,80	166,300	160,200
Primary	1,077,200	887,800	1,007,800
Basic Secondary - ESBEC	635,900	446,000	358,500
Pre-University	171,700	226,100	86,700
Teacher Training	41,800	29,600	3,800
Professional	307,200	300,600	225,200
Adult Education	185,500	133,500	96,500
School of Trades	20,200	19,600	n/a

Source: Cedisac (1997: ET.11)

Table 5.8 illustrates a distinct decrease in enrolments in almost every level of education.[70] The number of pupils in pre-school increased due to the continuing construction of day-care centres throughout the previous decade and of the adaptive reuse of other buildings for this purpose in the urban areas to meet the demands of working parents. As the birth rate decreased, the number of pupils entering primary education levelled off. However, the decrease at secondary level implies a reduction in pupils attending school. Without more detailed statistics it is not possible to draw precise conclusions in respect of the pedagogical trends during this period.

5.5.5 **Isolation of an Island** - Summary of the Fourth Decade

The collapse of communism in the Soviet Union left Cuba in almost complete economic and political isolation. Yet despite the mounting difficulties there was a determination to overcome the hardships as the national slogan *"Venceremos"* (we will overcome) implies. Through necessity and ingenuity alternative means of survival were created. Some would argue that this was at the expense of the Marxist ideology. Nevertheless, in 1993, few would have predicted that Castro would still be leader at the end of the century or that Cuba would not follow the example set by the Soviet Union and Eastern block countries. Survival came at a price. Education was just one area that experienced particular hardships due to cuts in fiscal expenditure. The fact that the system did not collapse altogether and that the schools continued to function on extremely limited resources is an indication of both the government's determination to make education adapt to the changing conditions and the people's demand for continuing self improvement and knowledge - a quest conceived in the 1961 National Literacy Campaign.

5.6 The Status on Primary Education in Cuba

> *"The democratisation of education in post-revolutionary Cuba has been pursued not only as an end in itself, as a fundamental ideological commitment, but also as an instrument for the achievement of other revolutionary goals and educational objectives .... education, in fact, has become part of the Cuban way of life."* (Richmond 1986:159)

This section aims to clarify the principles and main structure of the existing Cuban educational system. As the above quotation suggests, education has various political functions in addition to its social functions. The purpose therefore is to show how primary education is integrated within the overall context of the learning and work ethos.

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[70] The statistical data for various levels of education was unavailable at the time of writing as the official Ministry of Education yearly statistics *(Anuario Estadísticas)*, ceased publication in 1990 due to the shortage of both paper and ink. Information from other sources is of a more general nature.

> *"Cuba has a highly unstable system of education in that it has undergone a great many changes in a very brief time, and is extremely flexible in its response to a rapidly changing social situation. If we take the long view, however, one can detect a pattern of periods of intense activity - of almost restless experimentation and change - contrasted with periods of structural advance, but not of dynamic change."* (MacDonald, 1996:248)

First the fundamental principles on which education is based are outlined. Then the means by which these were transposed into the pedagogical form through the National System of Education are explained. Next, an overview of pre-school education is given because the *pre-escolar* grade is located within the primary school. This is followed by a review of primary education because an understanding the course structure and day to day organisational aspects of primary school life is necessary for an objective evaluation of the fitness for purpose of the *casas adaptadas.*

5.6.1 The Fundamental Principles of the Educational System

> *"The Castro government has engineered a massive expansion of educational provision, as measured by financial, material and human indices. From a comparative-historical perspective, the level of educational provision and the speed with which it has been delivered have been remarkable achievements for a developing country."* (Richmond, 1986:154)

Within the first few years of the Revolution, Cuba's new educational authorities established their approach to the democratisation of education through the formulation of a ten-point scheme of general principles, as outlined below (Cuba, DESA, 1973: 60):-

1 A State school system.

2 Free educational services.

3 Co-education for all pupils.

4 Education for everyone and permanent equality of opportunity independent of race, sex, geographic location, religious belief or social class.

5 Participation of the students and of society in general in the educational process.

6 Integral education of the young, which implies the ideological, scientific, technical, cultural and physical formation.

7 Linking schools with social work, production, and the social and economic development of the country.

8 Scientific nature of the teaching task and of the focus, contents and methods or techniques in the teaching-learning process.

9 Vocational guidance directed towards those basic sectors most necessary for the development of the country.

10 Real opportunity for the workers of access to secondary and university education.

In 1976 these fundamental principles were eventually incorporated in the Constitution of the Republic of Cuba[71]. The aims, objectives and priorities of education are reviewed and developed each school year in the normative and methodological documents issued by the Minister of Education, in accordance with the economic, social, cultural, political and ideological plans for the development of the country (Cuba, OIE, 1986:109). This ensures the degree of flexibility necessary to meet the changing needs, and is undoubtedly the reason for Cuba's rapid and sustained achievements in the educational sector.

5.6.2 The Structure of the National System of Education

The national system of education is based on the organisation of teaching for specific types and levels of learning. The main framework was established in 1971 (Figure 5.10) when educational performance came under sharp scrutiny from the authorities. However, the expansion and developments (particularly in secondary education) during the 1970s necessitated modification of the original structure. Hence, the plan that evolved in 1977-78 (see section 5.3.1) forms the basis of the system that still operates today (Figure 5.11). It is comprised of the following eight subsections that are integrated and articulated at all types and levels of education (Cuba, OIE: 1986:114).

i) **Pre-school Education** *(Educación Pre-escolar)* - for all children under 6 years of age.[72]

ii) **General, Polytechnic and Labour Education** *(Educación General Politécnica y Laboral)* – This is inclusive of children, adolescence and young adults from primary school level to pre-university level. It is further subdivided as follows:-

- Primary, 1st to 6th grade - children from 6 to 12 years old;
- Secondary, 7th to 9th grade - children from 12 to 15 years old;
- Pre-university, 10th to 12th grade, adolescents from 15 to 18 years old.[73]

iii **Special Education** *(Educación Especial)* - established for children, adolescence, young people and adults with physical and/or mental disabilities and also for disturbed or delinquent children (DESA, 1973:57). There is no provision for disabled children in the general education sector.

iv **Technical and Vocational Education** *(Educación Técnica y Profesional.)*[74]

v **Higher Education** *(Educación Superior)* - is under the control of the Universities.

vi **Teacher Training and Improvement of Pedagogical Personnel** *(Formación y Perfeccionamiento del Personal Pedagógico).*

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[71] See Marill (1989) for full details of Articles No. 8, 38, 39, 50 and 51 of the Constitution.
[72] There are 2 sectors:- *Circulos Infantiles* and *Pre-escolar*. These are explained in the following sub-section.
[73] Pre-university education is not compulsory and depends on successful grades at secondary level. As such, it would equate to the sixth form colleges in the UK.
[74] This includes industrial training, agricultural education and the teaching of economics and administration for the formation of qualified workers and technicians in the different branches of production and services.

vii Adult Education *(Educación de Adultos).*[75]

viii Extra Scholastic Education *(Educación Extra Escolar).*

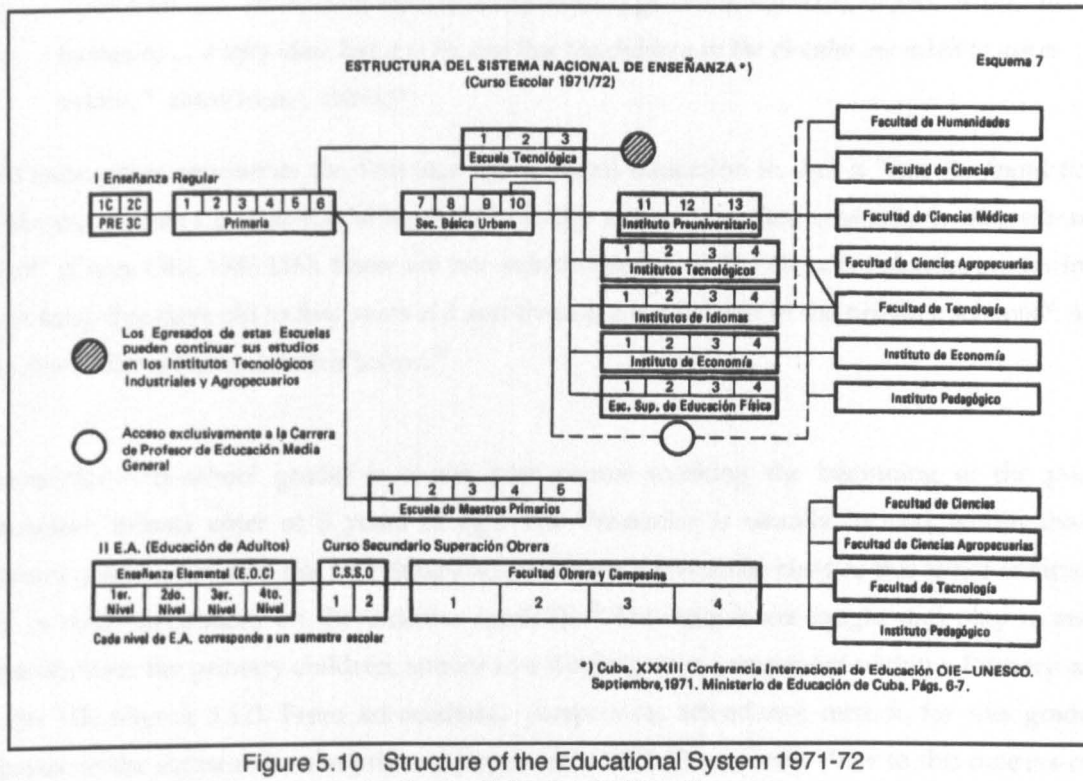

Figure 5.10 Structure of the Educational System 1971-72
Source: Kolésnikov (1983: 536)

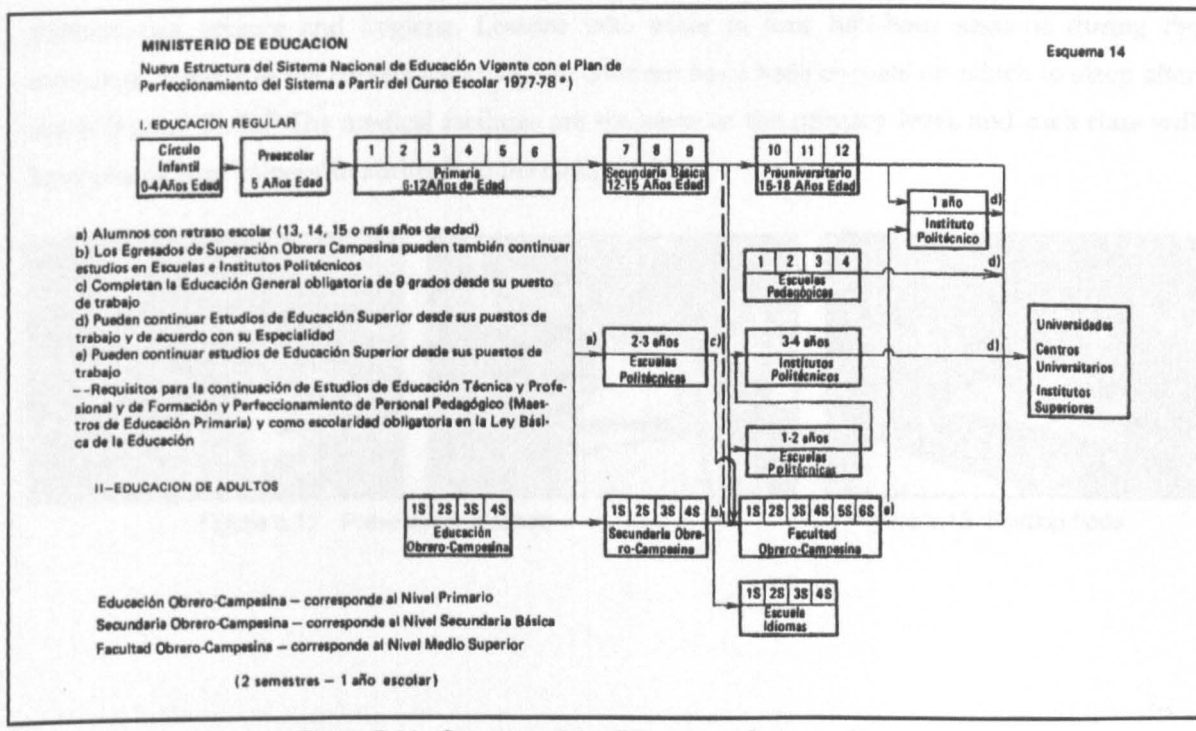

Figure 5.11 Structure of the Educational System 1977-78
Source: Kolésnikov (1983: 545)

[75] This parallels the normal system of general education from foundation level (including illiterates) through to college level (workers' colleges) as well as language teaching for adult workers.

5.6.3 Pre-School Education

> *"The circulos infantiles .... were regarded as a principle instrument in the development of the 'New Man' .... [who] is the archetype communist - generous, altruistic, honest, devoted to humanity .... a lofty ideal, but it is the one that the children in the circulos are asked to use as models."* (MacDonald, 1996:127)

This sub-system represents the first step into general education in that it *"lays the foundation for developing children's personality during pre-school stage and prepares them gradually for their entrance to school"* (Cuba, OIE, 1986:116). There are two sub-divisions:- a) The *Circulos Infantiles* are for infants from forty-five days old to five years old and these are not located in the primary schools[76]; and b) The *Pre-escolar* sector is detailed below.[77]

Pre-escolar (Pre-school grade) is a one year course marking the beginning of the primary education. Infants enter at 5 years of age. The *Pre-escolar* is usually located within the local Primary school, although not all Primary schools have a *Pre-escolar* class as this is not compulsory and is really dependent on the facilities available.[78] The infants are taught and play in an area separate from the primary children, similar to a Kindergarten component within a Primary school in the UK (Figure 5.12). From an academic perspective, attendance records for this grade are separate to the statistics for the primary pupils from 1972-73 onwards. Prior to this date *pre-escolar* is not identified in the records. The children are taught specific skills such as reading, language, mathematics, science and hygiene. Lessons take place in four half-hour sessions during the mornings. Similar to the *circulos infantiles*, the children have beds or mats on which to sleep after lunch (Figure 5.13).[79] The medical facilities are the same as the primary level, and each class will have one or two 'helpers' in addition to the class teacher.

Figure 5.12 Pre-escolar classes

Figure 5.13 Folding beds

[76] In spite of a decreasing birth rate, MINED report a shortage of centres especially in the rural and mountain areas as well as in certain inner city areas. There is a high demand for places as women now expect to be able to continue working after the birth of a child, even though the *Circulos* are not free.

[77] The increase in pre-school education from the early 1980's is illustrated in Table 5.6 (*Pre-escolar*) in section 5.4.4.

[78] There are a few instances where the *pre-escolar* pupils are located in the *circulos infantiles* unit.

[79] Walking down the Prado in Havana in the afternoon and looking through the open windows of the colonial houses that are used as primary schools one sees rows of infants on canvas beds having their afternoon nap.

5.6.4 Primary Education

Primary education comprises 1st to 6th grades, divided into 2 sections *(ciclos)* : - 1st to 4th year is Ciclo 1; and 5th to 6th year comprise Ciclo 2. According to MacDonald (1996:219) *"children have the same teacher as they move through the whole four years of the first cycle (who) .... teaches every subject except mathematics and music"*. The second cycle is more conventional in nature as indicated in the curriculum. In parallel with the two cycles, there are three different forms of pupil organisation (Cuba, OIE, 1986:117):-

a) **Externos** (day schools pupils) - may have single (morning or afternoon) or double (morning and afternoon) sessions. although the current tendency is to use double sessions, due to its pedagogic values. Children can have lunch at school or at home.

b) **Semi-internos** (half-boarding) - children have a free lunch in school.

c) **Internos** (boarding schools) - pupils live in during the whole week.[80]

The majority of pupils in the inner city schools of Havana are either *externos* or *semi-internos*. Generally, classes are made up of children of the same grade and age. All teachers working in primary level have a degree certifying that the holder is qualified to teach in those grades. The student: teacher ratio is between 35-40 pupils per teacher (Cuba, OIE: 1986:119). However, chapter six will reveal that, in the *casas adaptadas*, the ratio is more like 24 pupils per teacher because the rooms in the houses are too small to take larger classes.

Schools are also classified as **urban** *(urbanas)* or **rural** *(rurales)*. In rural areas, however, there are variants to cope with the mass of children from scattered homes (Cuba, OIE, 1986:118).

a) The Primary Curriculum and School Year

The curriculum is, with a few exceptions, the same for all primary schools (Cuba, OIE, 1086:118). Class periods last 45 minutes, with 5 or 10 minute breaks to make the necessary changes of activities. Table 5.9 gives an example of the subjects taught in each school year. The curriculum from 1st to 4th grade comprises a total of 3,680 hours, of which the greatest number of class periods is focused on mathematics (21%) and Spanish language (43%). In addition other subjects such as physical education (13%); art, music and dance; basic history, geography *(the world in which we live)* and labour education are included. The curriculum for the 5th and 6th grades comprises a total of 2,000 hours, with the largest number of hours again being devoted to mathematics and Spanish language. Although it does not appear on the timetable, basic hygiene is taught at all levels. Teachers make use of the city's museums and parks for some subjects as not all the subjects need to be taught in a classroom.

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[80] It is not a State policy to have *internos* (also known as *becarios*) in primary education. They are mainly for children with social problems, and also as a way of grouping 5th and 6th-graders that may be scattered in rural areas, to enable them to have a high quality primary education (Cuba, OIE, 1986:118).

Table 5.9 Total Hours per Subject per Grade for Primary Education in the 1996-1997 Session

Asignatura	Subject	1	2	3	4	5	6	TOTAL
Matematica	Mathematics	200	200	200	200	200	200	1200
Lengua Española	Spanish	400	400	400	400	240	240	2080
Historia	History	-	-	-	-	80	80	160
Geografia	Geography	-	-	-	-	-	80	80
Idioma Extranjero	Foreign language	-	-	-	-	-	120	120
Ciencas Naturales	Natural science	-	-	-	-	120	80	200
Educacion CIVICA	Political/civic life	-	-	-	-	80	-	80
El Mundo en que Vivimos	The world we live in	40	40	40	40	-	-	160
Educación LABORAL	Labour & work	80	80	80	80	80	80	480
Educación FISICA	Physical education	120	120	120	120	80	80	640
Educación ARTISTICA	Art	80	80	80	80	80	80	480
TOTAL		**920**	**920**	**920**	**920**	**960**	**1040**	**5680**
Average hours per week		23	23	23	23	24	26	
Average hours per day		4.6	4.6	4.6	4.6	4.8	5.2	

Source: MINED - obtained by author on request in July 1996

Much of the curriculum is taught in the old traditional form of rote drill and memorisation[81] which MacDonald (1996: 169) describes as *"didactic to a degree would seem inconsistent with its socialist aims and revolutionary development"* with the exception of maths and science in which a major shift took place from the mid 1970s. Leiner (1985:33-35) explains that the concentration on mathematics and the sciences (biology, physics and chemistry) early in the primary grades stemmed from the belief that scientific and technical knowledge would *"provide solutions to Cuba's economic problems"* and that a *"scientific, technically literate population is the only way up from under-development"*. Within the first twenty-five years this strategy yielded substantial results in a wide range of areas such as health care, agriculture and biotechnology.

The academic year is 40 weeks duration, distributed in four equal sessions. Table 5.10 shows an example of the primary school calendar for the 1996-97 school year. At the end of the 4th session pupils and teachers take vacations.[82]

Table 5.10 Example of the School Calendar for the Year 1996 -1997

Period	Dates	
1	03 September 96 - 08 November 96	
	Vacation - 1 week	
2	18 November 96 - 17 January 97	
	Vacation - 1 week	
3	27 January 97 - 11 April 97	
	Vacation - 1 week	
4	21 April 97 - 27 June 97	
	Examinations	30 June 97 - 4 July 97
	(5th+ 6th grade only)	7 July - 9 July 97
	Resit exams	25 August - 27 August 97
	Teachers' preparation period	2 June - 24 July 97

Source: MINED - obtained by author on request in July 1996

[81] MacDonald (1996:203) explains that this form of teaching mathematics was a particular problem, and so to overcome this, in 1974, the controversial East German mathematics programme (RDA) was introduced.

[82] Eight weeks for pupils in July and August; and 4 weeks for teachers in August.

b) Evaluation and Progression

The system of evaluation comprises a process of continual assessment in terms of established objectives. Weekly classroom tests are carried out and final tests are applied at the end of each semester. In the first cycle, children are automatically promoted up to 4th grade after which there is a final examination. The results determine the pupil's promotion to 5th grade (Cuba, OIE, 1986:119). MacDonald (1996:254) explains *"if a child at any stage in his/her primary schooling is felt to be in need of further cognitive experience, arrangements are made for the year to be repeated"* emphasising that *"there is nothing in any way punitive about this. It is not seen as a failure - simply a person needing more time"*.[83] At the end of the sixth grade the State Examination is applied nationwide. Students who pass are awarded a certificate and a voucher indicating the basic secondary school in which they will be enrolled. However, for students wishing to get into the more prestigious secondary schools there is stiff competition to achieve good grades.

c) The School Day - A Personal Observation

The schools are open from 6.00am or 7.00am through to 6.00pm or sometimes 7.00pm. Parents leave the children at school where they can play under the supervision of the 'teaching assistants'. Formal teaching usually starts at 8.00 am and continues throughout the morning leaving the afternoons for physical education and visits to museums, parks, swimming pools and other places of interest.[84] Education is not confined to the boundary of the school (Figure 5.14). Lunch is served around 12.00pm usually in two sittings (Figure 5.15). All meals in the urban schools are prepared in central locations and are taken to the schools each day (meals-on-wheels-style) where the kitchen staff are required to serve the food on metal trays and then wash up afterwards. All primary school children wear a uniform consisting of a white shirt/blouse with red shorts/ trousers/skirt and either a red or blue kerchief (Figure 5.16).[85] Staff tend to dress very casually - to suit the climate.

Each class has a teacher and an ***Auxilliar Pedagogica*** (non-teaching helper). In addition there are specialists such as a resident medical assistant (either a doctor or nurse) and many schools have a speech therapist. At break times the children play outside, again under supervision. There is also a ***Trabajadora Social*** (social worker) responsible for visiting the families of children who have not attended school for some days or have behavioural problems. Both the *Auxilliar Pedagogica* and the *Trabajadora Social* are FMC members and their role is very important regarding the influence of the school in the community as it covers aspects such as the condition of the school, vandalism, bullying and absenteeism[86]. Each class selects a student monitor (normally one of the

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[83] MacDonald (1996:256) later adds that he knows several *"internationally recognised authorities in their fields, but who repeated one or more primary years"*.

[84] In Havana, one frequently sees crocodile lines of primary school children parading hand-in-hand along the streets en route to the museums or parks.

[85] Apart from *pre-escolar* infants who do not wear a uniform.

[86] These workers form an integral part of the education process (interview with Dra. Ing. Hernández Cruz, July 1996).

better pupils), who is responsible for setting an example for their peers by helping the teacher with basic tasks (such as distributing books). Each school has a Head Teacher, a Deputy Head and a secretary/administrator. Apart from the academic staff there is a School Committee *(El Consejo de Escuela).*[87] *"This is neither a technical organisation nor an administrative one; it is an organisation which joins the efforts of co-ordination and planning of complementary activities to drive together with the people the tasks that contribute to a better way of working in the school. Really no educational activity which is related to the school escapes the control of this organisation."* (Cuba, DESA, 1973:68)

Figure 5.14 Classes and Playtime in the Parks
Source: Author

Figure 5.15 Lunch
Source: Cedisac (1997: EDUF/ 32)

Figure 5.16 Standard Primary School Uniforms

d) Summary of the Primary Education System

The investment in primary education over the past forty years in terms of finance and resources has been enormous. The explosion of activity in this sector during the first decade exposed many problems mainly due to the lack of teacher skills, lack of facilities and the legacy of overwhelming illiteracy. By the mid 1970's the system had undergone radical changes. Teachers were trained and the curriculum revised. Since then the system has not undergone any major changes. The method of teaching may appear rather dated compared with the current trends used in western societies. Nevertheless, the teachers and helpers are conscientious and caring, and the children seem no different to primary school children in other countries. In each of the schools visited there was a happy, vibrant atmosphere.

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[87] It is an organisation formed by Head Teacher's administration office, the pupils' parents, teachers and representatives of student organisations, political organisations and whole body of the school and community.

5.7 Post Revolution Architectural Development

Chapter four illustrated the appropriateness and relative consistency of the architecture during the colonial period compared with the less appropriate and more eclectic style of the Republican period. Yet both reflected the political nature of their respective imperialist and capitalist eras. The architecture of Post-Revolutionary Cuba similarly reflected the socialist nature of the new regime. Like the colonial period it related to the social needs of the people and took into consideration the availability of resources as well as the climatic conditions of the country.

This section gives an overview of the main architectural developments in Cuba from 1959 through to the end of the twentieth century. After a general account of the urban development and the main changes in architectural design a brief explanation of the construction methods adopted illustrates the means by which the schools were built so rapidly and how the designs reflect the construction techniques. This is followed by a synopsis of the role of the microbrigades as their contribution to the construction programme, including schools, was significant. The section concludes with a review of the development of primary school buildings during this period.

5.7.1 Architecture and Urban Development

> *"The City of Havana – a super-developed capital in an underdeveloped country"* (Author's translation from Segre, 1970:112)

Various authors have compared post-revolutionary architecture in Cuba with the development of architecture after World War II in Europe and the UK.[88] The need to construct both a large quantity and a wide range of buildings as quickly as possible was the over-riding factor. The solution lay in pre-fabrication. Whilst in Europe steel, concrete and timber were used for framed buildings, in Cuba the shortage of materials due to the embargo meant that concrete was the main material for construction. Despite the similarities, there were two fundamental differences that are outlined below. The first relates to the strategy for planning and urban development and the second concerns the way in which architecture developed.

Havana had absorbed the wealth of the country during the previous centuries whilst the rest of the country lay in poverty, lacking even the basic amenities, infrastructure and services. Due to the policy of rural urbanisation initiated at the start of the Revolution the government placed the focus of almost all development in the provinces. As the preceding chapters have illustrated, every provincial capital was provided with new hospitals, schools, colleges and universities. The housing stock was increased and factories for both agricultural and industrial use were built

[88] For example, Carley & Brizzi (1997); MacDonald (1996), Menocal *et al* (2001) and Segre (1970), (1978), (1989) and (1990).

throughout the country as farms and plantations fell under state control. Because the scale and the speed of development was so highly visible, the regime was seen to be fulfilling its promises of educational, health and housing reforms.

On the other hand, the urban reform policies made life in the capital less attractive. The map of Havana in 1979 (Figure 5.17) shows relatively little expansion from the map of 1957 illustrated in chapter 4.6.3. There were three exceptions to this, all of which relate to the rural municipality of Habana del Este on the eastern side of the city[89]. The first was the construction of the mass housing project of *"Ciudad Camilo Cienfuegos,"* now known as La Habana del Este. Originally conceived during Batista's era as a tourist area, it became the first urban housing experiment. Phase One, constructed between 1959 and 1962, represented a different approach to urban planning. Containing schools, sports facilities and a commercial centre it provided housing for 10,000 inhabitants in prefabricated apartment blocks and it is still considered to be one of the earliest successful developments. The second exception was the creation of the new town of Alamar east of Habana de Este in the 1970s. The third was Villa Pan-Americana near Cojimar built in 1991. Apart from these three substantial developments only a few small pockets of urban expansion took place in Havana.

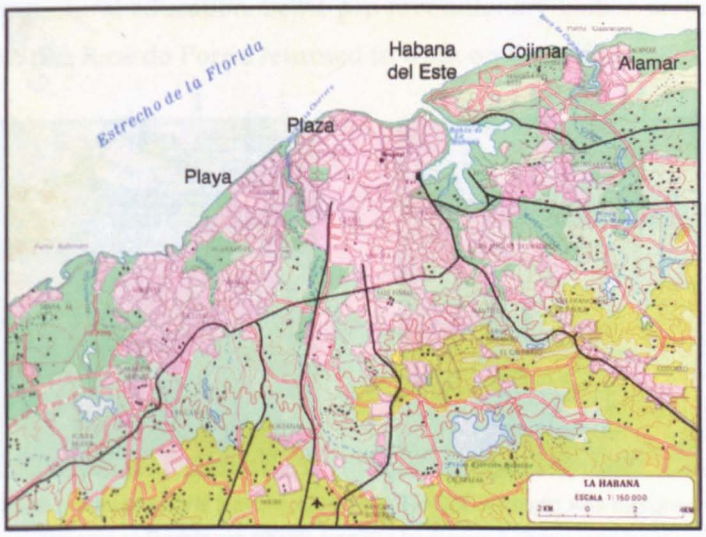

Figure 5.17 Map of Havana in 1979
Source: Wilson (1979:49)

The main change within the city was the repossession of property by the state. This was partly due to the Urban Reform Law (1960) and partly due to the fact that *"about 135,000 houses and apartments were confiscated from families that left the island between 1959 and 1975"* (Carley & Brizzi, 1997:196). Initially the newly acquired accommodation provided a welcomed source for the much needed housing shortage, but standards in the cities declined due to the prioritisation of resources required to meet the basic infrastructural needs of the rural areas (at the expense of the urban

[89] The population increased from 44,849 in 1970 (the lowest of the fifteen municipalities) to 180,308 in 1996. (Figures obtained by Author from CEPDE/ONE in July 1997).

areas) (Stubbs, 1989:30). In addition there was little money available for maintenance of the inner city because maintenance of these buildings was not so (politically) visible as construction of the new rural projects. Hence, this vital component for buildings in the tropics was neglected (Rebellón, 1995).

The impact of this strategy was not realised at the start of the Revolution as the emphasis was continually on the need for more new complexes. For example, in the educational sector during the 1960s the focus was on primary schools; in the 1970s, on secondary schools and in the 1980s it was on higher education. By the start of Special Period not only had the buildings in Havana been neglected for over thirty years[90] but also the new post-revolution projects such as the ESBEC schools, that had been the show-pieces of the regime's architectural achievement in the 1970s, were starting to fall into disrepair and decay due to lack of maintenance (Rebellón, 1995).

The second major difference between Cuba and Europe was the fact that, after 1959, *"whether for ideological, economic or creative reasons,* ***most architects*** *- about ninety percent of whom worked in Havana –* ***departed Cuba*** *as a result of revolutionary policies"* (Carley & Brizzi, 1997:184). Those who remained faced a huge challenge. Many of these were young students, having only recently completed their architectural education. Some pro-revolutionary Cuban architects who had lived in exile prior to 1959, like Ricardo Porro, returned to work on the island.

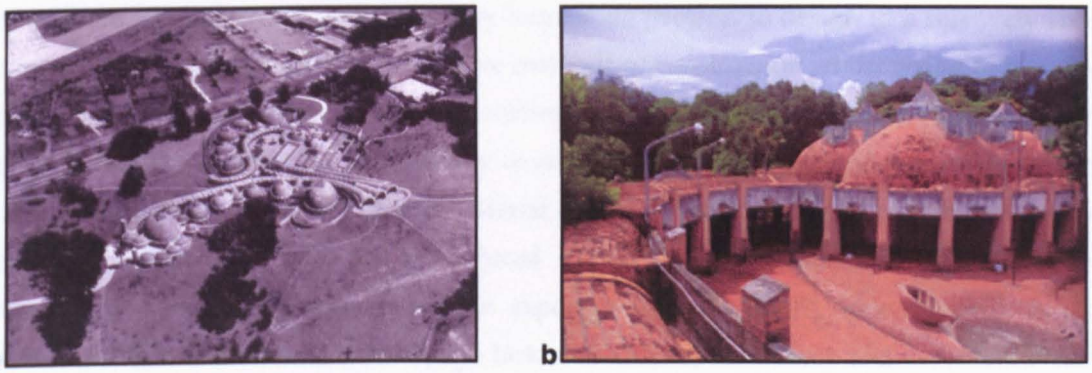

Figure 5.18 National School of Arts Havana (1962-65). School of Plastic Arts designed by Ricardo Porro
Source: a) Rodríguez (2000: xxxiii); b) Carley & Brizzi (1997:196)

The early decades saw a handful of creative projects in Havana, the most notable being the National School of the Arts (1962-65), a complex of five faculty buildings set in the lush area of Cubanacán in Playa. Porro designed the School of Plastic Arts (Figure 5.18) and the School of Modern Dance. Although the complex was never fully completed their expressionist appearance represented a new aesthetic in Havana's architectural development, but one that was not to be followed.[91] Instead the future trend was based on prefabricate concrete systems. Representing the forward approach was the new university complex Ciudad Universitaria *"José Antonio Echeverría"*

[90] Carley & Brizzi (1997:196) record that in the year 1979 some 25,000 houses collapsed.
[91] All the buildings in the National School of the Arts complex are now in a dilapidated state.

(CUJAE)[92] (1961-69) designed by Fernando Salinas (Figure 5.19). Whilst the two contemporary complexes are very different in style they both relate to their environmental location and comprised *"village-like groupings .... as part of a comprehensive whole ....[and they both] were conceived as symbols of evolution, change and a new open society"* (Carley & Brizzi, 1997:195). Amongst the other individualistic architects who fused their buildings into the environment were Walter Betancourt and Antonio Quintana[93]. Though Quintana was noted for his high-rise apartment buildings both before and after the Revolution, the *Palacio de las Convenciones* (1979) is regarded as his most successful design in which the landscape is drawn into the centre of this enormous two-storey convention centre (Figure 5.20).

Figure 5.19 (CUJAE) – Lift-slab Construction
by Fernando Salinas
Source: Cedisac (1997:P)

Figure 5.20 *Palacio de las Convenciones* (1979)
by Antonio Quintana
Source: Author

Young enthusiastic architects were given very large scale projects to design in a relatively short time-frame. Their talents focused on innovative methods of construction whilst trying to maintain a degree of aesthetic and creative designs. Architectural journals still illustrated new projects in Europe and the United States but the majority of articles focused on developments in the Eastern block countries. Gradually the architecture altered to mirror these political, economic and social changes. In the same way that the educational system lacked resources at the start of the Revolution and subsequently had to rely on expertise from the USSR, construction was also driven to looking to the Soviet Union due to lack of materials, machinery and expertise. With a few exceptions the austere nature of the buildings evolved from the standardised, utilitarian construction methods that were employed to meet the state building programme. The harsh aesthetic remained consistent during the first three decades.

5.7.2 How Construction Methods Influenced Design

> *"A centralized construction program for all types of buildings necessitated an internally manufactured technology that could be applied throughout the island on a uniform basis and with a relatively standardized level of training."* (Carley & Brizzi, 1997:188)

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[92] Now renamed Instituto Superior Polytecnico *"José Antonio Echeverría"* (ISPJAE).

A plethora of concrete prefabrication systems were used for schools, housing, hospitals, factories and hotels. Segre (1970) and DESA (1973) describe the different systems in detail, and explain how the first decade (the 1960s) was seen as an experimental period to establish the suitability of the various methods with regards to the ability of relatively unskilled labour to employ the techniques, the availability of materials required and the financial costs. The most popular semi-prefabricated system used for small schools (usually primary schools) was the light-weight Sandino System consisting of a concrete frame infilled with small prefabricated concrete panels thus making it both easy and quick to construct. It has undergone various adaptations but is still considered to be one of the most practical solutions for small-scale projects (Figure 5.21).

Figure 5.21 Sandino System used for schools and houses
Source: Author

Figure 5.22 Girón System used for a typical Secondary School
Source: Cedisac (1997:EDUF42)

Of the main industrialised methods the Girón system was developed by a team of architects and planners under the leadership of Josefina Rebellón at *Grupo Nacional Construcciones Escolares de DESA* (now MINCON) in the 1960s. From 1969 it was then employed for most ESBECs, vocational colleges and secondary schools (Figure 5.22) that were constructed in the 1970s and 1980s but it was also used for some large capacity (900 – 1200 pupils) primary schools (Cuba, DESA, 1973:121). Its suitability for these projects lies in its basic 7.5 x 6.0m grid that allows a 1.5m external walkway to run along the length of the 6.0m deep classrooms, a feature that makes it instantly recognisable. Its use has been extended to other buildings such as hotels but, as a heavy-weight system, mechanical installation is necessary. This factor together with the high cost of the components meant that its use was severely curtailed from the 1990s.

Amongst the other industrialised methods used was the IMS system introduced in 1968 from Yugoslavia consisting of precast columns and slabs that were post-tensioned during installation. This was used for Basic Secondary schools with a capacity for 500 pupils in rural areas (Cuba, DESA, 1973:116). The Soviet *Gran Panel* system was first introduced in 1963 mainly for the construction of residential units. Both of these systems were suitable for four or five-storey buildings. "Lift-slab" construction was another popular method that was used at CUJAE as well

[93] Quintana was part of a creative team led by Célia Sanchez *"a prominent figure in the Cuban avant-garde who sought to explore the Cuban architectural identity in the contemporary context"* (Carley & Brizzi, 1997:184).

as for some high-rise apartment blocks and hotels. In the early 1960s experimental housing complexes were built using completely pre-fabricated modular units moulded in asbestos cement but these were neither particularly popular nor successful. Apart from actual systems, there was considerable experimentation in the use of concrete roof structures such as folded plate and parabolic shells. The emphasis on self-sufficiency was also reflected in *"the processing of sugarcane waste for wall partitions and furniture"* (Carley & Brizzi, 1997:190). Most of these were abandoned for the more conventional systems but even these were not suitable for the tropical climate and they began to deteriorate.[94]

During the early part of the Special Period practically all construction work on non-essential buildings stopped. Many remained unfinished. The official explanation was that there was a shortage of materials. In fact materials, such as cement, were available in Cuba but during the Special Period they were **exported** to other countries in order to gain hard currency that in turn was used to purchase oil and other more pressing commodities[95]. Even when conditions improved the concept of high-to-medium rise apartment blocks was abandoned and alternative construction methods to the expensive prefabricated systems came into practice. These included the use of bamboo for partition walls and adobe blocks and roof tiles for small-scale housing projects[96]. The only large-scale developments to take place were those financed by foreign capital though joint ventures and these were mainly in the tourist sector, such as hotels. By the end of the century income from tourism also drew attention to the need for restoration of the historic centre of Havana. With a lack of finance to commence new projects a growing interest in conservation, renovation and adaptive reuse of the existing buildings at last emerged.

5.7.3 The Contribution of the Microbrigades

> *"The micro brigade program represented a proactive state-financed and state-directed approach to urban housing that contrasted with the largely reactive governmental approach elsewhere in the region at that time"* (Eckstein, 1994:159)

In 1967 the new regime commenced an innovative community housing project known as *Las Terrazas* designed by Mario Girona in the eastern province of Pinar del Río. The significance of this project was that it was built by the local *campesinos* who normally worked in forestry and agriculture. With little training they were able to construct the buildings that they would then use and occupy. They were the fore-runners of the microbrigades of the following decade.

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[94] *"The problem of devising systems to address local building needs was never completely solved"* (Carley & Brizzi, 1997:202).
[95] This was a similar strategy to the financially successful re-exportation of Soviet oil between 1979 and 1984 (see section 5.4.1).
[96] Habitat Cuba worked on bamboo technology (Arq. León) and CECAT developed adobe roof tiles during the 1990s.

In 1970 shortage of labour was the major problem that the government faced in its aim to meet the housing construction programme. As in the 1961 National Literacy Campaign, it turned to mass participation of the population for a solution in the form of 'microbrigades'. A microbrigade usually consisted of thirty-three workers who volunteered to take time off from their normal work commitments for a period of up to two years to work in various project centres constructing buildings, mostly housing (Figure 5.23).

Figure 5.23 Microbrigade Workers in Havana
Source: a) Stubbs (1989:12); b) Author

Starting in 1971 with a workforce of 2,700 in 84 brigades, the most ambitious microbrigade built project was the town of Alamar, east of Havana (Mace, 1979:128). By 1978 it housed 30,000 residents and *"the plan called for 32 day care centres, **eight semi-boarding schools**, six theatres, sports and health care facilities and industrial plants [mainly for women]"* (Eckstein, 1994:159).[97] Unlike its more expensive though socially and architecturally better neighbour Habana del Este, Alamar is large and impersonal, more Soviet than Cuban in atmosphere, and it has an organic footprint that is very confusing.

By 1971 *"microbrigades were already involved in the construction of 10,082 housing units"* (Mace, 1979:127). During 1972-73 they were responsible for *"65% of all new houses built in Cuba"* and by the mid 1970s the *"annual output from nearly 1,200 microbrigades [throughout Cuba] with a labour force of over 25,000 workers was expected to top 27,000 [housing] units"* (Mace, 1979:127). Construction work on the island tapered off towards the end of the 1970s despite the need for more housing. The best microbrigades were sent on overseas contracts in order to boost the economy. Later, under Castro's 'Rectification Process' of the late 1980s the microbrigades were revived and extended to include students, retirees, housewives and unemployed persons and the projects were not limited to housing. By 1989 the number of workers in the brigades had increase to 35,000 (Eckstein, 1994: 163-164). In the same year they built more than 2,400 works including:-

[97] The pre-fabricated apartments are spacious, but the residents complained about the lack of balconies and patios in the first blocks that were built as these provide a social function as well as an environmental one.

> *"580 family doctors' units; 10 hospitals; 14 polyclinics; 24 day care centres; 20 special needs schools; 5 primary and 2 secondary schools; 4 pre-university colleges; 14 plants related to construction materials; six of the sports stadia for the PanAmerican games; 77 other buildings and also continued working on 24,800 housing units."* (Author's translation from Cuba, MINCON, 1990:13-14)

The achievements of these volunteer workers over a period of twenty years had been substantial but from 1990 onwards the shortages of materials and equipment, as well as personal hardship experienced during the Special Period meant that although some microbrigade work continued, it was drastically scaled down. The microbrigades' work has also been extended to include the renovation and adaptive reuse of older buildings in the city.

5.7.4 The Development of Primary School Buildings

> *"School architecture is not just a building that frames a strictly privileged function. At certain times all the surrounding environment may be absorbed into the framework of the educational process under social impulses which do not wait for architectural attributes."* (Author's translation from Segre, 1990:158)

The typology of the buildings corresponding to the different levels of education did not start solely from the analysis of the architecture. It derived from the fundamental principles that governed the successive stages that developed during the first decade of the Revolution starting with the methods applied in pedagogical activities (Cuba, DESA, 1973:42). It grew from the individual cell (the classroom) to the giant complexes of the *Escuelas Ciudad* (school city) and it was a process that evolved from various sources:-

- from the survival of the old typologies - the traditional schools built in the classical or conventional vocabulary;
- from the appropriation of the opposite building typologies – like the army barracks converted into schools;
- from the rejection of a themed typology - like the absolute requirement for the performance of the function;[98]
- and from the strict characterisation of the physical parameters, corresponding to each specific function (Cuba, DESA, 1973:42).

The previous sections have explained how the educational pyramid developed and why the first decade concentrated mainly on primary education. This section focuses on the development of the primary school buildings, particularly the main period of construction between 1959 and 1964. The sheer volume of school buildings required together with their wide dispersal throughout the

[98] As in the literacy campaign, a 'school' was any available space where teaching could take place.

country, especially in remote areas, resulted in a variety of planning and construction solutions, the diversity of which allowed different alternatives to be put into practice that served as a springboard for future resolutions. There was an initial honeymoon period at the start of the Revolution when experimentation and creative ideas were encouraged in an attempt to produce primary schools that reflected the ideals of the new regime. The need to rationalise the use of materials, due to the difficulties imposed by the economic blockade forced construction and structural systems to reduce the use of steel and wood in formwork[99]. Hence domed brickwork roofs of the Catalan style and folded plate roofs in different geometrical permutations started to appear. The use of traditional materials made certain forms popular that were reminiscent of the buildings constructed in the previous decade. At the same time, because of the amount of work the emphasis was on the application of advanced technologies and mass construction, specifically in the rural and mountain areas (Cuba, DESA, 1973:43-51).

In 1959 around two hundred rural schools with hexagonal floor plans were built using local materials like masonry, wood and tiled roofs (Figure 5.24). Even though the simple technology made construction possible in areas of difficult accessibility, due to the materials utilised, a large workforce of skilled manual labour was required, and this turned out to be **excessively expensive**. Moreover, a critical post-evaluation study revealed that the hexagonal-shaped classrooms were not very practical and that whilst the ventilation was good, the levels of illumination were not satisfactory (Cuba, MINCON, 1965:9).

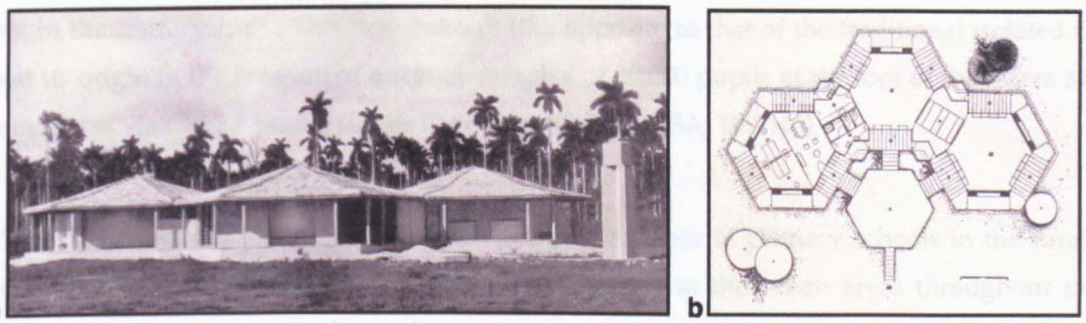

Figure 5.24 Hexagonal Primary School in the Countryside
Source: Rebellón (1995)

Subsequently the architects turned to simple rectangular designs using prefabricated components of reinforced concrete in order to simplify and accelerate the construction and reduce costs. The basic plan, comprising of one or two rectangular classrooms, the teacher's accommodation and the sanitary services, responded to the traditional school pattern of an isolated cell in the countryside (Figure 5.25). It suited the needs of the small rural schools but not the demands imposed by the larger educational centres as it was not flexible and it did not allow for expansion because this could only be made on the longitudinal axis. One concern was that the structure required the use of equipment as the heavy components did not facilitate manual assembly. However, it

[99] Informal discussion with Josefina Rebellón at MINCON (February, 1996).

represented the first serious attempt of pre-fabrication in rural school construction that was being used at the same time for other building types (notably housing) (Cuba, DESA, 1973:43).

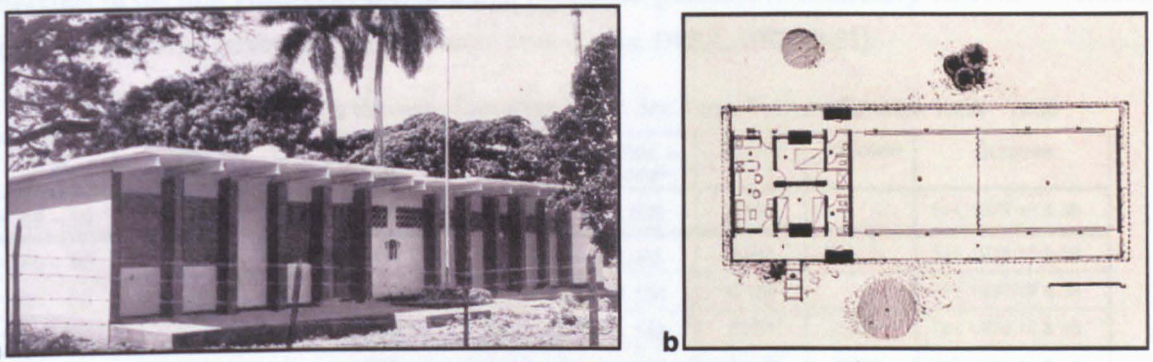

Figure 5.25 Two Classroom Prefabricated Rural Primary School with Teacher's Accommodation
Source: Rebellón (1995)

It should be remembered that between 1959 and 1962 eighty-three completely new 'towns' were created in the areas where agricultural co-operatives had been formed (see section 5.2.2). In each of these a school was built with sufficient capacity to house the children in the surrounding area. This alleviated the problem of the rural areas considerably because by concentrating the population in nucleuses, and by each having their own school building, it lessened the number of areas in which it was necessary to build a single classroom school (Cuba, DESA, 1997:51).[100] The concept of an individual school cell-unit was later questioned when, with the adaptation of the military barracks into schools in the urban centres, it was demonstrated that it was more effective to have schools of larger dimensions. However, these new 'city schools' were not built in the cities but in the countryside[101]. This new concept (the opposite to that of the traditional isolated school) had its origin in the creation of a school complex of 20,000 pupils at the foot of the Sierra Maestra mountains - *la Ciudad Escolar Camilo Cienfuegos* (Cuba, DESA, 1997:46).

Table 5.11 illustrates the substantial growth in the number of primary schools in the rural areas compared to the complete lack of school development in the urban areas throughout the first thirty years. It also reveals the peak in primary schools in the mid-1970s, the reasons for which have been explained in section 5.3.2.

Within the initial whirl-wind period of construction it was only possible to make a series of models that covered a limited range of architectural solutions:- the functional and constructional rigor imposed by the material conditions of the rural primary school; the romanticism of the rural hexagonal plan formed primary schools; the structural expression of the prefabricated elements in the nursery schools; and the form-function coherence reached in the Pre-University Institute of *Ciudad Liberdad*. The construction programme comprised not only of primary and secondary

[100] In other words, the problem of building single cell schools only remained in the mountain areas where the population was dispersed.
[101] The aim was to familiarise the children with an agricultural mentality alternating by combining work on the land with studying.

schools but also schools of technology, agriculture and industry placing special emphasis on the latter ones because the country urgently needed to deliver technical training to thousands of students. In the first years 671 rural primary, 339 urban primary, 99 secondary schools, 6 technical schools and a Pre-University Institute were built (Cuba, DESA, 1973:43-51).

Table 5.11 Relationship between Growth of Urban and Rural Primary Schools 1958 - 1989

Year	Total No Pupils	Total No Schools	URBAN	RURAL + Mountain	RURAL	Mountain	Sources
1958 – 59	717,417	7,567	2,678	4,889	4,889	-	SH, 1973:18 & 38
1959 – 60	1,050,119	10,381	2,026	8,355	8,355	-	SH, 1973:18 & 38
1961 - 62	1,166,267	12,843	2,709	10,134	10,134	-	SH, 1973:18 & 38
1962 - 63	1,207,286	13,780	2,634	11,146	9,704	1,442	SH, 1973:18 & 38
1964 - 65	1,332,773	14,028	2,633	11,395	9,193	2,202	SH, 1973:18 & 38
1966 - 67	1,361,942	14,464	2,648	11,816	9,294	2,522	SH, 1973:18 & 38
1968 - 69	1,466,286	14,882	2,530	12,352	9,817	2,535	SH, 1973:18 & 38
1970 - 71	1,664,634	15,190	2,607	12,583	10,145	2,438	SH, 1973:18 & 38

Year	Total No Pupils	Total No Schools	URBAN	RURAL + Mountain	Sources
1973 - 74	1,780,775	15,561	n/a	n/a	AE, 1976: 8 / 1977:16
1976 - 77	1,899,032	14,163	2,706	11,457	AE, 1976:74 / 1976:88
1978 - 79	1,626,386	13,117	2,589	10,528	AE, 1978:104 / 1978:118
1981- 82	1,409765	11,771	2,462	9,309	AE, 1981:110 / 1984:21 / 1981:122
1983-84	1,282,989	10,866	2,354	8,512	AE, 1983:94 / 1987:21 / 1983:101
1985-86	1,077,213	10,187	2,350	7,837	AE, 1985:120 / 1987:21 / 1985:128
1987-88	936,914	9,617	2,306	7,311	AE, 1987:100 / 1987:21 / 1987:104
1989-90	885,576	9,417	2,278	7,139	AE, 1989:108 / 1989:23 / 1989:112

Sources: as indicated in right-hand column for each period

The next stage was the detailed study of structural pre-fabricated elements, designed in accordance with the essential needs of the basic component, the classroom. The Departments of Regulations and Standard of MINCON under the leadership of Josefina Rebellón established regulations to satisfy the new dimensions and functions allocated to primary schools (Cuba, DESA, 1973:43). In the 1980s the Ministry of Education produced design standards for primary schools (MINED, 1983a) and also one specific to rural primary schools (MINED, 1988). These give precise details on all aspects of design for new primary schools including furniture layouts for the classrooms, external spaces and most importantly the specific orientation of the buildings[102].

> *"From the year 1959 to 1971, the massive development of education was forced to use every place available as a school including the adaptation of buildings for this purpose. This policy, linked with the annual programme of school buildings, has allowed us during this period to include some 9,664 school buildings set aside for general education; 7,362 of them were purpose built for schools and 2,302 were adaptations of existing buildings, which means that 66.2% of our school buildings were built or adapted and set in motion after the year 1959."* (Author's translation from Cuba, DESA, 1973: 56)

The quotation reveals both the importance of, and the extent to which the role of adaptive reuse of buildings played in the educational programme. All of Batista's military garrisons were turned into schools, the most notable being *Ciudad Liberdad* in Havana and the Moncada garrison in Santiago de Cuba that became *Ciudad Escolar 26 de Julio* (Figure 5.26). Many mansions in Havana were also used as schools. These are officially known as *"casas adaptadas"* (adapted houses).

a)  b) 

Figure 5.26 Moncada Garrison in Santiago de Cuba - now the *Ciudad Escolar "26 de Julio"*
a) in 1996; b) in the early 1960s
Source: a) Carley & Brizzi (1997:41); b) Kolésnikov (1983:76)

Although these buildings are acknowledged in many historical and educational studies, they receive only cursory recognition in most architectural texts. This implies that they are inferior to the new schools in spite of their equally valuable contribution to primary education. The supposition seems to be based on architectural typology and the quality of the buildings rather than the functional requirements that the building needs to provide. "School" became a building type, as opposed to a place in which to be educated. The next chapter will show how these schools evolved in response to, and as a reflection of various needs, circumstances and policies and also how they can be seen to provide value by satisfying the requirements for primary education.

5.8 Summary of the Contemporary Context

The previous chapter illustrated that the only precedent that Cuba had in education was one of neglect, corruption and failure. Given the political instability of the previous fifty years, it is understandable that, in 1959, there was justifiable scepticism that the new regime would last more than a few months. At that time few people outside Cuba would have believed that one person, Fidel Castro, would remain as leader of the country for more than four decades, outlasting ten United States Presidents and nine British Prime Ministers. That the country could not only survive but also develop in spite of a permanent trade embargo imposed by its most powerful neighbour and previous main trading partner, the United States of America for over forty years, or that it

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[102] That is 22 degrees to the south-east of the east-west parallel (Cuba, MINED, 1983a:62). The purpose is to allow the maximum amount of natural ventilation in the rooms. Note: these regulations are much more detailed than those in the UK.

could continue after the collapse of its adopted trading partner, the Union of Soviet Socialist Republics (USSR) has defied even the most critical cynics.

Whilst a change of circumstances is recognised as one of the major causes of stress, the flexibility of an individual related to the frequency and scale of the changes can augment or reduce the ability of a person to cope with changing state of affairs. This chapter has shown that the Cuban people were exposed to various degrees of change almost continuously over a period of forty years. It has also illustrated their resilience to the stresses imposed by political uncertainty, isolation by their adversaries and abandonment by their allies, economic hardship, social upheaval and cultural differences. It could be argued that for most Cubans life had always been a struggle. This could account for their ability to manage the strain of changing situations, but they did more than just cope. The nation developed as a whole. The role of education, directly and indirectly, was a dominant factor in this process of development.

It has been shown how the domination of sugar as the backbone of the country's economy was the pivoting force from which everything radiated. This chapter has also explained both how and why the rural urbanisation programme placed the emphasis of educational development in the countryside. This together with the policy of equalisation of income and later the Family Doctor programme meant that everyone was ensured free education and health care. Yet the improved medical facilities that led to the eradication of diseases, reduced infant mortality and extended life expectancy could only have been made possible by educating thousands of medical students. Improvements in agriculture and industry were similarly achieved through the establishment of hundreds of technical and vocational colleges.

The fact that the people were inspired to become an educated nation was revealed in their reluctance to lower their educational aspiration during the Special Period. The driving quest for knowledge had three sources of inspiration. The first was the 1961 National Literacy Campaign; the second was the influence of their heroes, José Martí and Che Guevara; and the third was the government's commitment to making education a life long process for everyone. Using a holistic approach this chapter has revealed how education in Cuba was not only symptomatic of the society it served (MacDonald, 1996:118), but also that it was indeed sucked into the radicalising process (Richmond, 1989:149).

> *"The educational revolution and its current and prospective development are inexplicable without reference to the wider processes of societal change"* (Richmond, 1989: 372)

Chapter 6

The *Casas Adaptadas*

Chapter 6:

The *Casas Adaptadas*

6.1 Beneath the Surface - Introduction

> *"Significant learning is by no means confined to schools or to 'educational facilities' as they have been traditionally conceived. 'Learning environment' takes on a more positive tone and creates expectations of opportunities for activities and interaction not available in most schools. . The city, with its wealth of resources both visible and invisible, offers incredible opportunities for learning if we would only seek them out."* (David & Wright, 1975:vii – viii)

The study was instigated by the proposition that using houses for educating primary school children in inner city areas can be a suitable alternative solution to building new schools. Based on this initial statement a multiple case study of thirteen primary schools located in houses known as *casas adaptadas* (adapted houses) was carried out in the municipality of Plaza de la Revolución in central Havana in May 1997. The purpose was to test both this original proposition and the subsequent hypotheses that were established in chapter one[1]. The strategy for the analysis of the case studies evolved from the research design as outlined in chapter two.[2] The aim of this chapter therefore is to analyse the data by building an explanation about the case that is based on a series of questions drawn from the theoretical and contextual issues that have been examined in the previous chapters[3].

Whilst the urban and architectural development of Havana were outlined in chapters four and five, due to the diverse nature of the municipality specifically chosen for the study, a more detailed explanation of the overall contextual environment is given in section 6.1.1 followed by the unique characteristics of each of the zones in which the schools are located in section 6.1.2. As the study is focused on contextual issues the purpose here is to give the reader both a feeling for, and a sense of place. Section 6.1 concludes with an overview of the statistics of the schools studied.

The main body of this chapter is divided into three sections that each address specific issues relative to the research questions and propositions. Having set out to determine if there is any value in using houses for primary educational purposes section 6.2 first clarifies the meaning of the various terms used in the evaluation process. By relating the main functions to the facilities and the resources required to fulfil the functions, the units of analysis for examination are identified. Section 6.2 then responds to the questions:- do the *casas adaptadas* provide value? and what is their value in terms of the user's satisfaction of needs relative to the resources used in achieving that satisfaction? Section 6.3 develops these questions further by examining the degrees of quality that are provided by the resources needed to carry out the functions. Instead of a

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[1] These were:- first, that adaptive reuse is a response to contextual needs that are driven by political events, economic policies and social issues and that these contextual functions are the dominant influence on adaptive reuse and they apply to both developed capitalist countries and to less developed communist countries irrespective of whether the policies and issues differ in their aims and objectives.; secondly, that there is a contradiction between the established theoretical principles of architectural design with regards to the elements of type, form and function when applied to adapted buildings.

[2] The intention being to follow the theoretical propositions and subsequent research questions that led to the case study in the first instance (Yin, 2003:111).

[3] The aim is to avoid the potential problem with this approach to case study analysis (i.e. explanation building) of drifting away from the original topic of interest by using *"constant reference to the original purpose of the inquiry"* (Yin, 2003:120 -122).

descriptive appraisal of each individual school the purpose of these two sections is to ascertain the factors common to all the schools that have led to their success in terms of value, but failure in terms of quality.

Whilst the analysis indicates that houses can be used for primary educational purposes, their success depends on a variety of factors that need to be approached systematically. Section 6.4 therefore establishes the criteria required for the implementation of a strategic development plan suitable for selecting houses that would be suitable for the function of educating children. Then, using the existing *casas adaptadas* as examples, a selection of alternative ways to improve both the value and quality of the buildings are explored. The purpose is to demonstrate how the current situation could be resolved. The chapter concludes with a summary of the case study investigation.

6.1.1 The Urban and Architectural Characteristics of Plaza

> *"The growth of the modern 'reparto'[4] was characterized both by a growing social and professional specialization and by the mushrooming concept of a individual life-style .... [that] is illustrated spectacularly by the history of El Vedado .... These urban units serve as basic place references in Havana, where the feeling of belonging seems unaffected by the existence of the administrative system of the 'municipios'. Numerous districts in 'barriadas', more or less coherent areas, take no account of administrative boundaries. .... Each of these districts gained a dominant sociological feature .... either because [it] became identified with a specific social and professional sector, ... or because it became a reference through a given social class. .... The transition from one district to another is often so gradual as to be imperceptible. Yet, the boundaries I mention do exist."*
> (Menocal *et al*, 2001:14)

The municipality chosen for the study evolved over a relatively short span of years but, as the above quotation implies, it comprises several diverse entities that evolved during its development. This section elaborates on these entities by examining the urban and architectural context of the zones and buildings identified for analysis. The aim is to give a feeling for the ambience of the different zones and the character of the houses.

Plaza lies to the west of Centro Habana and La Habana Vieja. It is bounded on the north by the Malecón and the Florida Straits and on the east by the Almendares River beyond which lies the municipality of Playa. The terrain is mainly flat along the coastal area rising slightly from Ave.13 southward to 50m above sea level at the Castillo del Principe. During severe storms and hurricanes the coastal area is prone to flooding. Figure 6.1 shows the study area with each of the zones highlighted. The most significant feature that differentiates Plaza from the older parts of the city is the direction of the urban grid (north-west to south-east) that was set out in the late 1890s[5]

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[4] This roughly corresponds to a suburban private housing development (Menocal *et al*, 2001:14).
[5] See Figure 4.42 (Plan of Havana and Surrounding Area in 1898) in Chapter 4.6.3.

and is considerably larger than the older municipalities. The blocks (*manzanas*) are, on average, 109m x 106m, thereby creating a completely different atmosphere to the area. The scale is further enhanced by the *"calzadas"* (boulevards). Whereas most streets and avenues are between 7m and 11m from kerb to kerb depending on their importance, the *calzadas* are much wider.[6] The central reservations separating the six lanes of highway are individually landscaped representing a new vision of the future for the city at the turn of the century.

Figure 6.1 Municipality of Plaza de la Revolución – Area of the Study Zones
Source: based on Baragaño & López (1993)

The building line was set back from the pavement boundary by some five metres.[7] Trees and shrubs create a very different appearance, both colourful and clean, compared to that of the older parts of the city. The blocks also have a 1.7m wide pavement adjacent to the boundary wall and then a 1.8m wide grassed and landscaped area up to the kerb-side (Figures 6.2 and 6.3). In some streets this strip is lined with trees that offer shade and soften the ambience of the area.

The urbanisation of Plaza began in the latter half of the 19th century almost three hundred years after the first settlements in La Habana Vieja. In 1859 the area west of Paseo (zones three and four) known as El Carmelo was designated a *reparto*.[8] This was followed in 1860 by the sector known as El Vedado (meaning the 'forbidden area') that extends east, from Paseo to the Hotel Nacional (zones one and two). Vedado is the name commonly used for the coastal area from zone 1 to 4. By 1870 only about twenty houses existed, mainly along Linea[9]. Towards 1880 the area constituted one of the suburbs of Havana city and was described as *"a reliable place in the country; thick woods; trees; wild, etc."* (author's translation of an inscription on the facsimile *Plano de La Habana* by D. Esteban T. Pichada, in Museum of Plaza). Growth was slow at the start of the twentieth century. The area was still very rural and used as a place for leisure and social activities *"from which the club culture was to grow at a later stage of urbanization"* (Menocal *et al*, 2001:84).

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[6] For example, Calle 'G' (Ave. de los Presidentes) and 'Paseo' (la Alameda) are over 20m in width.
[7] Unlike Habana Vieja and Centro Habana where the majority of houses are built on the boundary of the pavements.
[8] A *"reparto"* is a designated area of planned urbanization – mainly for projects composed of detached houses. This is in contrast to the *"barrio"* representing a very close knit quarter – mainly consisting of terraced houses, as in the older part of the city.
[9] Linea (Calle 9th) derives its name from the electric tramline built in 1900 that ran along the street connecting Vedado to the city.

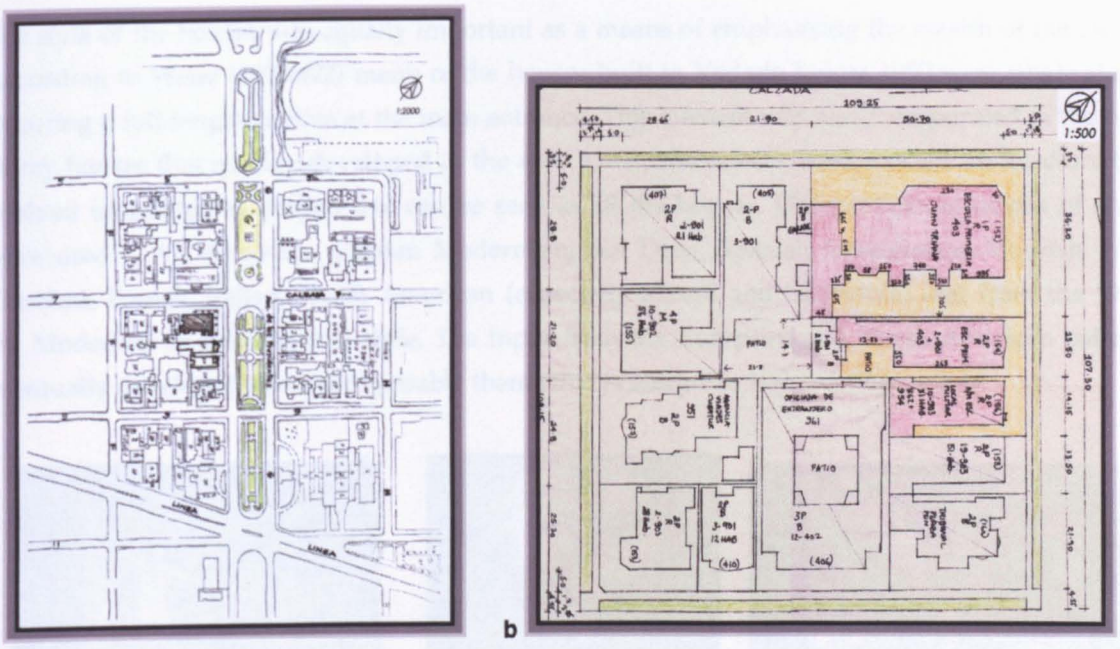

Figure 6.2 a) Location Plan and b) Plan of a Typical *"Manzana"* - School No.2.16 Juan Triana
Source: Office of the DAU, Plaza de la Revolución (handcopied by Author)

Figure 6.3 Typical Edge Landscaping of the Urban Blocks in Vedado

Economic growth and an expanding ex-patriot population[10] from the 1900s onwards led to a property boom. It was know as the era of *"vacas gordas"* (fat cows). Whilst the original inhabitants of Vedado represented a society *"descended from a militant, patriotically-inclined generation"* (Menocal *et al*, 2001:84) their successors (the *nouveaux riches*) were financiers, sugar mill owners, developers and industrialists who wanted to display their wealth, not least in the scale and grandeur of their houses. The larger houses, known as *"mansiones"*[11] were constructed mainly along the principal *"calzadas"*. The less ostentatious villas were built in the side streets, particularly in the area between 13th and 21st street. The interiors were equally lavish reflecting the latest developments from North America. Most had more than one bathroom, servants' quarters and kitchens with a pantry in addition to numerous spacious rooms for entertaining.

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[10] *"Between 1902 and 1910 almost 200,000 Spaniards .... emigrated to Cuba"* (Thomas, 1971:497), and *"over one million and a quarter immigrants, mostly Spaniards, had entered the island between 1902 and 1930."* (Thomas, 1971:1100).

[11] Menocal *et al* (2001:89) points out that *"the history of El Vedado's patrician homes .... reflects a sociological revolution in a nation .... drifting by gradual increments from republicanism towards plutocracy .... Illustrated by the triumph of self-made man over money, of unscrupulous merchants over principled patriarchs [this] is one of twentieth-century Cuba's most significant phenomena. And* ***the great homes of El Vedado .... chronicle its changes like a book****"*.

The style of the houses was equally important as a means of emphasising the wealth of the owner. According to Weiss (1996:422) many of the houses built in Vedado before 1900 were single storey featuring a full-length portico at the main entrance. This element was also incorporated in the two-storey houses that quickly developed in the area. Later, the eclectic nature of the architecture that evolved (described in chapter 4.6) can be seen in all the houses. Different combinations of styles were used: - Art Nouveau, Catalan Modernism, Art Deco, Spanish Renaissance, Moorish, Neo-Classical, French, Italian, North American (especially Miami and California) and from the 1940s the Modernist or International style. The input from the European and North American cultures eventually developed into a recognisable theme that is unique to Havana (Figure 6.4).

Figure 6.4 Different Architectural Styles of Houses in Vedado 1900 - 1959
a) Italian - Dr. Albarrán House on Calle 19
b) Neo-classicism - José Gómez Mena House (1927) on Calle 17
c) Eclecticism – Residences on Paseo between Linea and 11th street (c.1936)
d) Streamline – Residence on 25th street between B and C (c.1949)
e) Rationalist - House of Angelina Espina (1939) by Mario Colli on 'A' at Zapata
Source: a) & b) Menocal *et al* (2001:85 &193); c) & d) Engels (1999:13 & 51); e) Rodríguez (2000:118)

The boom of the 1920s in Vedado slowed down substantially during the following two decades. Although some major works continued to be built, internal political issues, economic decline and the effects of World War 2 severely delayed progress. The next new wave of activity in the area took place towards the end of the 1940s such that, by the end of the 1950s, the entire urban organisation of the municipality of Plaza had been completed (Figure 6.5).

Figure 6.5 Aerial Views showing the Development of Vedado
a) Vedado in the 1930s from the Almendares River looking eastwards
b) Vedado at the start of the 1950s before the surge in high-rise buildings
c) Vedado in the late 1950s from the Malecón looking westwards
Source: a) & c) Menocal *et al* (2001:78 & 107); b) Engels (1999:91)

Apart from the existing Colón cemetery, new and recognisable areas with a specific social function developed[12]. These comprise:- the tourist and leisure area; the university and hospital zone; the Civic Plaza; and another *reparto* at Nuevo Vedado (Figure 6.6). As the primary schools are located throughout each of these zones the following section illustrates each of their characteristics.

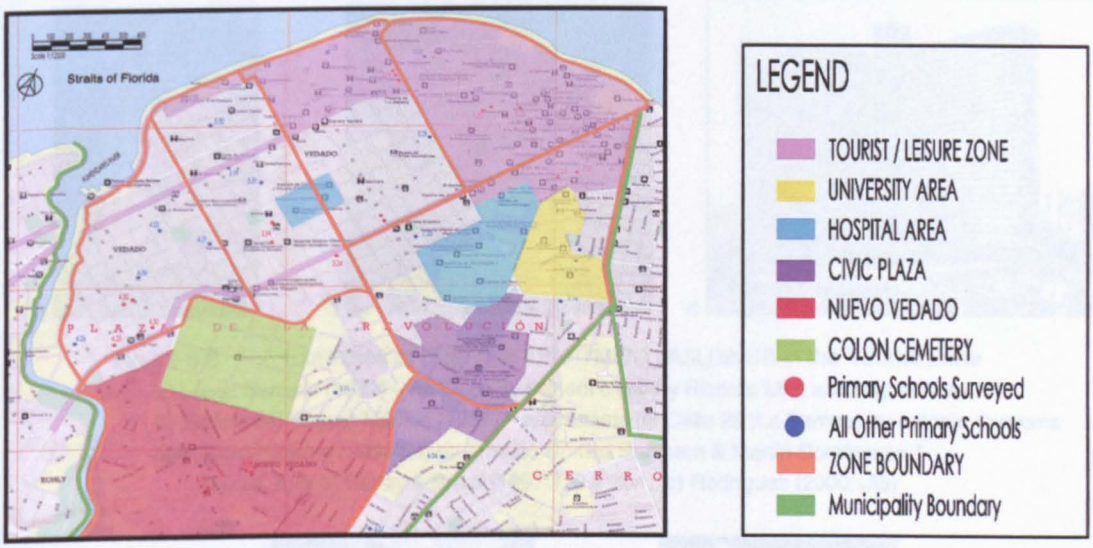

Figure 6.6 Plan of Plaza showing Urban Districts with Specific Functions
Source: based on Baragaño & López (1993)

6.1.2 A Sense of Place

> *"In sharp contrast to the suburban school, which stands alone, unaffected by its neighbors, the urban school does not stand alone and is strongly influenced by neighboring buildings that help create the urban environment. This fact suggests the city school should be planned 'with' other urban facilities and should be closely related to streets, parks, community social and cultural facilities, and to other educational institutions, as well as commercial and government facilities. Cultural, arts or community centers are natural neighbors for schools"* (Brubaker, 1968:72)

[12] These are the districts that Menocal *et al* (2001:14) referred to in the opening quotation of this section.

The 1952 Law of Horizontal Properties (*La Ley de Propiedad Horizontal*) had a tremendous impact on Vedado as developers were actively encouraged to build speculative high-rise apartment blocks for rental (Figure 6.7).

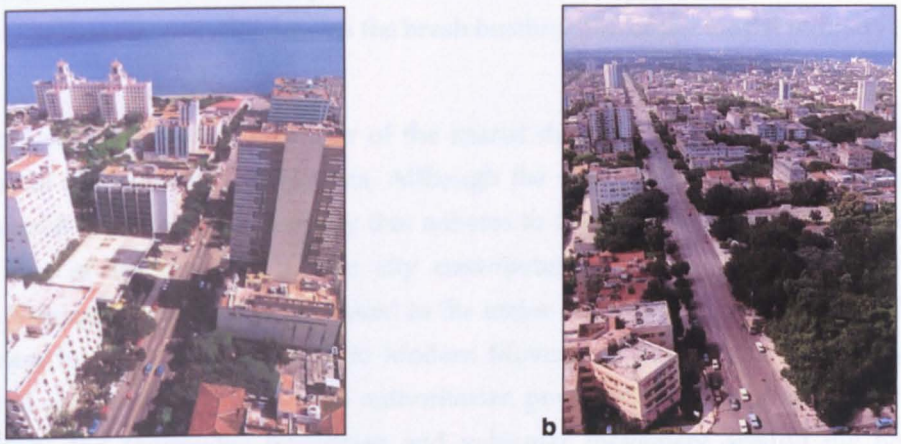

Figure 6.7 Aerial view of La Rampa:- a) towards the Malecón & Hotel Nacional (1930); b) towards Playa
Source: García *et al* (1996:39 and 40)

Figure 6.8 Examples of High-rise APARTMENT BUILDINGS in the Tourist Zone
a) López Serrano (1932) – Art Deco apartment block by Ricardo Mira and Miguel Rosich
b) Edificio del Seguro Médico (1959) – apartments on Calle 23 (La Rampa) by Antonio Quintana
c) FOCSA Building (1954-56) by Ernesto Gómez Sampera & Martín Domínguez[13]
Source: a) & b) Carley & Brizzi (1997:179 & 181); c) Rodríguez (2000:138)

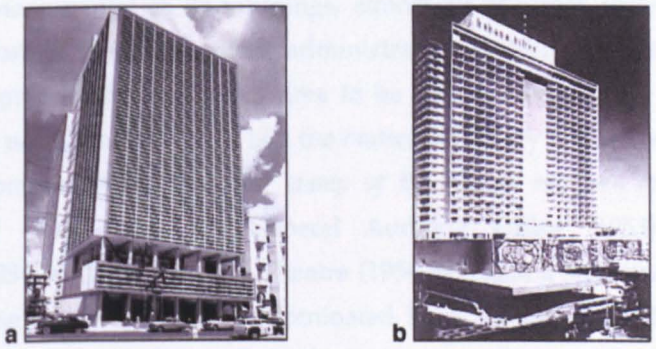

Figure 6.9 Examples of a Modern OFFICE BUILDING and a HOTEL in the Tourist Zone
a) Odontological Building (1953) by Antonio Quintana on 'L' between 21 and 23.[14]
b) Habana Hilton Hotel (1958) by Welton Becket Associates has 21 floors (now the Habana Libre)
Source: Rodríguez (2000:132 &141)

[13] The Focsa occupies the entire block between 17 and 15 between 'M' and 'N'. There are 375 luxury apartments on 28 floor. At the time it was one of the largest reinforced concrete structures in the world.
[14] The *brise-soleil* covers the entire south and west facing facades.

Older houses were torn down and replaced with concrete skyscrapers for hotels, office blocks and residential apartments (Figures 6.8 & 6.9). Whilst many of these were insensitive to the local context, a new generation of Cuban architects sought to blend modernism with a traditional identity. This district straddles across parts of zones one and seven, and continues in a strip along the coast. Five decades later it still remains the brash bustling hub of the tourist industry.

In sharp contrast to the vibrant character of the tourist district, lies the adjacent yet much more subdued area of the University of Havana. Although the style of the individual buildings varies there is an overall neo-classical uniformity that adheres to the original master plan of the area. The location on one of the few hills in the city contributes to its dignified status and peaceful atmosphere. This quiet ambience is continued in the major hospital area in zone seven. These large complexes vary in style from Art Deco to Modern Movement, but like the university buildings their scale and appearance symbolise the authoritarian power of the Republican era (Figures 6.10 & 6.11). Despite the continuous pedestrian and vehicular movement around the hospitals the atmosphere has a pleasant, relaxed quality.

Figure 6.10 The University of Havana
Main Campus Building
Source: Carley & Brizzi (1997:138)

Figure 6.11 Maternity Hospital (1930)
on Av. de los Presidentes
Source: Menocal *et al* (2001:96)

The Civic Plaza is as monumental as its buildings, almost all of which were constructed in the 1950s (Figure 6.12). Most of the government administrative buildings are situated around the Plaza although the original intention for this area to be the new city centre never materialised. Menocal *et al* (2001:102) notes that buildings like the National Library (1957) and the Bank of Social and Economic Development (1958) *"bear the stamp of the Batista regime's favourite authoritarian monumentalism"* whilst others, like the General Auditing Office (1953), the Ministry of Telecommunications (1954) and the National Theatre (1954-59) *"have a modernist design recalling the towers of La Rampa"*. The enormous plaza is dominated by a tall star-shaped obelisk in front of which is the statue of José Martí (Figure 6.13). In the hot tropical climate this large treeless expanse is not conducive to pedestrians and, being void of residential buildings, the area lacks the human activity associated with the other parts of the city[15].

[15] The exception being when rallies are held in the Plaza. I accompanied my Cuban architectural friends on the May Day rally in 1997 when (according to the newspaper *Gramma*) it was estimated that over one million people were in the Plaza.

Figure 6.12 Examples of buildings in the Civic Plaza Area

a) Ministry of Interior (1953) by Aquiles Capablanca showing the *brise-soleil* on the front façade

b) Palace of Justice (1953-57) (Now the Palace of the Revolution)

c) José Martí National Library (1955-57)

d) National Lottery Building (1958) (Now the Central Planning Board).

Source: a) Carley & Brizzi (1997:149); b), c) & d) Rodríguez (2000:180; 181 & 182)

Figure 6.13 Statue of José Martí and the Obelisk (1952) in the Civic Plaza

Source: a) Menocal *et al* (2001:103)

The *reparto* of Nuevo Vedado (zone 5) occupies the southern part of Plaza. From 1949 it developed rapidly in a cohesive manner. *"Socially [it] became the home of a class closely associated with government power, the nouveaux riches of the Batista regime"* (Menocal *et al*, 2001:104).[16] It became an upper middle class area wedged between the wealthiest districts of Miramar and El Country Club to the west and the industrial proletarian area of Marianao in the south (Segre *et al*, 1986:211). Unlike Vedado these houses are a *"pared-down style of the rationalist trend"* (Menocal *et al*, 2001:104)

[16] After the 1959 Revolution, *"whole sections of this population were replaced with astonishing ease by representatives of the rising sectors of the new state apparatus, chiefly military officers and high-ranking functionaries"* (Menocal *et al*, 2001:104).

that proliferated in the 1950s. Though not all the architecture in this area is noteworthy, young (Cuban) architects like Frank Martínez, Max Borges, Manuel Gutiérrez Mario Romañach and Ricardo Porro sought to combine the modernist trend with Cuba's cultural heritage by producing some fine villas that have a distinctly Cuban modernist theme (Figure 6.14).

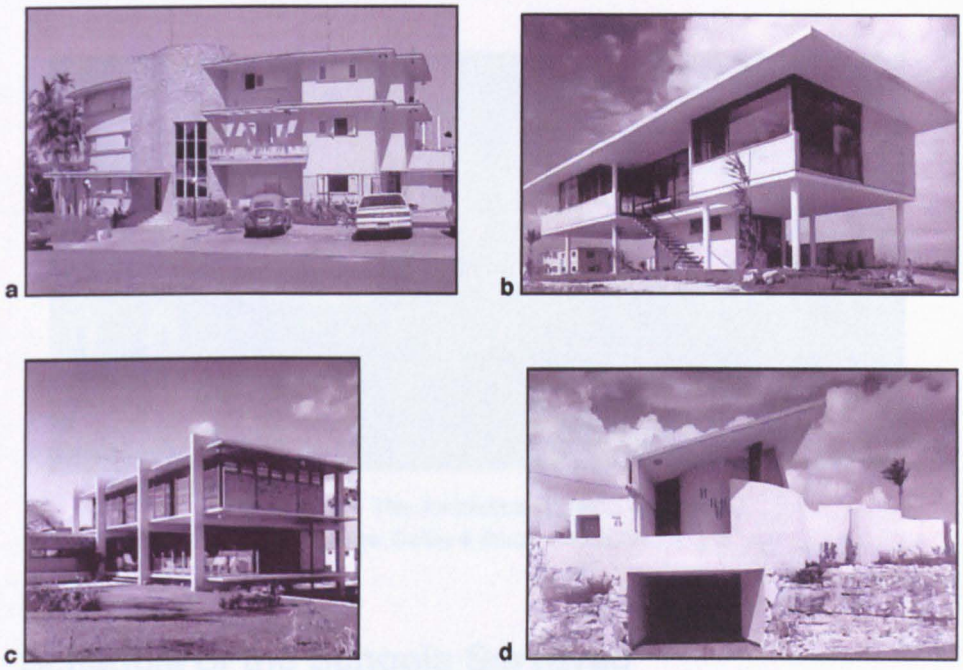

Figure 6.14 Examples of Houses in Nuevo Vedado
a) House of Perfecta García Muro (1951-58) by Lino Hernández [17]
b) House of Emma Justiniani (1954) by Frank Martínez
c) House of Paulino Ingelmo (1954) by Manual Gutiérrez
d) House of Timothy James Ennis (1957) by Ricardo Porro
Source: Rodríguez (2000:151; 152; 155 & 163)

With the exception of the Civic Plaza, nine of the schools surveyed are located in or adjacent to one of the above districts. The remaining four schools lie in the more residential area of El Carmelo (zones three and four). The houses are similar to those in Vedado but the urban environment is much quieter with fewer shops and markets and the overall atmosphere is more akin to a small suburban town than a major city (Figure 6.15).

Figure 6.15 The Quiet Atmosphere in Zones 3 and 4

[17] This house is recognised as being one of the best examples of the "*mambo*" style combining fluid elements reflecting the sensuality of the dance representing an important part of Cuban modernity.

Finally, the Cristobal Colón Cemetery[18] is a dominant feature of the municipality. Originally surrounded by open countryside it does not conform to the grid established in Vedado and Carmelo, as its axis is north-south.[19] Although the Cemetery is a vast area of tranquillity the fact that pedestrians and cyclists use the streets as a through route between Vedado, Nuevo Vedado and the Civic Plaza means that a lively (yet dignified) atmosphere is created (Figures 6.16).

Figure 6.16 The Ambience of Colón Cemetery
Source: Carley & Brizzi (1997:103)

6.1.3 Schedule of the Schools Surveyed

Table 6.1 below represents a summary of the basic statistical information of the schools analysed in the rest of this chapter. Each school has a numerical code indicating first the zone number followed by the school number. Under the name of the school is the approximate date of construction of the original house. The third column shows how many houses the school actually occupies. In some cases these are adjacent houses, in others they may be one or two blocks distant. In addition there is a column entitled 'capacity'. This represents the number of pupils that the authorities consider the building(s) is capable of holding.

Adjacent to this, is a column with figures in red indicating that, in all but one case, the buildings are over capacity. The subsequent analysis will highlight the problems that this causes. The remainder of the schedule indicates the number of classrooms, teachers, the total number of pupils and the number of pupils in each grade at the time of the survey.

Since this schedule represents only the schools that were investigated in the case study, a full list of all the schools in the municipality of Plaza de la Revolución has been included in Appendix E.

[18] Designed by the Spanish architect Calixto de Loira and constructed between 1871 and 1886 it is one of the largest in the western hemisphere containing over 800,000 tombs and monuments. Built on the scale of a Roman camp, 800m long x 650m wide, it has a grid plan of one central crucifix subdivided into four smaller crucifixes that are further subdivided into streets.

[19] Consequently, as the area grew in a southerly direction Ave.12 terminated at the main entrance to the cemetery, whilst Calle 23 and Zapata were forced to swing around its north western corner. South of Zapata the grid structure becomes more irregular.

Table 6.1 Statistics of the Schools Surveyed in May 1997

Ref.	Name of School Approximate Date of Construction	No. Buildings	*** Class rooms	*** Teachers	**** Capacity	% Over Capacity	*** Total No. Pupils	Pre-School	1	2	3	4	5	6
1.12	Hermanas Girald 1930	1 *	13	13	**350** *214*	9% *78%*	**382**	31	70	62	60	52	57	50
1.20	Orlando Pantoja 1935	2	20	20	402	49%	**601**	0	91	86	75	93	128	128
2.13	Ignacio Agramonte 1930	2	9	9	**210** *156*	6% *42%*	**222**	0	29	45	41	48	30	29
2.16	Juan Triana 1930	3	16	16	**312** *293*	44% *54%*	**451**	30	73	88	66	63	68	63
3.24	Pedro Portuondo 1915 -1920	1 *	11	11	223	41%	**314**	0	60	56	53	38	60	47
3.34	Frank Hidalgo Gato 1930s	2	15	15	374	12%	**420**	28	68	82	53	61	57	71
4.25	Rene Ramos Latour 1945	1	8	9	178	10%	**195**	0	48	27	30	35	27	28
4.30	Tomas Romay 1930s	3	14	14	342	6%	**364**	28	56	74	45	50	54	57
5.04	Combatientes de Bolivia 1950s	3	22	22	**396** *293*	37% *85%*	**541**	33	112	100	79	68	79	70
5.10	Gustavo y J. Ferrer 1950s	3	19	19	**608** *352*	(3%) *68%*	**592**	0	111	98	96	97	94	96
7.01	Adalberto Gomez Nunez 1930	3	13	13	**350** *249*	13% *58%*	**394**	29	63	69	55	64	51	63
7.08	Gonzalo de Quesada 1930	2 **	19	19	**425** *203*	24% *160%*	**528**	0	42	63	104	100	123	96
7.23	Pedro Albizu Campos 1920s	1	12	12	280	4%	**290**	0	32	47	54	56	49	52
	Total Number of Pupils						5,294							

Sources:- *** Total Pupil and Class Grade statistics provided by the Head Teacher of each school – these differ slightly from the figures provided by both MINED and the Education Office Plaza

Capacity :- **** Bold figures supplied by the Plaza Education office, April 1997

**** Italic figures provided by Centro de Informatica, MINED, 15 July 1996

Notes:- * includes annex building on same site: ** 2 buildings on the same site

Figures in RED are author's calculations relating the actual number of pupils to school capacity

6.2 The Value of the *Casas Adaptadas*

This section explains how the *casas adaptadas* provide 'value' by fulfilling the basic needs that the user requires for educating children. Through the examination of the key components that perform the main functions common to each school the aim is to show how a degree of satisfaction has been achieved using the minimum amount of resources. This means looking beneath the surface, beyond the cracked walls and faulty light fittings, to what the purpose is, and to what it does. This in turn means understanding the functions as much as their environment. The analysis is drawn from the data obtained during the field study and from various interviews

with the education authorities at both MINED and the municipality of Plaza in July 1996 and April 1997.

The key resources required to educate children comprise the following three main components:- a physical space within the urban environment (location); facilities (the building and site) in which the main functions can be carried out; and staff and materials to accomplish these functions. The components are the same as those required for any primary school. Although the difference here is that the buildings in this study are houses not schools, all three components need to be assessed because value relates to the function not the product. Hence section 6.2.2 examines the location of the *casas adaptadas* and section 6.2.3 then reveals how the staff and materials make a significant contribution to the value of the schools. The remaining sections focus on the specific areas within the houses that provide the key functions that were previously identified.

As the emphasis here is on **value** not quality, section 6.2.1 explains the approach used in the evaluation process. The question to be answered is, do the *casas adaptadas* provide the facility for performing the functions required, not, how well do they do it? It is therefore not a comparative exercise especially since the houses have not been physically adapted to suit their new function. In this respect compliance with the standard building codes for primary schools (Cuba, MINED, 1983a) cannot be applied at this stage[20].

6.2.1 The Value Analysis Approach

> *"Value can be defined as the relationship between the satisfaction of needs and the resources used in achieving that satisfaction."* (BSEN, 2000:13)

Within the parameters of this research the European Standard definition of 'value', quoted above, is used. The first task is to clarify the key components in the above statement. 'Need' is defined as *"what is necessary for, or desired by the user [and] ... the total need generally comprises many different components"* (BSEN, 2000:14). These needs are *"satisfied, in whole or in part, by the functions performed by the subject, product or service [and] .... can be objectively described by certain functional requirements"* (BSEN, 2000:15). In this study the user is the Ministry of Education in that the policies of the Cuban Government require all children to receive formal education. Hence the user's need in function terms is to educate children. The product or unit of analysis is the facility or house that has to satisfy the function of providing an environment suitable for educating primary school children. The aim is to identify and quantify the existing value by establishing the hierarchical order of functions that can then be evaluated. Since the value is represented by an equation that is balanced on the other hand by the resources used in achieving the satisfaction, the resources can be identified as the facility itself, the local amenities in the municipality that can be used for

[20] The *casas adaptadas* in their existing state do not comply with any of the code requirements. Even in the UK I have experienced that, when the conversion of a building has been completed, it is not always possible to comply with the standard educational requirements, especially regarding room sizes. In Cuba, as in the UK, these codes are intended for the design of new build projects and there is a reasonable degree of flexibility with regards to their interpretation for adapted buildings.

educational purposes, the staff (both academic and non-academic) and materials. Although the research focus is on the building, the following sections explain how the location of the facility and the staff and materials provide a significant contribution to the overall value.

Whilst the basic function of the whole school complex is to educate children, various secondary functions are required to fulfil the overall performance of this task. The areas that perform these functions are identified in Table 6.2. To determine the hierarchy of importance of these functions a standard scoring matrix is used (see Table 6.3)[21]. The scores are then added back into Table 6.2 and the order of importance is established in the right hand column.

Table 6.2 Relating the Main Functions to the Areas, Units of Analysis or Resources

	Main Functions required by the User	Area / Unit of Analysis / Resources	Score	Importance
A	Teach children	Classrooms / local amenities / teachers	10	1st
B	Feed children	Dining area / ancillary staff	4	3rd
C	Provide (hygiene) Services	Toilets / Medical room / staff	3	4th
D	Provide physical activity / relaxation / play area	Playground / local amenities/ staff	9	2nd
E	Accommodate Staff	Administration / Head Teacher's room	1	5th

Table 6.3 Numerical Evaluation of the Functional Requirements

How important ?
4 = Major Preference
3 = Medium Preference
2 = Minor Preference
1 = No Preference / Equal

	B	C	D	E
A	A - 4	A - 4	A - D	A- E
B		B -1	D-2	B-3
C			D -3	C-3
D				D-3

Source: Mudge (1967:111-123) and Dell'Isola (1988:148) adapted by author

This exercise ensures the most important areas are identified for analysis and that these have been selected objectively[22]. The question to be asked in this section is; do the existing areas satisfy the functions required by the user? In sections 6.3 and 6.4 these questions are expanded to:- how well do they meet the requirements and how can the quality be improved? The analysis draws from the user questionnaire, informal interviews, the architectural survey and the documentary research as detailed in chapter two.

6.2.2 Fixed Factors - Location

In chapter 3.3.1 various aspects of change with regards to adaptive reuse of buildings were reviewed. Of these, it was established that the location of the building was the least likely to change. In the case of a primary school, location is a critical factor in Cuba since most of the

[21] Mudge (1967: 111-123) explains the rationale for using this method for establishing the hierarchy of the functions. The success of this procedure has led to its incorporation in the evaluation section of most value studies (see also Zimmerman & Hart, 1982, and Dell'Isola, 1988). In this exercise the responses from the user questionnaire contributed to the scoring.

[22] The outcome of the scoring matrix cannot be predicted and is often unexpected. As it is not possible to analyse everything within the time frame, this method helps to grade the functions in order of importance.

children travel to school on foot. No matter how good a school may be, if it is not accessible within a reasonable walking distance from the pupils' homes it could not be considered as satisfying the need to educate the children. Indeed as chapter 4.5.6 highlighted, this was one of the major criticisms of the schools built under the Batista and Grau regimes. Hence, the first question to investigate is how suitable is the location of the *casas adaptadas* ?

All the primary schools in the municipality are identified on the plan of Plaza de la Revolución. In the most densely inhabited areas (zones 1, 2, 3 and 4) the maximum distance to travel to any school is five blocks, which equates to approximately six hundred metres (allowing for crossing the roads). Such a distance could easily be accomplished within the half hour travel time required by the regulations[23]. The proximity of travel distance is similar in zones 5, 6 and 7 although it is less obvious from the map due to the fact that the schools are located only in the residential areas.

The proximity of the schools to local amenities (such as parks, museums and sports facilities) varies. Due to the nature of the urban fabric of Vedado, most schools are within easy access of a park or green area. As well as the University of Havana, zone seven contains some small museums and the museum of the municipality is located in zone three. With the exception of the two schools in zone five, all the schools are situated within a few blocks of Calle 23 which is a major bus route eastwards into the city centre (La Habana Vieja) and westwards to the municipality of Playa where many of the large mansions along the coastline have swimming pools that are used regularly by the schools for physical education purposes (Figure 6.17). *"The city is a teacher and everyone who has lived in a city knows why"* (Plutarch, quoted in Howe, 1968:9). In Havana, as chapter 5.6.4 explained, the city is considered to be part of the educational environment and the amenities are used by the children from all primary schools (not just the *casas adaptadas*) on a regular basis (Figure 6.18).

Therefore, with regards to accessibility, the locations of the schools are satisfactory and, in terms of urban context, the locations also satisfy the needs of the user.

Figure 6.17 Primary School Children using Swimming Pools at a House in Playa

Figure 6.18 Primary Children in the Prado Boulevard in La Habana Vieja

[23] The maximum time recommended for travelling on foot from home to school is half and hour (Cuba, MINED, 1988:57).

6.2.3 Staff and Materials

> *"Most assessments of the effectiveness of educational facilities focus on the physical aspects of the building and on student achievement. .... These assessments are often contested, since the inclusion of criteria such as teaching-staff quality and user satisfaction can lead to contradictory findings .... and cultural differences affect the way we interpret our environment."* (Drouin, J. 2000, 11)

The above quotation indicates the key to the success of the *casas adaptadas* because the analysis of value is focused on the **function** of educating children. The two most important functions (from Table 6.2) are to 'teach children' and 'provide physical activity'. In value terms therefore the resources used in satisfying these needs are mainly provided by the staff and materials as the following analysis will explain.

No differentiation is made between the number of staff allocated to either the *casas adaptadas* or to the purpose built primary schools.[24] The allocation is based on the number of classes in each school and this is reviewed on an annual basis. Table 6.4 gives a breakdown of both the teaching staff and the non-teaching staff assigned to each of the six primary grades[25] in each school. The optimum number of pupils in each grade is 30-35 although classes of up to a maximum of forty pupils are permitted (Cuba, MINED, 1983:8a). Hence the grades can vary between one, two, three and four form entry. With regards to the teaching staff, each class has a 'form teacher'. For example, in school No.1.20 Orlando Pantoja, there are 86 pupils in grade two giving three forms or classes and consequently three form teachers, but 128 pupils in grade six, giving four classes with four form teachers. In every school visited there was a designated teacher for each form. Most classes had less than thirty pupils in the form for reasons that are explained later.

There is some ambiguity in the section officially described as "Non-Teaching Staff" in Table 6.4 as the auxiliary class assistants, physical education and English (language teaching) staff have an important academic input. The high percentage of hours devoted to physical education[26] in particular for all grades is reflected in the above statistics as every school has at least one member of staff assigned to physical education (with most having two or three staff for this duty). There is normally one auxiliary classroom assistant per form in the first cycle (grades one to four). Almost half the schools had one English language teacher allocated to the second cycle (grades five and six). Of the remaining non-teaching staff illustrated on the schedule two categories are of particular interest[27]. The first is that all but two of the schools had a designated librarian and the second is that all but one had a resident speech therapist to work with the children on a one to one basis. Most schools had two security watchmen in addition to the maintenance and cleaning staff. As all meals are prepared off site and delivered to the premises each day the role of the kitchen staff comprises serving the food on trays and washing up afterwards.

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[24] Notes from discussion with Director Barbosa, MINED, July 1996.
[25] Not all schools have a kindergarten or pre-school form.
[26] As illustrated in Table 5.13 in chapter 5.6.4.
[27] No statistics were given for the role of the *Trabajadora Social* (social worker). The reason for this was unclear but it appeared to be because their duties are more of a pastoral than academic nature (see chapter 5.6.4).

Table 6.4 Schedule of Teaching and Non-Teaching Staff in Each School in 1996-97

1996-97		Teaching Staff								Non- Teaching Staff								
Zone. Ref.	Name of School	Total No. Teachers	Pre-School	1	2	3	4	5	6	Auxilary Class Assistants	Physical Education	English	Medical: Speech Therapy	Library	Cleaners; Caretakers; Security	Kitchen : Dining	Office Administration	Total No. Non-Teaching
1.12	Hermanas Girald	13	1	2	2	2	2	2	2	9	2	1	1	1	5	3	1	23
1.20	Orlando Pantoja	20	0	3	3	3	3	4	4	13	2	1	1	1	6	3	2	29
2.13	Ignacio Agramonte	9	0	1	2	2	2	1	1	6	2	na	na	na	6	4	1	19
2.16	Juan Triana	16	1	3	3	3	2	2	2	11	2	1	3	1	6	3	1	28
3.24	Pedro Portuondo	11	0	2	2	2	1	2	2	10	2	na	1	1	6	3	2	25
3.34	Frank Hidalgo Gato	15	1	2	3	2	2	2	3	9	1	na	1	1	4+	3	1	20
4.25	Rene Ramos Latour	9	0	2	1	2	2	1	1	6	1	na	1	1	4	2	1	16
4.30	Tomas Romay	14	1	2	3	2	2	2	2	10	2	na	3	1	6	4	2	28
5.04	Combatientes de Bolivia	22	1	4	4	3	3	4	3	9	3	1	1	1	8	4	1	28
5.10	Gustavo y J. Ferrer	19	0	4	3	3	3	3	3	na	3	4	1	1	na	na	na	9
7.01	Adalberto Gomez Nunez	13	1	2	2	2	2	2	2	12	2	1	1	1	8	4	1	30
7.08	Gonzalo de Quesada	19	0	2	2	4	4	4	3	12	3	na	1	na	6	5	1	28
7.23	Pedro Albizu Campos	12	0	2	2	2	2	2	2	12	2	na	3	0	3	2	1	23

Source:- Total Pupil; Class Grade and Non-Teaching Staff statistics provided by the Head Teacher of each school
Note: - These differ slightly from the figures provided by both MINED and the Education Office Plaza

In terms of material resources, these are very basic but adequate for the purposes. Books and learning materials for the children are provided by the Ministry of Education to accommodate the standard curriculum and are the same for all schools. Due to the shortage of paper in Cuba during the Special Period, there was a noticeable scarcity of writing materials and notepads for pupils, but this problem existed everywhere, not just in the schools.

Figure 6.19 Library and Ludoteca (School Nos. 1.12; 1.20; 1.20)

Nevertheless, most schools had a designated library area that was reasonably well stocked. Although the books appeared old and musty this was probably due to the climate since none of the areas was air-conditioned. Again this phenomenon is not restricted to schools as the author experienced a similar situation in most offices, including MINED. In addition to the library some schools had a 'toy library' (*ludoteca*) where a wide variety of toys could be borrowed by the children (Figure 6.19). The classrooms contained either tables with separate chairs or chairs with a fold-down writing flap. These were very basic being made out of steel reinforcement and plywood. Nevertheless in every class every pupil had a place to sit and work, albeit in rather cramped conditions.

Finally, the Head Teacher of each of the schools confirmed that the attendance, progression and completion rates for each year (grade) was satisfactory. The low staff:pupil ratio, the quality of both teaching and non-teaching staff and the equipment in the schools surveyed provide good value because they fulfil the functions they are required to perform to a degree that satisfies the Educational Authorities. If these resources had not been satisfactory it is doubtful that the *casas adaptadas* would have lasted beyond the first decade. Hence, these are major contributing factors to the success and continued use of the *casas adaptadas*.

6.2.4 Classroom Facilities

The function of the classroom is to provide a facility in which to teach pupils and it is the most important component in the school. The question is; do the classrooms in the *casas adaptadas* satisfy this function? To answer this it is necessary to examine the secondary functions that the rooms need to perform. A description of these functions is listed below[28].

a) Assemble Pupils – the average number of pupils in a class is normally thirty. Each grade retains its classroom for the academic year for the teaching of the formal subjects[29]. In all the schools visited most taught lessons took place during the mornings. This means that each school requires a designated classroom for every form.

b) Orientate Pupils - the system of teaching is based on the traditional formal method. Pupils must be able to see both the teacher and the blackboard at the front of the room[30].

c) Provide seats and writing surfaces – every pupil must be able to sit down and have a writing surface on which to work during the lessons.

d) Provide light and ventilation – all rooms must have natural light and ventilation. Artificial lighting is also needed depending on the orientation of a room and the time of day, year

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[28] The National Building Code for Primary Schools NC 53-90 details all requirements for classrooms (Cuba, MINED, 1983b: 7-36).
[29] The subjects taught in each grade are scheduled in Table 5.13.
[30] Classroom layouts are specified in the Codes (Cuba, MINED, 1983: a & b). The layouts follow the traditional pattern in which all the pupils' desks face towards the teacher's desk and blackboard.

and weather. Mechanical ventilation is not a normal requirement in Cuban schools and it would only be provided in exceptional circumstances.

The survey revealed that in every school all the pupils were accommodated in designated classrooms for each grade and form entry; that in all the classrooms visited the pupils were orientated towards the teacher and blackboard; and that all the pupils were provided with seats and writing surfaces (Figure 6.20). Every room had at least one window providing some natural light and ventilation, and suspended fluorescent light fittings were the most common form of artificial lighting, albeit that these did not always work. Within the given parameters the classrooms do comply with the user's requirements for educating the children.

Figure 6.20 Examples of Typical Classrooms (School Nos. 1.12; 3.24; 4.25)

The fact that the classrooms are not only undersized but also overcrowded and the building fabric is in poor condition are qualitative judgements relating to the questions how well do the classrooms perform and how much satisfaction do they provide? These are analysed in section 6.3.1. However, this section shows why it is precisely because the classrooms provide all the functions required to facilitate the teaching of pupils with the absolute minimum amount of resources that the *casas adaptadas* continue to be used for primary school education.

6.2.5 External Areas

> *"Children spend as much time in the playground as they do in the classroom."* (Friedberg, 1968: 227)

The function of the external play area is to provide space for physical activity, relaxation and play[31]. This area was ranked as the second most important element in the school, after the classrooms. In response to the question, 'how important is the external space of your school?' forty-four out of forty-nine responses (90%) ranked this area as 'very important'. Analysis of the

[31] The National Code (NC 53-85) details the requirements for the external areas of primary schools (Cuba, MINED, 1983c: 37-43).

various sections of the user questionnaire also revealed that, whilst not everyone answered every question, the response to the questions in the section on the external area was noticeably high. Reasons for the focus on the external space can in part be attributed to the climate and the culture. However, the absence of a place of assembly, like a gymnasium or hall, could be another factor. Given that none of the *casas adaptadas* has a room big enough in which to assemble more than one class at a time the only other possibility is to use the external area for this purpose. Hence the need to 'assemble pupils' represents another function that this space is required to accommodate.

Table 6.5 External Space available for Each School

Zone. Code	School	Small area on site	Large area on site	Large area adjacent	Large area nearby	Notes
1.12	Hermanas Girald	1	0	0	0	
1.20	Orlando Pantoja	1	0	0	0	
2.13	Ignacio Agramonte	1	0	0	1	
2.16	Juan Triana	1	0	0	0	'G' boulevard
3.24	Pedro Portuondo	1	0	0	2	opposite
3.34	Frank Hidalgo Gato	1	0	0	1	Park on 17
4.25	Rene Ramos Latour	1	0	0	0	
4.30	Tomas Romay	1	0	0	0	
5.04	Combatientes de Bolivia	1	1	2	0	
5.10	Gustavo y J. Ferrer	1	1	0	0	
7.01	Adalberto Gomez Nunez	1	0	1	0	
7.08	Gonzalo de Quesada	1	0	0	1	use Saul Degado
7.23	Pedro Albizu Campos	1	0	0	1	use 7.01

Does the external space fulfil the above functions? Unlike the classrooms, the answer varies from school to school. Table 6.5 lists the external space available for each school. All of the houses have a small patio area that can be used for play, exercise and relaxation by a limited number of pupils. However, the shape of most of these spaces is unsuitable for formal games that the older pupils in cycle 2 play. Figure 6.21 illustrates how cramped these areas are.

Figure 6.21 Examples of External Patio Areas (School Nos. 7.23 & 3.24)

To accommodate large numbers of pupils much bigger areas are required, but only three schools have such a space within or adjacent to the property. In some respects the fact that two of these are in Nuevo Vedado (zone 5) is surprising as the character of this area is very compact. The spaces available comprise empty plots adjacent to the school where houses either were not built or where they have been demolished. In the case of Adalberto Gomez Nunez (No.7.01) in zone 7 the surface of the playground indicates that the area was once occupied by a building since demolished (Figure 6.22).

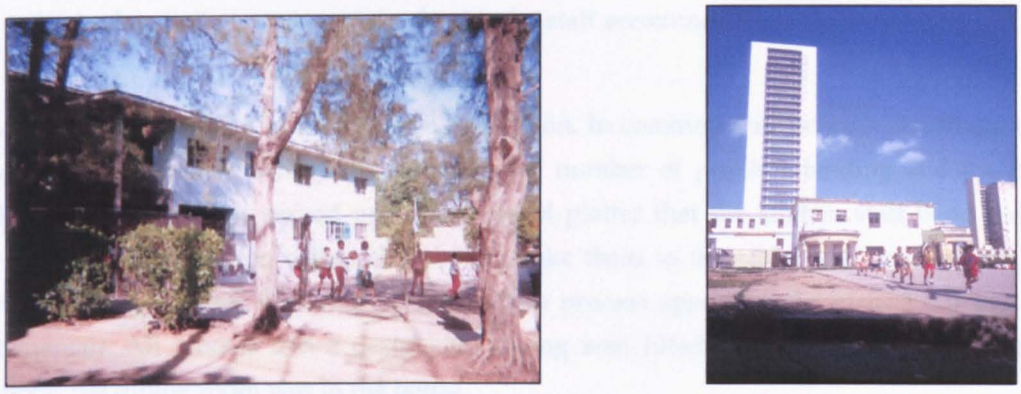

Figure 6.22 Playground Areas Adjacent to the School (School Nos. 5.04 and 7.01)

Of the remaining ten schools only three (Nos. 2.13; 3.24 and 7.23) have access to large hard surfaced play areas within two blocks distance from the main building (Figure 6.23). A further two schools (Nos. 3.34 and 7.08[32]) use nearby public parks for exercise areas. Pupils in the remaining schools have to use either public parks or vacant plots that are more than two blocks distance from the school. In one instance, at Tomas Romay (No.4.30), an adjacent quiet cul-de-sac was used for a physical exercise class[33]. Finally there was a distinct absence of a grassed play area in all schools. This is considered desirable by some staff and it is a code requirement. However, very few purpose built schools in the inner city municipalities had what could pass for a grassed playground as most of these were reduced to weeds and dusty soil.

Figure 6.23 Play Areas nearby Schools (School Nos. 2.13 &3.24)

In summary it appears therefore that the external playground facilities contained within the boundary of each school do not adequately fulfil the functions required. However, the

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[32] Gonzalo de Quesada (No.7.08) also uses the facilities of another school, Saul Delgado that is located nearby; and Pedro Albizu Campo (No. 7.23) uses the playground of No.7.01 (Adalberto Gomez Nunez) that is located opposite.

[33] At the 1998 Trialog Conference in Havana, when I implied this was a 'weakness', one delegate pointed out that children (especially in England) play football in the streets. So long as there was no danger from traffic, this should be regarded as 'normal'.

accomplishment of the functions is made possible through using the resources in the local urban environment. It may not be an ideal solution, but it is an innovative and practical compromise to resolving the issue.

6.2.6 Ancillary Areas

This section examines the value of the three lesser ranking areas, two of which (the dining area and the toilets) relate to the pupils and the third is the staff accommodation.

The dining area ranked third in the function evaluation. In common with schools elsewhere meals are served in two or three sittings according to the number of pupils attending and the places available. The entire meal is served up on one metal platter that the kitchen staff hand out at a counter or table. The children collect the platters, take them to the tables and return them once they have finished the meal (Figure 6.24). The whole process appears to be carried out in a very efficient manner. All schools had a designated dining area fitted out with tables and chairs. In some schools the dining room was in the house.

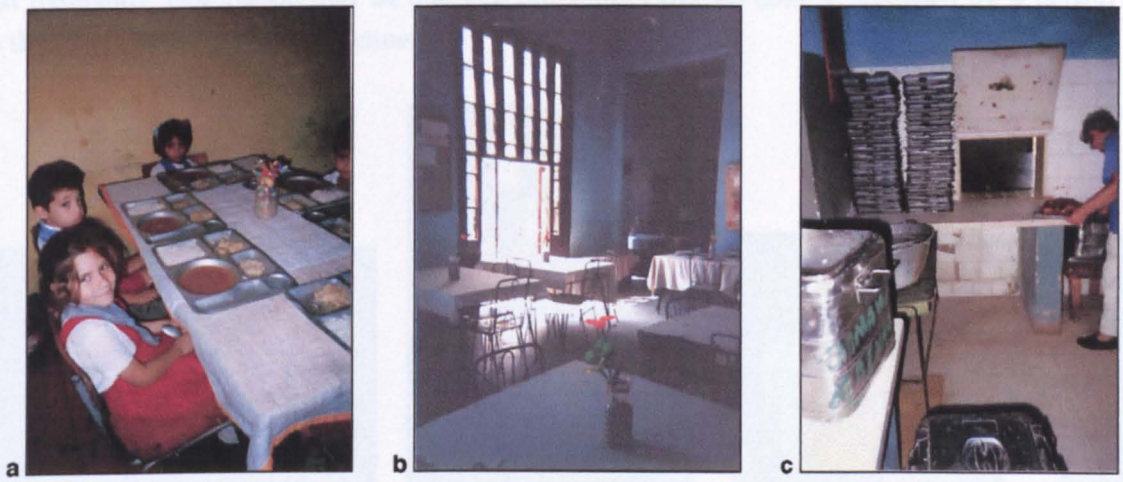

Figure 6.24 a) Lunch (No.2.13); b) Dining Area (No.7.01); c) Kitchen (No.4.30)

Figure 6.25 Dining Area located in Former Garage (School Nos. 5.10 & 1.12)

In other schools where the garage was used for this activity there was a noticeable lack of light and ventilation (Figure 6.25). However, consideration should be given to the fact that the pupils

only spend an average of half an hour in the dining room and that the conditions are not unacceptable given these circumstances. In term of fulfilling the function of providing a space in which to feed the pupils all the schools meet this requirement.

The fourth ranking area was that of the toilet facilities. Toilets blocks as such do not exist. What passes for a toilet facility in each of the schools are the bathrooms of the house comprising a bath,[34] one water closet and sometimes a basin (Figure 6.26). Hence the number of water closets and wash hand basins is equal to the number of bathrooms in the house. In a few schools additional water closets have been located in storerooms. Nevertheless, irrespective of quality and code requirements, the number of appliances falls short of even an acceptable level for a one-form entry school of 180 - 240 pupils. The facilities are also shared by staff and pupils.

Another problem that many schools face is lack of running water due to poor maintenance. Hence, either the baths are filled with water or buckets of clean water are placed in the bathroom for the children to wash their hand. The smell in these areas is decidedly unpleasant which is a cause for concern as the bathroom often opens directly off the classroom rather than from a corridor or hallway. Personal observation during the survey visits revealed that these facilities are not used that frequently. One reason may be that in a hot, humid climate there is less need for a person to go the toilet as often as in a cold climate.

Figure 6.26 Bathrooms used as Toilet Areas (School Nos. 1.12; 2.16; 3.24)

Although classes for the cycle one pupils finish at lunchtime most children stay for lunch and continue with the outside activities in the afternoon. Some even remain on the premises until collected by a parent which may be as late as 6.00pm. Given all these circumstances the toilet facilities in all the schools must be considered as unsatisfactory for the function required.

The administrative areas in most schools comprised one room for the Head Teacher[35]. Sometimes this was shared with the Deputy Head and/or a secretary (Figure 6.27). These areas are of

[34] In some cases the baths have been removed. Where they remain, they are used to store water.
[35] In one school (No.3.34) the Head Teacher had to use a screened-off space in the entrance lobby as no other room was available.

adequate size if somewhat sparsely furnished. Nevertheless most can accommodate the functions to be performed by the Head Teacher successfully.



Figure 6.27 Head Teacher's Office Area (School Nos. 3.24; 4.25; 4.30)

6.2.7 Summary of the Value of the *Casas Adaptadas*

The outcome of a value analysis study is frequently the least anticipated and often contrary to the expected conclusions. This is usually because the focus of the study is **on the function** that the building needs to perform and **not on the building fabric** *per se*. Previous chapters have already illustrated that a building is not a prerequisite for the function of educating children.

The primary schools surveyed in this study have shown that children can be educated successfully in buildings that have never been adapted for that purpose. The reason why the *casas adaptadas* continue to be used as primary schools is because they succeed academically. This is mainly due to the high staff to pupil ratio as well as the quality and diligence of the staff as explained in section 6.2.3. The fact that the classrooms can (just about) accommodate all the pupils in each form is also a contributing factor. Whereas the external play facilities for the majority of the schools do not appear to be adequate, the local urban amenities have been utilised for this function. With the exception of the toilet facilities (that still provide the required function but not to a satisfactory level), the other areas examined (dining room, kitchen, head teacher's office and library) all satisfy the user's needs with the minimum amount of resources available.

In pedagogical terms the *casas adaptadas* can be seen to provide value that parallels the approach to educating children described by Brubaker (1968), Friedberg (1968), Howe (1968), McDonald (1968), Toffler (1968), David & Wright (1975), Sommer & Becker (1975), Alexander *et al* (1977), Konopko (2000), Jilk (2001) and Nair (2001). The fact that around 7,364 primary school pupils (or fifty-one percent) of the total number of pupils in the municipality are taught in *casas adaptadas* indicates the value of their contribution to the educational system (Dale, 1998:1).

In architectural terms the *casas adaptadas* also fulfil their function of providing the necessary facilities for educating children. Even though the conditions are very basic and sometimes below the normal minimum standard currently used for assessing schools this does not detract from their value with respect to both the users' and Government's needs, and the resources available.

6.3 Degrees of Quality

The aim of this section is to interpret the results of the survey with regards to the degree of quality and user satisfaction provided by the *casas adaptadas*. The first objective is to evaluate the main function areas in order to establish if there are any problems or concerns. Since all the key areas, apart from the toilets, were capable of performing their functions successfully, the questions to be resolved are: How well do these areas satisfy the users? Could the degree of satisfaction be improved? In terms of resources (physical and financial), what would be needed to improve the overall quality and value of the facilities? The following analysis is a descriptive interpretation of the results obtained from the evaluation of both the user questionnaire and the architectural survey. The purpose is not to provide solutions but to identify the areas that require resolution and further investigation within the strategic development plan that is discussed in section 6.4. Figure 6.28 shows theoretically that not only can the overall value be improved utilising the same resources, but that even a small increase in resources can result in much more satisfaction. Due to the lack of finances available for education in the 1990s (described in chapter five) the objective is to optimise the value of the *casas adaptadas* with the minimum resources, not to seek perfection.

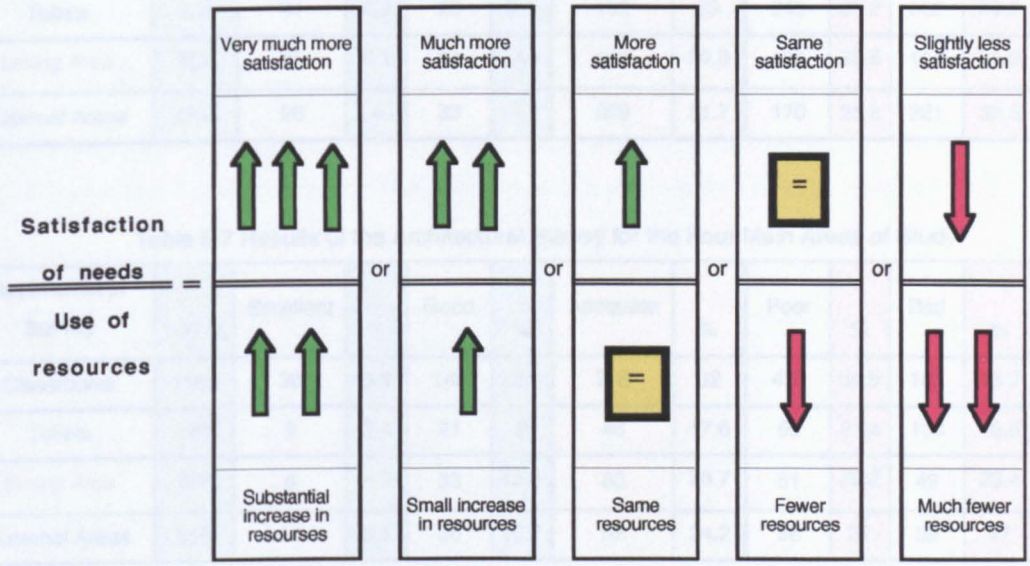

Figure 6.28 The Optimisation of Value[36]

Source: BSEN (2000:14) adapted by author

The evaluation concentrates on the four most important functions that were identified in Table 6.2 in order to increase the satisfaction for the maximum amount of people[37]. Since three of the functions relate to various parts of the building it was considered more appropriate to examine

[36] *"The optimization of Value is achieved by balancing the amount to which needs are satisfied against the resources utilized in so doing. Value may be improved by increasing the satisfaction of need even if the resources used in doing so increase, provided that the satisfaction of need increases* ***more*** *than the increase in the use of resources"* (BSEN, 2000:14).

[37] It is normal value study procedure to concentrate the evaluation phase on the areas that have been identified as having the worst value because within the time constraints of any study it is not possible to investigate every component. Hence, in this phase, the administration/Head teacher's office has been eliminated due to it being the lowest scoring element and also due to the fact that it does not have a direct impact on the majority of the people using the building (i.e. the pupils).

these areas first prior to evaluating the fourth function that relates to the external area. This decision was influenced by the knowledge that two of the building elements (the dining and toilet areas) relate to the secondary functions of a school, and that in most value studies it is usually the secondary functions that return the greatest potential for either improvement or cost reduction.

The user questionnaire (Appendix C) provided the foundation for this part of the investigation as the people who use the premises on a daily basis are the most informed about their surroundings. That is not to imply that there were not concerns about problems of the potential accuracy of the responses (Robson, 1993:243; Hakim, 1992:49). The replies from the user questionnaires in each school varied only slightly revealing that the overall views were fairly consistent as Table 6.6 indicates. Although the architectural survey represented a 'snap-shot' view of the buildings carried out on the day of the visit to each school (Appendix D), Table 6.7 shows that the scoring for each sector are fairly compatible with the scores of the user questionnaire.

Table 6.6 Results of the User Questionnaire for the Four Main Areas of Study

User Survey	TOTAL	Excellent	%	Good	%	Adequate	%	Poor	%	Bad	%	% Poor +Bad
Classrooms	705	35	5	39	5.6	192	27.2	206	29.2	233	33	**62.2**
Toilets	838	41	4.9	28	3.3	192	23	245	29.2	332	39.6	**68.8**
Dining Area	607	31	5.1	24	4	181	29.8	180	29.6	191	31.5	**61.1**
External Areas	659	26	4	33	5	209	31.7	170	25.8	221	33.5	**59.3**

Table 6.7 Results of the Architectural Survey for the Four Main Areas of Study

Architectural Survey	TOTAL	Excellent	%	Good	%	Adequate	%	Poor	%	Bad	%	% Poor +Bad
Classrooms	1180	39	3.3	143	12.1	378	32	435	36.9	185	15.7	**52.6**
Toilets	262	9	3.4	21	8	46	17.6	56	21.4	130	49.6	**71**
Dining Area	209	6	2.9	33	15.8	60	28.7	61	29.2	49	23.4	**52.6**
External Areas	215	11	5.1	36	16.7	52	24.2	58	27	58	27	**54**

Photographs taken of the areas surveyed in each school during the visit also provided a useful reminder of the condition of the buildings and these also substantiate the conclusions formed. The sketch floor plans of each school together with the 1:500 block plans and the 1:2,000 location plans (all illustrated in Appendix B) form an integral part of the evaluation.

Before answering the more detailed questions on each specific area in the school the users were asked to give their opinion on the importance of the overall design of a building for the function of teaching and whether they thought that the design of their building could be improved. Figure 6.29 illustrates the response to these questions.

The interest placed on the importance of the design of a building was encouraging and the belief that the existing building could be improved shows the optimistic and positive approach that permeated the study. Apart from marking the boxes on the questionnaire the participants made use of the space provided for comments about their concerns and suggestions on how they thought certain areas could be improved. These observations have been incorporated in the findings.

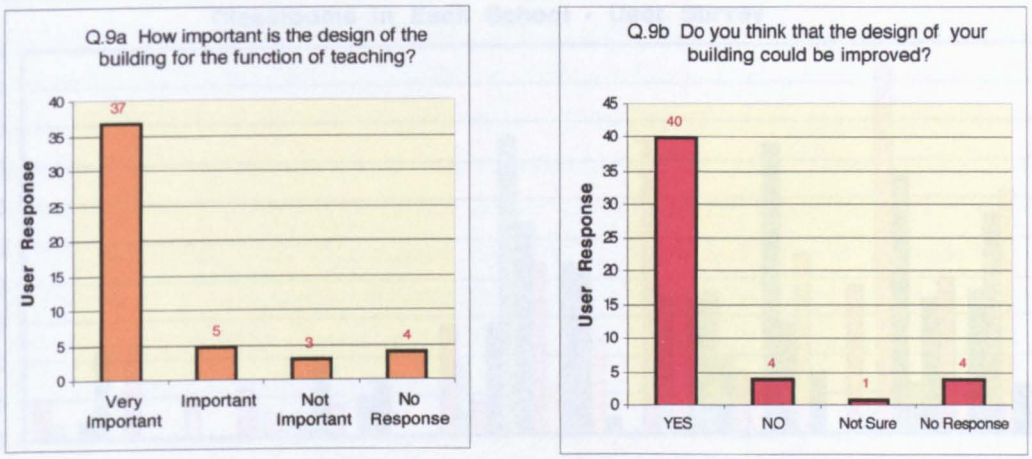

Figure 6.29 User Response to the Overall Design of the Building

6.3.1 Classrooms

It is evident from both the users' overall response, (Figure 6.30), and the architectural evaluation (Figure 6.31), that the classrooms in the majority of the schools are far from satisfactory[38].

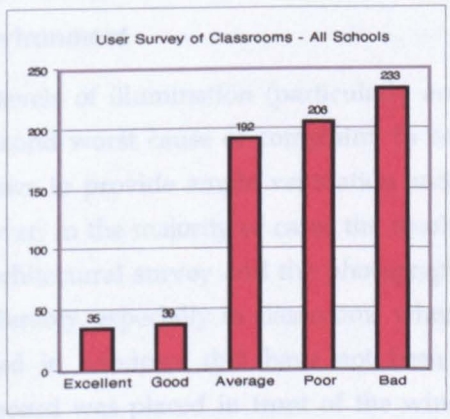

Figure 6.30 Overall User Response to Classrooms

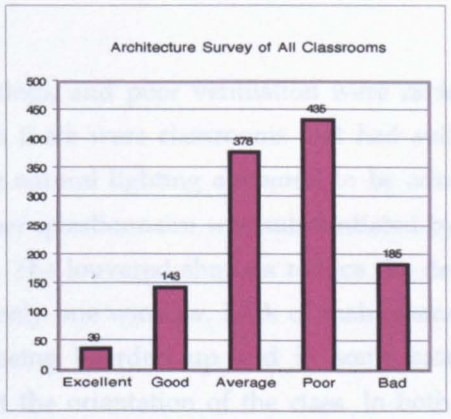

Figure 6.31 Architectural Evaluation of Classrooms

The three main sections in the user questionnaire relating to the quality of the classrooms comprise environmental issues (temperature, lighting, ventilation and noise); surface materials (walls, windows, floors and ceiling); and furniture (quantity and quality). The classroom analysis for each individual school (Figure 6.32) shows some variation in the total response regarding the

[38] The difference in the number of responses between Figure 6.30 and 6.31 is due to the fact that the number of classrooms reviewed by the users was one per questionnaire, whereas five or six classrooms per school were evaluated in the architectural survey.

environment, surface materials and furniture[39]. The following evaluation shows that there are problems in all these areas, some of which would be more difficult to resolve than others. This is followed by a more detailed analysis of the problem of overcrowding that was identified by the staff[40] as the chief concern in all the schools. Photographs of the classrooms (Figure 6.33) illustrating the various problems are scheduled at the end of this section.

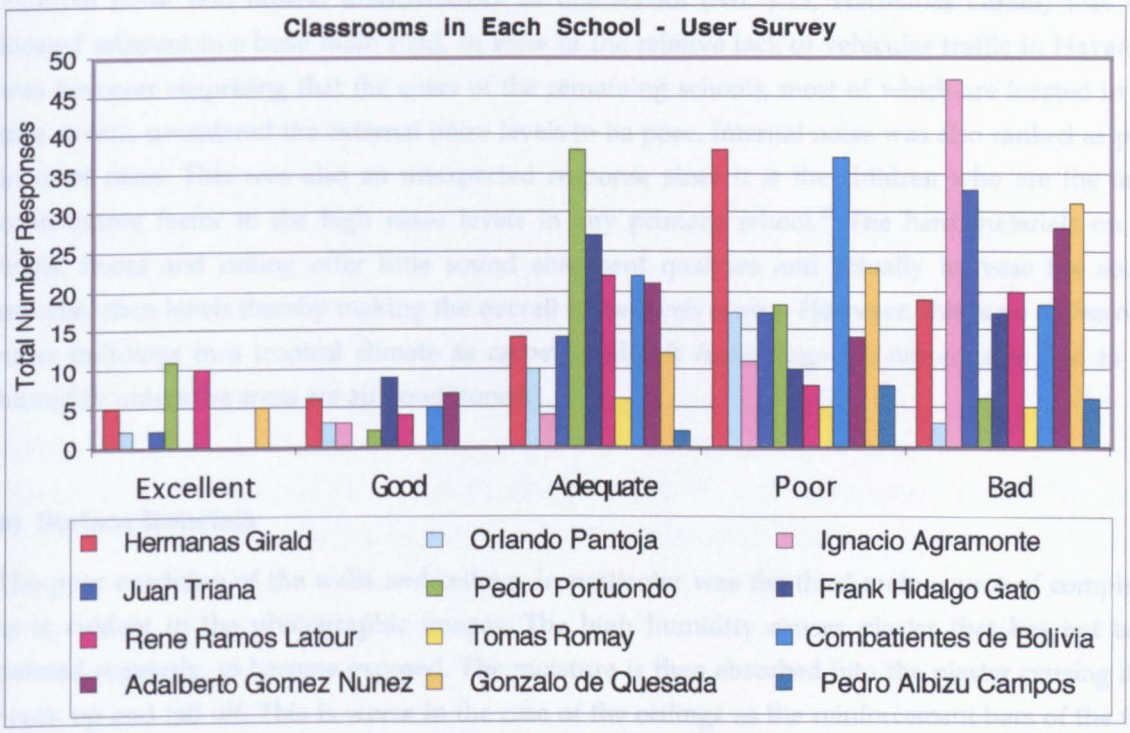

Figure 6.32 Individual School Evaluation of Classrooms

a) Environment

Poor levels of illumination (particularly artificial lighting), and poor ventilation were ranked as the second worst cause of complaint. In some schools there were classrooms that had sufficient windows to provide ample ventilation and where the natural lighting appeared to be adequate. However, in the majority of cases the results of the user questionnaire was substantiated by both the architectural survey and the photographic images. The louvered shutters reduce the daylight considerably, especially in classrooms where there is only one window. Lack of maintenance has resulted in windows that have not been repaired being boarded up and in some cases the blackboard was placed in front of the window to suit the orientation of the class. In both these instances the level of ventilation is reduced which, combined with the overcrowding factor, results in a rather sticky and unpleasant environment. None of the schools had air-conditioning. The lack of day-light could be offset by artificial lighting. Unfortunately the cost of electricity, the frequency of blackouts and lack of maintenance meant that this was not used.

[39] The analysis of these components for **each** school in illustrated in the histograms in Appendix B.

[40] The aspect of "over-crowding" was not mentioned as a direct (or leading) question on the survey form, but it received the highest number of mentions in the comments box.

The other two environmental factors were temperature and noise. Both of these tended to be ranked as poor. The lack of ventilation and the overcrowding would be a contributing factor to the rooms being uncomfortably hot, but again this varied according to the orientation of the room. Those classrooms with windows facing north-east had a more ambient temperature than those facing south, east and west due to the prevailing winds in Havana[41].

External noise was ranked unsatisfactory in one school (No. 1.12, Hermanas Girald) that was located adjacent to a busy main road. In view of the relative lack of vehicular traffic in Havana it was however surprising that the users of the remaining schools, most of which are located in the side streets, considered the external noise levels to be poor. Internal noise was also ranked as poor in most cases. This was also an unexpected response since it is the children who are the main contributing factor to the high noise levels in any primary school.[42] The hard materials on the walls, floors and ceiling offer little sound absorbent qualities and actually increase the sound reverberation levels thereby making the overall noise levels worse. However, this is no different to other buildings in a tropical climate as carpets and soft furnishings are not suitable due to the humidity unless the areas are air-conditioned.

b) Surface Materials

The poor condition of the walls and ceilings in particular was the third main source of complaint as is evident in the photographic images. The high humidity causes plaster that has not been painted regularly, to become exposed. The moisture is then absorbed into the plaster causing it to break up and fall off. This is worse in the case of the ceilings as the reinforcement bars of the first floor concrete slabs can also be exposed due to the fact that the cover levels for reinforcement in tropical climates are less that in more temperate zones[43]. Most of the floor surfaces were in a reasonable condition being made of durable ceramic tiles, terrazzo or marble. Problems tended to occur when tiles were broken and not repaired as this could lead to children being injured. Most of the concerns were due to lack of maintenance.

There was a ninety-six percent positive response to the question on the importance of colour in the classrooms. Although a range of colours was proposed the common factor was that all the colours were pastel shades, with light blue and pale green being the favourite. One Head Teacher commented that a simple coat of paint would lift the spirits of everyone and that creating a brighter environment would lessen the focus on the other problem areas (notes from interview with José Cabaero Castro, Head of Pedro Portuondo Primary School, on Thursday 8th May 1997).

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[41] The code relating to new schools is quite prescriptive about the orientation of classrooms, specifically regarding natural ventilation. The ideal plan is off-set by 22 degrees south of the east-west parallel in order to benefit from the prevailing north-east to south-west winds (Cuba, MINED, 1983a:62 and 1983b:9).

[42] In some respects the surprise was due to the cultural difference. Discussions with Spanish and Cuban friends on the topic of what constitutes a pleasant environment revealed that the northern European concept of 'peace and quiet' is different to the Latin culture who generally prefer a much noisier environment. Also a detailed study on noise in office buildings for my B.Arch degree illustrated that people who generate noise (typists, machine operators and children etc) rarely complain about noise levels (Dale, 1973). Although in a primary school it is the children who generate the noise, one would expect the teachers to have a fairly high degree of tolerance for noise.

[43] Left unattended however, the reinforcement will rust over a period of time and eventually the floor will collapse.

c) Furniture

Most staff considered that the quantity of desks and chairs was adequate but that the quality was poor. As previously mentioned the improvised use of steel reinforcement bars and plywood for these was a common feature that nevertheless fulfilled the function adequately. The only suggestion mentioned was that some of the furniture should be sized for the younger children. However the architectural survey revealed that in some pre-school classes and grade one classrooms the desks and chairs were smaller than the regular size. The issue of whether furniture in primary schools should be any different to the furniture children use at home and elsewhere is beyond the scope of this study[44].

d) Capacity

The chief concern was the overcrowding of pupils in almost every classroom, but it was interesting to note that this problem was expressed in two ways: - *'the rooms are too small to accommodate the pupils,'* which implies that the rooms need to be enlarged and therefore require an architectural solution. The alternative comment was that *'the number of pupils in each class should be reduced'* (in order to fit into the rooms). This suggests that the problem is an educational one. These two different perceptions highlight the purpose of a Value Study, which is, to establish exactly the problem to be resolved. Solution will differ depending of whether the focus is on the building or on the pupils, or indeed, it could be a combination of both depending on the resources available and the level of satisfaction required to be achieved.

The capacity issue is extremely complex. Examination of the statistics in Table 6.1 revealed that all the schools are over capacity (some by a considerable percentage). The situation becomes more complicated when this is read in conjunction with Table 6.4 because this shows that there are three schools [Nos. 1.12; 7.01 and 7.23] that have a continuous two-form entry system throughout, but that there is an inconsistent pattern in the class progression of the remaining ten schools. This means not only that the overall number of pupils in these school changes on a yearly basis but that every year the classrooms in these ten schools have to be reallocated according to the number of forms in each grade. The reason for the variation in form progression is mainly due to the fact that **many classes are actually undersized.** The architectural survey revealed that there were between twenty-two and twenty-nine pupils is each class (as opposed to the average 35 pupils) simply because the rooms were not capable of holding any more pupils.

The implications of this are best understood by example:- for instance, in school No. 1.20 Orlando Pantoja there are 75 pupils in grade 3 (Table 6.1). They would normally be placed in two forms with 37 and 38 pupils in each class and a total of two teachers. However, Table 6.4 shows that they are divided in three forms with approximately 25 pupils in each class. This means that the school

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[44] Some UK Authorities prefer to use small-scale furniture for the lower grades whilst others require standard sized furniture to be installed throughout the school. Ultimately the decision is made by the Educational Authority, not the architect.

needs not only an additional classroom for these pupils but also an additional teacher, and this will be required for each year as these pupils progress through each grade. This scenario is repeated in most schools.

A list of seventeen primary schools that have closed down since 1976 is scheduled in Appendix E. Nine of these were closed due to the poor condition of the buildings and the pupils were transferred to other schools.[45] Even allowing for the falling birth rate the closure of nine schools (a 20 percent reduction) since 1981 is bound to put pressure on the existing schools if they are expected to absorb the displaced pupils.

Appendix E lists all primary schools in Plaza that were in use in 1997. Eighteen schools (fifty percent) were more than ten percent **over-capacity** and of these, thirteen were *casas adaptadas*. The purpose built *'convencional'* schools have larger rooms than the houses so a slight increase in numbers does not have such a dramatic effect as it does on the *casas adaptadas* that are not even capable of taking even a normal sized class. A further anomaly arises because the same schedule shows that fifteen (41 percent) of the thirty-six schools in Plaza were **under-capacity**. These were evenly distributed throughout the municipality, with the exception of Zone 1, in which all the schools were over-capacity. It was not the purpose to survey the *"convencional"* schools but having cycled past most of them on various occasions it was noticeable that some of these were in a very poor condition. Nevertheless, it appears that there are schools in each zone that are over-capacity whilst others are under-capacity. Re-distribution of the pupils may be one way to alleviate the over-crowding in some of the worst cases, bearing in mind that the location of a primary school needs to be in close proximity to the homes of the children.

e) Summary of the Classroom Analysis

The first three sub-sections revealed that although the classrooms may provide a space for the function of educating the children the overall quality of the majority of classrooms in most of the schools was very poor. The environmental problems of lighting and ventilation together with the deterioration of the building fabric are the main areas of concern. The cause of these problems is mainly due to lack of maintenance that in turn is due to lack of resources.

Individually these concerns are not insurmountable and in fact many could be resolved both quickly and easily given the finances to purchase the required materials[46]. However, it is the cumulative effect that has created the main problem. Moreover, making good the defects is not a one-off process. The tropical climate has such as destructive effect on buildings that unless a continuous maintenance programme is put in place the classrooms will revert to their existing state of deterioration within a very short time. Nevertheless the classrooms represent an important part of the school, where both staff and children spend most of their time each day. The Head

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[45] For example, 198 pupils from Anibal Ponce primary school were absorbed into Tomas Romay in 1991.
[46] The cost of labour is not so great an issue.

Teachers interviewed were not optimistic that the issues identified would, or could, be resolved given the economic circumstances of the country. They are not seeking perfection, but any improvement would alleviate the hardship they have to endure and would contribute to the raising of morale.

The main problem however, in all the schools visited, was that of overcrowding. Any architectural solution would be excessively expensive and in most instances not possible due to the constraints of both the building and the site (see plans in Appendix B). But by focusing on the function of "reduce capacity" rather than "expand rooms" the problem could be partially, or temporarily, resolved by the re-distribution of pupils. This would have minimal increase in cost and resources[47] and it could rationalise the problem of differing form-entry levels experienced in ten of the *casas adaptadas*. However, due to the complexity of the issue of capacity a fully co-ordinated survey of all schools would need to be implemented before any proposal could be made.

Figure 6.33 a; b; c; d; and e; Classroom Images showing Points of Concern
School Nos. a)1.12; b) 1.20 c) 2.13; d) 7.01 e) 7.23

[47] Meaning this would constitute a transfer of staff from one school to another rather than additional staff.

Figure 6.33 f; g h; j; k; l; m Classroom Images showing Points of Concern
School Nos. ;f) 7.01 g) 5.10; h) 4.25 i) 7.08 j) 2.16 l) 3.34 k) 4.25 m) 7.08

6.3.2 Dining Area

More than sixty percent of the respondents to the questionnaire rated the Dining area as either poor or bad whilst just under thirty percent thought the conditions were adequate as Figure 6.34 illustrates. The architectural survey revealed a similar pattern. The dining area in each school was a designated area not used for teaching purposes. Despite the fact that, in most instances, it is the largest room it remains vacant for most of the day.

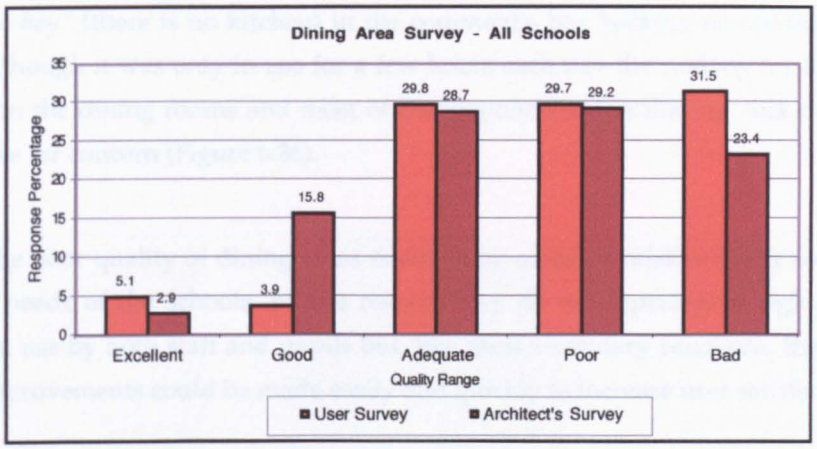

Figure 6.34 User and Architectural Survey Response to the Dining Areas

The individual school results reveal that in the schools where the dining room was located in a room within the main house the ranking was better than when it was located in the garage area. The environmental issues of poor levels of illumination and insufficient ventilation derived from the same sources as those in the classrooms. For the dining areas in garages the insertion of additional window openings would seem to be a viable solution to overcome both of these problems. The images illustrate a range of quality from very bad to acceptable (Figure 6.35). Minor improvements would yield substantial results.

Figure 6.35 Images of the Dining Areas
School Nos. a) 3.24 b) 7.08 c) 7.23 d) 5.04 e) 1.20

It was noted that some respondents completed the questionnaire section on the kitchen area and then wrote *"No hay"* (there is no kitchen) in the comment's box because no cooking took place in the kitchen. Although it was only in use for a few hours each day the ranking for the kitchens was even worse than the dining rooms and most of the respondents felt that the lack of quality of this area was a cause for concern (Figure 6.36).

In summary, the poor quality of dining areas needs to be assessed relative to the overall context of the functional needs of the schools. In this respect they do not represent a high priority due to their infrequent use by both staff and pupils but, like most secondary functions, they represent the areas where improvements could be made easily and quickly to increase user satisfaction.

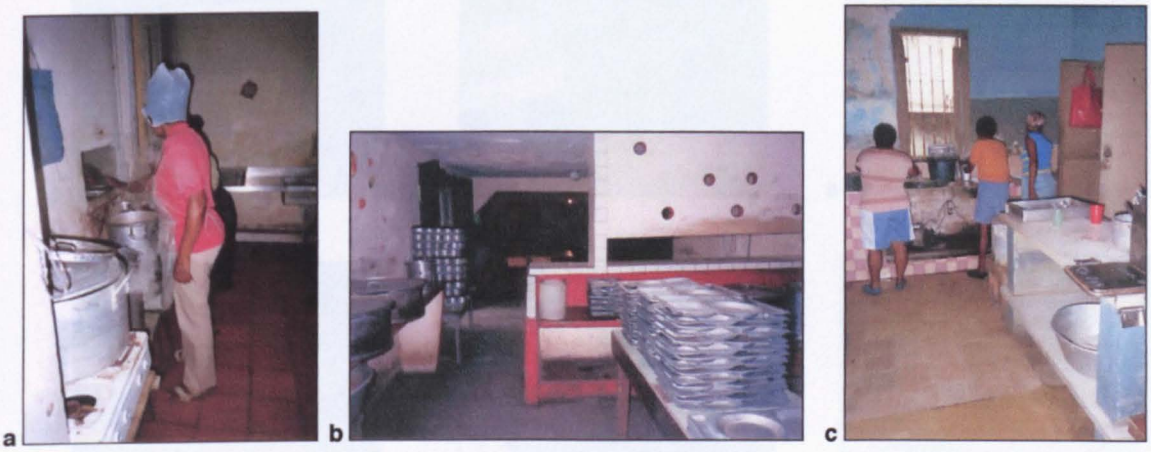

Figure 6.36 Images of the Kitchen Areas
School Nos. a) 2.12 b) 5.10 c) 4.30

6.3.3 Toilet Areas

In the user questionnaire more than sixty-eight percent of the respondents considered the toilet facilities to be inadequate in terms of both quantity and quality. As Figure 6.37 shows this paralleled the overall outcome of the architectural survey.

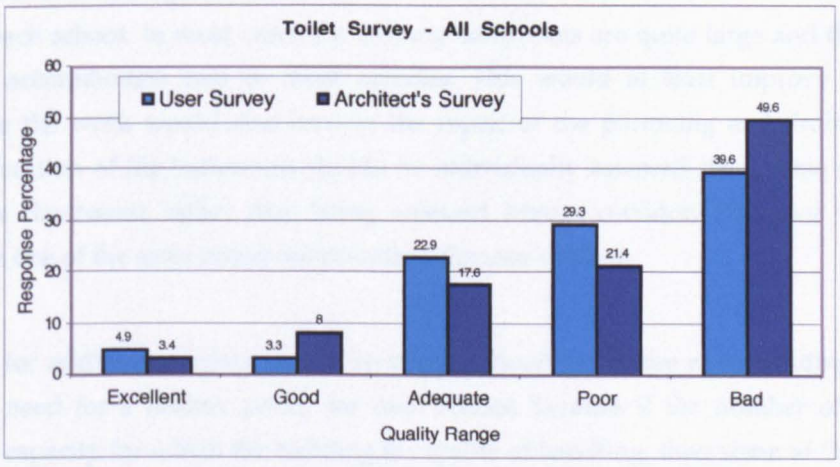

Figure 6.37 User and Architectural Survey Response to the Toilet Areas

This was the only area judged to be unsatisfactory with regards to fulfilling the function of providing sanitary accommodation for the pupils. Despite the lack of appliances that were discussed in section 6.2.6, the main concern was hygiene due to the lack of water supply and poor drainage. The images (Figure 6.38) of these areas illustrate the seriousness of the problem.

Figure 6.38 Images showing Points of Concern in the Toilet Areas
School Nos. a) 2.16; b)7.23; c) 4.30; d) 3.34; e) 5.04; f) 7.23

Since the number of toilets equals the number of bathrooms in the house, additional toilets need to be formed in each school. In most cases the existing bathrooms are quite large and these could be redesigned to accommodate two or three cubicles. This would at least improve the situation especially since the work would also involve the repair of the plumbing and drainage systems. However the location of the bathrooms should be individually assessed since some of these open directly off the classrooms rather than being accessed from a corridor. The poor ventilation of these areas was one of the most noted complaints in the user returns.

Finding space for additional toilets would be more difficult given the overcrowding factor. This highlights the need for a holistic policy for each school, because if the number of pupils were reduced to the capacity for which the building is capable of handling, then some of the areas could

be redesigned to accommodate not only additional space within the classrooms but also provide extra toilet accommodation.

6.3.4 External Play Areas

In Table 6.2 the external play area was ranked the second most important area in the school. This is substantiated by the users' response shown in Figure 6.39 where the participants were asked to give their opinion regarding both the importance of the external space and the potential for its improvement. The positive return was similar to that given for the classrooms.

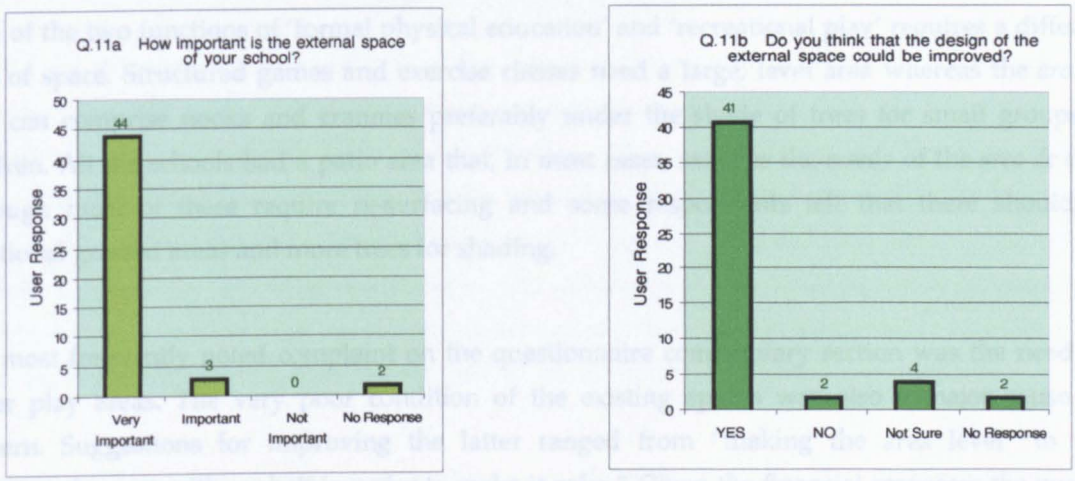

Figure 6.39 Users Response to the Overall importance of the External Play Areas

The analysis of both the users' questionnaire and the architectural survey (Figure 6.40) shows that over fifty percent ranked the external space either poor or bad[48]. However over forty percent ranked the area as average or better[49], which is slightly better than the classroom rankings.

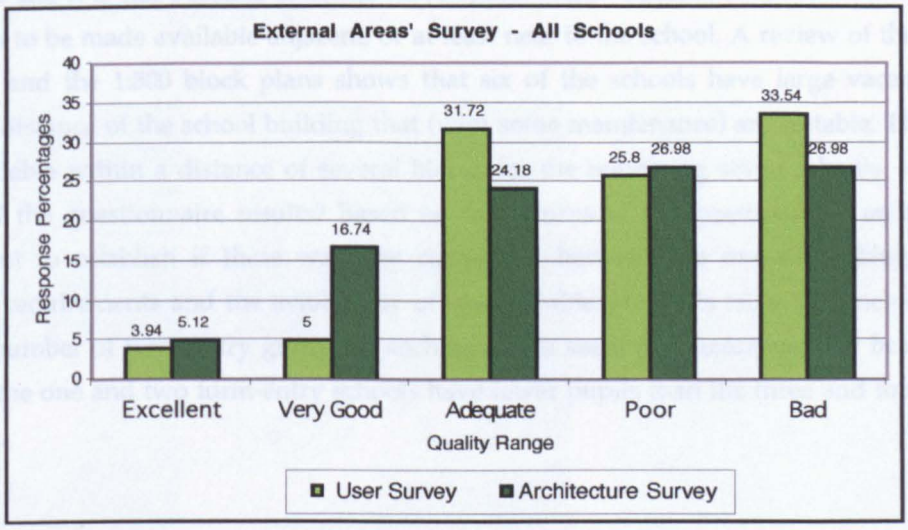

Figure 6.40 Users and Architectural Survey Response to the External Play Areas

[48] The user percentage of poor to bad was 59.3 percent and the architectural survey was 54 percent.
[49] The user percentage above average totaled 40.7 percent and the architectural survey was 46 percent.

The lack of an internal hall or gymnasium for physical exercise is the main contributing factor for the external space being considered so important as the curriculum places considerable emphasis on physical education. The absence of internal facilities would have had a more severe impact on the ratings for this element were it not for the fact that, due to the tropical climate, these activities can take place outside. In the case of the *casas adaptadas* this is the only option.

The second function that this space serves is recreational activity. This is where the children play during their breaks between classes and also before the start, and after the end of the academic day. This is sometimes referred to as the *"area de estar"* (a place to be).

Each of the two functions of 'formal physical education' and 'recreational play' requires a different type of space. Structured games and exercise classes need a large, level area whereas the *area de estar* can comprise nooks and crannies preferably under the shade of trees for small groups of children. All the schools had a patio area that, in most cases, satisfies the needs of the *area de estar* although most of these require re-surfacing and some respondents felt that there should be additional grassed areas and more trees for shading.

The most frequently noted complaint on the questionnaire commentary section was the need for larger play areas. The very poor condition of the existing spaces was also a major cause for concern. Suggestions for improving the latter ranged from "making the area level" to "re-surfacing the area with asphalt in order to make it safer." Given the financial resources the quality of the existing spaces could be substantially improved by making good the surfaces.

However the request for "more space" and a "bigger area" is more problematic as the schools are confined to the boundaries of what was originally the garden area of the houses. Within the curtilage of the site it is not possible to create more space. Hence additional space for the formal activities needs to be made available adjacent, or at least near to the school. A review of the 1:2000 location plans and the 1:500 block plans shows that six of the schools have large vacant areas within a short distance of the school building that (with some maintenance) are suitable. There are no spaces available within a distance of several blocks for the remaining seven schools. Has this fact influenced the questionnaire results? Based on the returns of the questionnaire an analysis was carried out to establish if there was any correlation between the overall ranking of the external space requirements and the availability of space (Table 6.8). This table also included the details of the number of form-entry groups in each school to see if this factor had any bearing on the results, as the one and two form-entry schools have fewer pupils than the three and four form-entry schools[50].

[50] One form entry = 240 pupils (280); two form entry = 480 pupils (520); three form-entry = 720 pupils (760); and four form-entry = 1040 pupils (1070). These figures are based on the maximum number of 40 pupils per class. The figure in brackets is the number used when the school has a pre-school (kindergarten) class.

Table 6.8 Correlation between the Users' Ranking of External Areas; Number of Form-Entry Groups and Space Available

Questionnaire Average Ranking for each School					No. Form-Entry Groups			Space Available	
Excellent	Good	Average	Poor	Bad	1-2 Form Entry	2-3 Form Entry	3-4 Form Entry	No Space Nearby	Space Nearby
			1.12		2			No	
			1.2				3 & 4	No	
				2.13	1 & 2				Yes
				2.16		2 & 3		No	
		3.24			2				Yes
		3.34				2 & 3		No	
		4.25			1 & 2			No	
			4.3			2 & 3		No	
		5.04					3 & 4		Yes
		5.1				3			Yes
			7.01		2				Yes
		7.08					2 & 4	No	
			7.23		2				Yes

It had been anticipated that the schools with a high number of form-entry groups and no access to a nearby play area would have been ranked as 'bad'. However, school No. 2.13 has access to an adjacent playground and also has a low form-entry, yet it ranked the external area as 'bad'. In contrast to this school No. 7.08, which has no access to a playground and which has a high form-entry, ranked the quality of the external space as 'average'. The table therefore does not reveal any consistent pattern to link these components. The exercise was nevertheless useful in identifying the schools that need the most space and whether or not that space is available. The results of the users' survey of the external areas of each individual school are illustrated in Appendix B.

Resolution of the external play areas for those schools with no access to a nearby space is more difficult than for the six schools with adjacent vacant plots. Currently the use of the urban facilities in the municipality offers an alternative solution and the fact that the requirements of the physical education curriculum are maintained implies that the schools can cope with the current situation. However this highlights the need to consider the external play spaces when selecting houses to be used for primary schools as the section 6.4 will discuss. The varying degrees of quality can be seen in the images of the external areas in Figure 6.41.

Figure 6.41 a; b; and c; Images of the External Play Areas
School Nos. a) 1.12; b) 2.13; c) 3.24;

Figure 6.41 d; e; f; g; h; i; Images of the External Play Areas
School Nos. d) 4.25 e) 7.08 f) 7.23 g) 5.04; h) 5.10; i) 7.01

6.3.5 Varying Degrees of Quality - Summary

Despite the ability of the *casas adaptadas* to provide the facilities for educating the children it is evident that the overall degree of quality of these facilities is very poor. Certain aspects of the school were considered to be above average but these were in the minority. The conditions in the areas providing the secondary functions (dining room and toilets) could be resolved without too much difficulty However, the areas providing the basic functions are more problematic. Overcrowded classrooms, insufficient external play areas and lack of maintenance are the main areas of concern. On an individual school basis some of these problems could be alleviated, if not completely rectified, given adequate resources. The fact that the quality of every school is well below average suggests that a more holistic approach to resolving the issues is needed in order to improve the user satisfaction and enhance the overall value. The ways in which this could be done are discussed in the following section.

6.4 Making Houses into Schools

> *"When resources are limited, it is important to look at the capacity of other buildings to meet learning requirements, and not maintain the narrow view that education must occur within the four walls of a school house."* (OECD, 1995:36)

The previous two sections have illustrated the dilemma that exists when houses are used as schools. On the one hand they provide a valuable resource in which to educate the children in the inner city areas especially when it is not possible (for various reasons) to construct new schools. On the other hand in the examples analysed the overall lack of space and the poor quality of the building fabric and services in general were less than satisfactory. The cause of the problem stems from the fact that none of the *casas adaptadas* have been adapted to suit their new function. Without the tables, chairs, blackboard and the children, the buildings are houses not schools.

The aim of section 6.4.1 is to establish a positive way forward by determining a strategic approach which can be used as a datum for the selection of houses that would be suitable for primary school education in the future. The next section then uses examples to show various ways that could resolve some of the problems of the existing houses in the short term.

6.4.1 Developing Strategies for the Future

The case studies have illustrated the complexity of the problem. There is no one solution but the situation can be improved if not rectified. The current tendency is to resolve the individual problems of each school as and when they reach a crisis point as the Building Records in Appendix B reveal. This provides a temporary remedy, not a cure. A systematic approach, at the macro level as well as the micro level, needs to be implemented in order to achieve successful results as the simplified FAST diagram (Figure 6.42) shows.

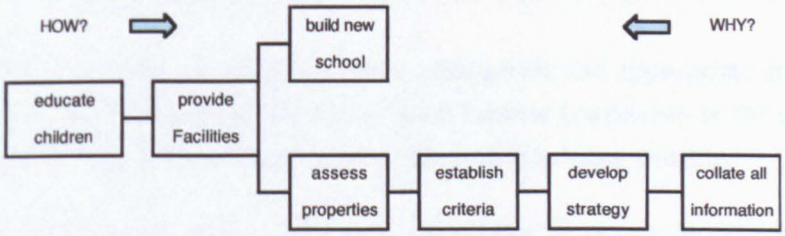

Figure 6.42 FAST Diagram of the Development Process

The centralised co-ordination of all information lies at the core of such an approach. Currently the data is found in various government departments at both national and municipal levels. Communications between departments tends to be on a "need to know when necessary" basis. Whilst the schedule of offices visited to obtain the data required for this study is listed in Appendix A, the following paragraph gives an indication of the difficulty involved in trying to collate the necessary information on any one school.

The only data recorded on computer was the list of schools containing the number of pupils, teachers, rooms and the capacity of the schools in each municipality. This information was available at the MINED offices, but some of the data was not substantiated at the municipal

education offices, where hand-written lists of the current figures (produced on request) revealed some differing statistics. The demographical data was obtained from two other offices, ONE and CED. With regards to the site information on the schools, this is clearly identified on the 1:2000 location plans and 1:500 block plans. The location plans are issued from the Municipal Planning Office and also from GEOCUBA, although copies are available at the DAU in each municipality. Information regarding vacant sites is recorded on index cards at the DAU offices, but the data is neither up to date nor does it match the sites marked as vacant on the location plans[51]. The block plans are held at the DAU offices. They are very detailed but they are all hand drawn and the quality of some of these is rapidly deteriorating. Finally no floor plans of the buildings exist due to the fact that the *casas adaptadas* were once privately owned houses.

Despite the above difficulties the results were very positive. All the required information is both detailed and adequate to sustain the implementation of a development plan that is suitable for the needs of the inner city municipalities in Havana[52]. The first stage in developing a strategic plan is to place all the above data in one location. This means putting the following steps into action:-

1 At the macro level, all schools should be plotted on the 1:2000 location plans. This should indicate all the buildings that each school occupies (in cases where more than one house is used). The type of building used should also be recorded. This should be done for each municipality but there must be an overlap between municipalities to include those schools that lie near the boundaries because pupils are more likely to attend the nearest school even if it is located in the adjacent municipality.

2 Also at the macro level, all vacant sites and redundant buildings should be surveyed and then marked on the 1:2000 location plans so that a visual pattern of the area can be established.

3 The next level is to zone the municipalities into manageable and appropriate areas. In the case of Plaza, the wide boulevards formed the most suitable boundaries of the zones, whereas, for instance, in Habana Vieja the political zones would be more suitable.

4 The statistical demographic data should then be related to the plans in order to establish where the present and the future schools need to be located.

5 At the micro level, each building needs to be examined both individually and in the context of its locality. The information should include an up to date block plan identifying the site boundaries, floor plans and elevations of the building. Any structural and construction defects need to be clearly defined. Other problems, such as overcrowding in classrooms should be identified so an analysis can be made and proposals suggested. This means that the number of desks and chairs (hence, the number of pupils) that can fit into individual

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[51] By cycling around the different areas in search of vacant plots I also found that some of the sites recorded as 'vacant' on the index cards either did not exist or new buildings had been constructed on them. Hence, the records were not up to date.

[52] Strategic Development Plans on a macro scale (or National level) such as those in the UK like the NLUD (DETR, 1998) and the Asset Management Plan (DfEE, 1998) would seem to be not only over-bureaucratic but also inappropriate in context of Havana. Moreover, a miniaturized and indeed more detailed version of the data contained in these documents already exists in Havana due to the fact that data on all property is recorded each year through the ration book system.

rooms should be marked on the plans to indicate which rooms are suitable for teaching formal classes. The external play spaces should be marked on the location plans in cases where this is not within the curtilage of the site.

6 From the above, a checklist should be drawn up based on the strengths, weakness, opportunities and threats (SWOT) of each school. This will assist the decision making process regarding which schools can be renovated and/or extended without moving location, and which schools need alternative solutions. The options should take into consideration the number of pupils each class can comfortably accommodate and the overall progression format for each school as well as the condition of the building fabric. The policy regarding the location of external play spaces should be included in this process. In other words it is a combination of both educational and architectural factors that will ultimately determine the outcome.

7 A time frame (short, medium or long term) for the work to be carried out should be agreed based on the urgency and importance of the task and the availability of resources.

8 For schools that are to be relocated, a suitable site, or another house or building, should be identified and allocated for this purpose, even if this cannot be achieved in the immediate future. Investment potential is a critical factor.

9 Establish a Maintenance Programme that is updated on at least a two-yearly cycle[53].

10 All the above data should be reviewed and revised on a regular basis.

Due to the financial constraints in the educational sector at the present time, it is likely that most of the goals will be "long term". Nevertheless, if a strategy to achieve all these targets is not put in place now, most of the potential opportunities for resolving the problems could be lost to other causes - most of which will be for commercial short-term gain. The increased development of the tourist industry especially in Zone 1 could be seen as a threat to the educational sector unless it is quickly turned into an opportunity. In such difficult times the focus has been on short-term survival tactics, but it is important not to lose sight of the long-term goals because a well developed strategy backed-up with all the necessary current data would not only boost the morale of the educational staff by giving them hope of improved conditions in the future, but it can also enable immediate action to be taken when unforeseen opportunities arise. A strategic approach enables all the involved parties to see all the information properly co-ordinated. This can lead to more creative solutions being produced that were hitherto unimaginable due to all the diverse pieces of information being located throughout the city.

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[53] An annual check-up should be carried out to ensure no major defects have occurred in the interim period.

6.4.2 Renovate, Relocate or Rebuild?

In view of the speed of deterioration that has been identified in most of the buildings combined with the current financial problems, the purpose of this section is to demonstrate (using the schools from the case study as examples) how various options for resolving some of the issues could be applied to the current primary schools that are located in *casas adaptadas*. Although the problems in all the schools are similar, the solutions vary considerably. Using a combination of the two proposals by Nutt (1997:3) *"Marketing; Leave Vacant; Refurbish; Modify Use; Change Class of Use; and Demolish"* and by MacGilvray (1988:6) *"Keep it, Change it or Destroy it"* that were discussed in chapter 3.4.5 various alternative suggestions emerge. They range from conventional proposals for renovation of the existing houses to a more radical suggestion of relocation and new-build solutions (Dale, 1998:5).

For some schools more than one solution may be applicable and in others a combination of these proposals may be the better alternative. Ultimately the decision on which route to take depends on many factors that are beyond the control of the architect. As stated earlier, it would be the job of the value engineer's team to create alternative solutions and to identify the advantages and disadvantages of each proposal. It is then up to the client to choose which scheme, if any, to implement. Within the limited resources of this study it is not possible to cover all the alternatives that a full value study could produce. However, since the aim here is to show that the current status could be improved in a variety of ways four strategies have been selected for consideration.

a Consolidate, Renovate and add an Extension

b Rationalise and Build

c Combine and Renovate

d Relocate and Sell

For each proposal a brief description of the existing *casa adaptada* is given followed by an outline proposal and the advantages and disadvantages of the scheme to be taken into consideration. At the end is a target strategy indicating whether the proposal should be planned for in the short, medium or long term. The location, block and floor plans of each school are scheduled in Appendix B. They are not included here because the purpose is to identify potential approaches to solving the problems[54].

a) Consolidate, Renovate and add an Extension

This response would be suitable for schools located in more than one house. The amount of work to be carried out to achieve a satisfactory solution varies.

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[54] In the next part of the evaluation phase (Stage 3 in a Value Study) each proposal would be judged against a pre-established set of criteria for its potential suitability. Those ideas that are not suitable for further analysis drop out, whilst those that seem feasible solutions would proceed to the development phase (Stage 4) for a very detailed investigation. Only when this has been completed would a small number of recommendations be made in the final phase (Stage 5).

Example :- No. 2.16 - Juan Triana - Zone 2

Capacity = 293 No. Pupils = 451 (54% over) 14 classrooms

Description:- Juan Triana occupies 3 houses:- a single storey building on the corner site (No. 152), plus the ground floors only of the two adjacent two-storey houses (Nos. 154 & 156) which are occupied by families on the upper floors. Each site has retained the boundary walls.

Proposal: - No. 156 to revert to a dwelling on both floors. The occupants of No. 154 to move to the "vacated" ground floor accommodation in No. 156, or be relocated elsewhere. This would allow the school to occupy both floors in No.154, which, being slightly larger in plan than No.156, would increase the number of classrooms. Demolish the boundary wall between the two premises and the two "bathrooms" that are inadequate as toilet facilities and are accessed from within the classrooms. This would create a larger rectangular external play area between the two buildings that could be partially roofed over to provide a shaded area[55]. The garage area and current dining-kitchen area of No. 152 could be demolished and a 2-storey structure erected on this site to accommodate four more classrooms on the upper floor and a new dining-kitchen area with toilet facilities on the ground floor.

Advantages: - existing location retained; minimal disruption to the school; minor addition; achieves an identity of "one building" rather than three; could be phased development.

Disadvantages:- possible problem in relocating the residents; capital cost of a new extension; still does not resolve the issue of the absence of a large play area.

Target strategy :- short - medium range goal.

b) Rationalise and Build

This could be used for schools located in one or two buildings. Unlike the previous example, it depends on the availability of a nearby site for future extension and is thus a medium to long-term solution.

Example:- No. 3.24 – Pedro Portuondo – Zone 3

Capacity = 223 No. Pupils = 314 (41% over) 12 classrooms

Description:- Pedro Portuondo occupies one two-storey building on Calle 23 (La Rampa). There is a single storey building at the rear of the site (currently used as the library). The existing premises are overcrowded and the external space is very restricted. A large vacant site on the opposite side of Calle 23 is currently used as the main formal playground. There is a small vacant site adjacent to the main building.

Proposal:- Construct a new two-storey classroom block with four classrooms on each floor and toilet facilities on the adjacent plot. Demolish the existing single-storey building to create more external play area within the school boundary.

Advantages:- minimal disruption to the school; additional play space contained within the school and additional classrooms provided.

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[55] This proposal emerged from a comment included on the User Questionnaire for this school.

Disadvantages:- capital cost of new extension; the large play area on the opposite side of the street would still need to be retained for formal play purposes.

Target strategy :- medium - long range goal.

c) Combine and Renovate

This proposal is suitable when two existing schools are located in close proximity to each other.

Example:- No. 7.08 Gonzalo de Quesada & No. 7.33 Saul Delgado - Zone 7

7.08 Gonzalo de Quesada	Capacity = 425	No. Pupils = 528 (24% over)	15 classrooms
7.33 Saul Delgado	Capacity = 860	No. Pupils = 499 (42% under)	

Description:- Gonzalo de Quesada occupies two houses on adjacent right-angled sites with a small patio for a playground between the buildings. In one house both floors are occupied by the school, and in the other, only the ground floor is used, with a dwelling above.

Saul Delgado was originally a pre-university college. It lies one block behind Gonzalo de Quesada. It is a 'U'-shaped two-storey building with a large playground in the middle. Although it is under capacity, it is in a very poor condition.

Proposal:- renovate Saul Delgado in two phases, on each half of the 'U'. Use one half for the existing school and the other for the relocation of Gonzalo de Quesada.

Advantages:- both schools remain in the same locality; both can share a common play area; the two houses occupied by Gonzalo de Quesada can revert to dwellings; not as expensive as new build; this could be a very prestigious project.

Disadvantages:- initial capital cost for renovation work; the creation of a large school complex with over a thousand pupils on one site.

Target strategy :- medium-long range goal

d) Relocate and Sell

The decision to relocate is more complex than the previous solutions. This proposal would be considered when the site is too restricted for a play area or any extension to be built, or where the school is in an undesirable location and where the building or buildings would be better suited to other uses. The relocation could either be to another more suitable house, or to a newly built school on a nearby vacant site.

Example 1 :- No. 1.12 - Hermanas Girald - Zone 1

Capacity = 214 No. Pupils = 382 (78% over) 13 classrooms

Description:- Hermanas Girald occupies one house and outbuildings on a corner site near the Focsa building in the tourist sector of Vedado. The junction of 17 and 'L' is very busy and noisy. There is very little playground space available and the school is over-crowded. The building has been poorly maintained, but still has some outstanding features such as marble columns and floors, elaborate cornices and stained glass windows.

Proposal:- relocate and either build a new school on one of the vacant sites nearby or find another house that has more rooms and a larger external play area.

Advantages: - purpose made facilities in a quieter location; no disruption to the school, as they would move on completion of the work; as the location of the existing school is within the commercial sector of La Rampa it is likely to entice development for tourist purposes (such as a restaurant) so most of the costs could be off-set towards the cost of the new school.

Disadvantages: - depends on "selling/renting" existing house; the replacement school needs to be within three blocks of the existing school since many of the pupils live in the 375 apartments in the Focsa.

Target strategy :- short – medium range goal

Example 2:- No. 2.13 - Ignacio Agramonte - Zone 2

Capacity = 156 No. Pupils = 222 (42% over) 11 classrooms

Description:- Ignacio Agramonte occupies two houses in the same street - both floors of No. 511 and the ground floor only of No. 507 which has residential use on the upper floor. There is only a very small patio at the rear of No. 511 for the play area of the entire school. Currently they use the vacant corner site at No. 517.

Proposal:- Relocate and build a new school on the vacant site at No. 517. This is a very large site that could be divided in such a way that the entire school with sufficient playground area could occupy the northern section of the site, and a linear section facing on to Calle 23 - La Rampa could still be used for retail and commercial development. The school could be phased in two stages starting with a new block to replace the classrooms in No 507 but retaining all of No. 511 until a later stage.

Advantages: - no disruption to the school, as they would move on completion of the work; purpose made facilities; gain additional housing accommodation from sale of existing buildings; by using the "front" part of the site for commercial/office/retail development, part of the costs could be off-set towards the cost of the new building. This could be a phased development to minimise costs.

Disadvantages: - Initial development cost; the location is just beyond the existing tourist/commercial sector of La Rampa, and is therefore not likely to entice development quickly - however, in the future, this could change due to its proximity to Calle 23.

Target strategy :- long range goal

The above four approaches may appear to be too ambitious to even contemplate at present, but the aim was to illustrate how the ultimate goal could be achieved. Read in conjunction with Figure 6.28 (in section 6.3) these approaches can be seen to achieve 'very much more satisfaction' but they would also require a substantial increase in resources. However, most of the proposals could form part of a phased development so that on completion of each stage when resources became available the next phase could be accomplished. The purpose is to emphasise that the end target

(the ultimate solution) is established at the start of the exercise even if this is not immediately attainable in its entirety at the start.

6.4.3 Other Issues to Resolve

The attempt to provide alternative solutions has highlighted some potential problems that fall into two broad (yet sometimes overlapping) categories:-

a) Context - Resolving the issues of space availability appears to be more difficult in certain zones than in others, although the degree of difficulty varies at a micro scale within each zone. For example, in Zone 4 there are not many vacant sites in suitable locations for the relocation of the existing schools and most of the available sites are too small. The lack of space is also a problem in parts of Zones 1 and 7 that lie close to the main tourist area.

b) Schools – Two sorts of problems have become evident. The first concerns the schools that occupy three houses in different locations (as opposed to the example of No. 2.16, Juan Triana where the three buildings are adjacent to each other). This applies to the two schools in Zone 5, although both schools have some land adjacent that might be sufficient for some consolidation. The worst scenario is in Zone 4 concerning school No. 4.30 Tomas Romay where two of the houses are on opposite sides of a main road and the third is several blocks distant. Given the data that was available at the time of the survey it appeared that in this area there were no vacant sites or buildings large enough to permit the rationalisation of this school even into two buildings. Secondly, the survey revealed that the houses used for schools in Nuevo Vedado (Zone 5) are more problematic. This is due to their open-plan layout where rooms are accessed from adjacent rooms rather than from a corridor[56] and this arrangement is not suitable for classrooms. Also the considerably lower ceiling heights (compared to the three metre plus heights in the houses in Vedado) create ventilation problems when pupils occupy the rooms.

Whilst this is not a conclusive list of all the problems that exist, it indicates the magnitude of the various factors that have to be taken into consideration.

6.5 Making it Work - Summary

By systematically working through a series of questions the investigation has demonstrated that using houses is a viable way of providing accommodation for primary educational purposes. The implementation of a robust maintenance programme would considerably improve both the quality of these houses and the user satisfaction. This is not to imply that the task is an easy one. The scale of the work to be carried out is substantial. However, even if the existing defects were

[56] These houses were built in the 1950s in the modernist style (see chapter 5.7.1 and chapter 6.1.2).

repaired and new renovations were carried out it would still not be sufficient to raise the standards of the existing houses to match the standard of the facilities provided in a purpose built primary school as, in these examples, the key components of space and land availability constantly prohibit expansion. This raises the question, should the design criteria for the *casas adaptadas* be different from the criteria for new schools? Indeed, should the *casas adaptadas* be classified, not as a school, but as a schoolhouse? The rationale for re-establishing the schoolhouse as a separate building type is discussed in the final chapter.

The analysis also revealed that an extensive range of detailed documentation already exists, albeit that this is both scattered throughout the municipality in various Departments and, in some instances, is not completely up to date. Co-ordinating all the data centrally could be the first step towards developing a strategic plan for the future. A systematic approach is needed to select suitable buildings that are in the correct location, with access to playground facilities nearby and which have sufficient space for the construction of the additional facilities required by a school. Such a plan could also incorporate the urban facilities both in the municipality and the city as a whole that are available for educational purposes. This is a realistic proposal that would not be too difficult to implement and once in place it would be relatively easy to update on a regular basis. The advantage of this approach would be that individual objectives could be implemented in order of priority as soon as resources became available.

In summary this chapter has revealed that whilst there are some negative aspects concerning the use of houses for educational purposes, there are many potential positive prospects that need further investigation. It is extremely difficult to sustain a primary education programme within the densely populated municipalities of a city where both the space and the resources to build new schools are severely restricted. The *casas adaptadas* are the 'forgotten' schools where even the name has a pejorative tone. Yet they form an integral part of life in Havana. Without these schools the primary education system in the urban areas of the city would be in crisis, and over seven thousand pupils (51 percent of elementary age pupils) in the municipality of Plaza de la Revolución alone would not have a school to attend. The regeneration of the city needs to be approached in a pluralistic manner to meet the educational demands of the twenty-first century. In Havana the contribution of the *casas adaptadas* to the education system is a valuable resource.

Chapter 7

The Forgotten Schools - Remembered

Chapter 7:

The Forgotten Schools – Remembered

7.1 A Time to Reflect - Introduction

> *"A journey of a thousand miles begins with a single step - it is therefore important that this step is in the right direction."* (Chinese Proverb; source unknown)

This chapter marks the end of a long and interesting experience that, like most journeys has had its share of difficulties, new encounters and great moments. As new insights have been gained along the way it has sometimes been tempting to diverge from the original path. Yet the policy has been to stop, embrace and then take on board the unforeseen and unscheduled findings and then to continue on the planned route, for not to do so would be like travelling through a tunnel. Now is the time to reflect on what has been achieved. Time to ask if the expectations that were envisaged at the outset have been reached and what are the implications and significance of these in both practical and theoretical terms. And finally, time to think ahead to future possibilities and new directions.

7.1.1 Peeling Back the Layers

Of the two propositions established in chapter one, the policy driven contextual aspect had the more dominant influence on the direction of the study mainly due to the wide range of practical applications that could potentially be implemented. The initial impetus was generated by a concern for the degree to which architecture in general is influenced by local, national and international political, economic and social issues and events. Buildings are like the veneer on a laminated surface where the unseen layers provide the substance to keep them in place. When the underlying layers start to change, be that an improvement or a collapse, the building is likely to bear the consequences. Section 7.2 develops the contextual debate to explain why adaptive reuse of houses for primary school use in Havana was a consequence of contextual factors that were driven by political events, economic policies and social issues.

Section 7.3 then expands on the second objective by relating the issues of type, form and function that were explored in chapter three to the outcome of the case study analysis in chapter six. By developing the rationale for using a 'Schoolhouse' as an alternative solution for the function of educating children in Havana the interface between the contextual aspects of the debate and the architectural theoretical principles are drawn closer together.

From the issues raised in these two sections it is then possible to determine ways in which the various findings can be developed. Section 7.4 therefore considers the direction for future empirical and theoretical research. The chapter concludes with a summary of the investigation.

7.2 Value in Context

Preliminary background investigation revealed that the motivating forces behind the resurgence of adaptive reuse of redundant buildings during the latter part of the twentieth century in the UK and the USA were based on economic factors, particularly marketability and profit. The detailed analysis of the contemporary history of Cuba in chapter five, and the case study in chapter six, demonstrated that the decision to use houses for primary schools was based on political and economic necessity. Hence, whilst in the entrepreneurial driven western countries adaptive reuse tends to focus on commercial projects that appeal to the public, in Cuba the socialist motives have led to projects being chosen for their benefit to society as a whole. Nevertheless the success of recycling buildings for different functions is largely dependent on the acceptance of this solution by society regardless of the contextual setting. However, the transfer of these motivating elements between contrasting societies is more problematic because changing the attitude of the public (and the politicians) can be difficult even when the reason for doing so is shown to be beneficial to all concerned.

The location of Havana, Cuba for the case study of the *casas adaptadas* was very specific despite the awareness of the threat of external validity of this choice being questioned (Le Compte & Goetz, 1982: 31-60).[1] Making a case, that it is reasonable to generalize because the topic, the setting and the period are representative in that they share certain essential characteristics with other topics, settings and periods, seemed the best way to show that this threat is discountable (Robson, 1993:72). The means of achieving this was to delve into the socio-political and economic historical development of education in Cuba. Chapters four and five have explained both how and why the architecture and urban development mirrored the changes in each era and both how and why adaptive reuse of educational buildings was considered an acceptable way of accommodating young children as an alternative solution to building new schools throughout the three contrasting periods - colonial, republican and post-revolutionary. More importantly these chapters have revealed that the degree of difference between this location and any other is relatively superficial. In other words, the political and economic policies influenced the architectural and education strategies in the same way that they do in other societies despite the fact that the aims and objectives of these policies are different and specific.

In a society where it has been shown that education has been at the forefront of political policies since the start of the Revolution in 1959, where the pedagogical achievements have been acknowledged worldwide, and where a massive programme for building new schools, colleges and universities was implemented within a relatively short timeframe, the key question with regards to this study must be, **why are more than eighty percent** of the primary schools in the inner city municipalities of Havana[2] still located in houses rather than in purpose built schools?

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[1] Robson (1993:73) summarises Le Compte & Goetz's threats to external validity under four headings: Selection (being a specific group studied); Setting (being specific to a particular context in which the study took place); History (specific and unique); and Construct effects (that the particular constructs studied may be specific to the group studied).

[2] There are 88 primary schools in the three central municipalities of Plaza, Habana Vieja and Centro Habana, 71 of which are located in *casas adaptadas*.

Through the analysis of the information in chapters four, five and six, this section explains why the motivating forces behind the decision to use houses in preference to building new schools for primary education in central Havana are embedded in, and dominated by, political, economic and social issues rather than architectural factors.

7.2.1 Historical Precedents

The first response could be that a precedent had been firmly entrenched in Cuban educational history. Chapter 4.3 explained how, during the colonial period, it was mainly the rich Creole aristocracy who sent their children to school and it was considered normal to use houses for primary education. Even after compulsory education had been introduced at the end of the nineteenth century the private and church schools predominated.

Later (in chapter 4.5) it was revealed that during the early decades of the Republican era using houses for educational purposes was not only the favoured solution, but also that it was a more lucrative one for the State, for the teachers and for the house owners. Towards the end of the Republican period even after considerably more State schools had been constructed they were either under military control (in Batista's regime), or they were built in locations that were not readily accessible to the children for whom they were built. Private primary schools on the other hand for children of the growing numbers of wealthy entrepreneurs were either incorporated within large and impressive secondary school buildings or were located in houses. By the late 1940s only seven percent of school buildings were owned by the State.

Whilst policies had been introduced to make education compulsory for all children, in practice neither the colonial nor the Republican governments did much to enforce the legislation. Moreover, since this lack of application mainly affected the peasants in the rural areas and the poor who lived in the shanty areas of the city, there was little incentive for the wealthy ruling classes of each era to change the system. Nevertheless, because the use of houses for primary education had been an accepted and relatively successful solution in the past, the continuance of this procedure must be considered as a contributing factor that influenced the new regime. However, whilst this precedent may explain why the houses in Havana were used as primary schools during the early years of the Post Revolutionary government, it does not explain why they are still being used some forty-five years later, the reasons for which are discussed below.

7.2.2 Political and Economic Policies

The answer to this anomaly lies in a combination of various political and economic policies instigated at the start of the Revolution that have been outlined in chapter five. The issue is complicated by the fact that these policies not only influenced the direction of the education programme but also had an impact on the social expectations of the population as a whole. The

following summary explains why each of these factors led to the use of houses as primary schools. Although it is easier to discuss these individually, it is the combination of, and inter-relationship between all these issues that has resulted in the continuation of their usage in the inner city municipalities of Havana.

a) The Rural Urbanisation Policy

Prior to the Revolution the entire focus of the country in terms of wealth and development centred on Havana. *"The Policy after 1959 was that Havana would have to wait for the rest of the country, which had been neglected for centuries, to catch up with its infrastructure and development"* (Dr. Arq. Baroni Basoni).[3] The rural urbanisation policy put educational development on a path from which it would be unable to diverge in later years. The Agrarian Reform laws (1959 and 1963) effectively led to the prioritisation of resources to meet the basic infrastructural needs of the rural areas; whilst the Urban Reform legislation (1959 and 1960) meant that development in the provinces was at the expense of the urban areas where standards in the cities subsequently declined (Stubbs, 1989:30; Edwards, 1979:111; Brundenius, 1985:200). *"While making life in the capital less attractive, Castro made provincial living more attractive"* (Eckstein, 1994:152).

A massive building programme occurred between 1959 and 1964 specifically to accommodate primary education[4]. Since few schools existed in the countryside and provincial towns, most new schools were constructed in the rural and mountain regions, located in relative close proximity to where local families lived. But in order for **both** the agrarian and the urban reforms to succeed an economic compromise was needed. The immediate adaptive reuse of all the military installations for educational purposes in 1959 proved to be successful. Consequently, the government repossessed many of the large mansions in Havana that were vacated during the following two years due to the exodus of a large percentage of the wealthy middle classes. By using (rather than adapting) these buildings as primary schools the regime could maintain its commitment to education in the urban sector, but at a minimum cost. This strategy worked with regards to the pedagogical achievements reached in primary education during the following decade. Whether or not the policy was intended as a short-term (or temporary) measure instigated to meet the initial educational targets is open to debate. However, the rural urbanisation policy was a long-term strategy that continued to permeate all subsequent educational levels as the next part will explain.

b) The Educational Pyramid

The development of primary education, and the corresponding number of primary schools built, reached a peak in the mid-1970s due to pedagogical factors detailed in chapter 5.3.2. However, by the start of the 1970s work was already well underway with the development of secondary

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[3] Lecture notes from a presentation at UNAICC in Havana in March 1995.

[4] A total of 6,461 primary schools were created between 1959 and 1964 (though this figure does not mean that these were all new buildings). This figure reduced to 1,533 additional primary schools between 1964 and 1974. Thereafter the number of primary schools started to decrease.

education[5]. Following the rural urbanisation policy secondary schools were also built in the countryside and in the provincial capitals. This meant that pupils could continue their education after primary level in the same location. Unlike the relatively small scale of the primary schools, the new ESBECs, pre-university and technical-vocational schools were exceedingly large.[6] The cost of their construction was correspondingly high effectively quadrupling the state budget allocation for education (chapter 5.3.1). Similarly the 1980s saw the escalation of institutes of higher education,[7] again located throughout the country.

As each consecutive layer in the education pyramid developed in each decade both the focus of attention and, more importantly, the economic resources were concentrated in the level that was in the process of expansion. There was neither the time nor the resources available to backtrack on either newly constructed buildings or existing schools. By the time the pyramid had been completed at the end of the 1980s Cuba entered the Special Period when all resources were frozen.

The question of where the attention would have focused in the 1990s is open to speculation, but discussions with Barbosa (MINED) and Rebellón (MINCON) prior to the start of this study in April 1995 indicated that there were three areas of education that both MINED and MINCON wanted to develop. The first was the general expansion of the pre-school facilities (*Circulos Infantiles*) throughout the country, but especially in the urban areas. The second was the development of school buildings in the mountain regions; and the third was to *"tackle the problems of the casas adaptadas in Havana"* (Barbosa, April, 1995). Their proposals can be substantiated by the fact that there was certainly no need for more new schools at primary or secondary level on any significant scale especially since the number of births had been steadily declining throughout the decade. Neither was there any need for more vocational colleges and universities as chapter 6.5.4 revealed. However, whilst there was an awareness of what needed to be done, it was the lack of resources that prevented these proposals from being carried out. Like many other events in the past, it was circumstances beyond the control of the Cubans that dictated the direction the government would have to follow in order to maintain the status quo of education. The fact that it has managed to do so is remarkable given the severe economic pressures at the end of the century.

c) Social Expectations and the Acceptance of the Status Quo in Havana

On the one hand, the 1961 National Literacy Campaign (chapter 5.1.2) and the Seguimiento adult education programme (chapter 5.2.3) had raised the educational expectations of the entire population. On the other hand, both of these illustrated that education was not restricted to the confines of a school building and that any available space could be, and was, utilised for this purpose. Many of the people, who either taught or were taught during these early years of the Revolution, experienced these conditions, and many of these same people are now the ones in

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[5] Some 304 secondary schools were built between 1971 and 1975 (averaging six schools per month) (Curbelo, 1978:24). The number of secondary schools grew from 376 in 1970 to 1,132 in 1980 (Kolesnikov, 1983:520).

[6] ESBECs accommodated around 520 boarding pupils, whilst the urban secondary schools (located on the outskirts of the provincial towns) were designed for between 600 to 1,200 pupils. Vocational colleges housed between 2,000 and 4,500 students.

[7] In 1959 there were three universities in Cuba. By the mid-1980s there were forty-six. Student enrolment grew from 151,733 in 1980 to 235,224 in 1985 (Richmond, 1989:188).

positions of authority. Hence using the repossessed mansions in Havana as primary schools was considered a satisfactory solution for the function of educating children, especially since these buildings were located within a reasonable distance from where the people lived. The condition of the facilities provided was also accepted because in most instances it was neither better nor worse than conditions elsewhere (in either homes or offices)[8]. For millions of Cubans in the 1960s 'school' was a place of learning, not a building type, and this concept permeated their approach to education in subsequent decades. Moreover the attitude of the population towards education has been inculcated by the philosophical teachings of Martí and Guevara. The quest for knowledge and self-improvement was therefore unlikely to stop due to the unfavourable condition of the buildings.

Expectations were raised somewhat higher in the late 1970s with the expansion into secondary and vocational schools and there was tough competition to be selected for the top quality schools such as the Lenin Vocational School[9] in Havana. It could be argued that a double standard evolved whereby poor quality was tolerated in the primary schools but high quality was essential in secondary schools. The desire to progress meant the focus was always forward to the next stage of development. The people had learned to live with the hardship of the embargo since the start of the Revolution and coping with difficulty is still regarded as a part of the way of life in Cuba. Compared with other more pressing problems[10], the material quality of the primary schools is a minor inconvenience as long as the children receive an education to the required standard. The fact that no school closed throughout the worst years of the Special Period was because the people and the government refused to allow the learning process to stop.

7.2.3 Maintenance in Context

Chapter 5.7.1 described how the inner city municipalities of Havana were, with a few exceptions, deliberately ignored in terms of new development as the rest of the country continued to be a priority. Schools and housing all gradually deteriorated due to the degree of maintenance required being grossly underestimated. Rebellón confirmed that *"maintenance of school buildings was not resolved prior to the start of the Special Period, hence the situation worsened considerably after 1992"* (notes from interview on 16 February 1998).

By the mid-1990s the energy crisis meant that the economic strategy concentrated on obtaining hard currency through the development of tourism, biotechnology and agriculture. What little finance there was available for maintenance could only be directed towards the most critical cases, which was mainly housing in the municipalities of La Habana Vieja, Centro Habana, Cerro and Diez de Octubre. These were the worst areas where it was estimated that some 350,000 buildings

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[8] In the 1960s the houses occupied were in good condition. It was the lack of maintenance that subsequently led to their deterioration.

[9] With a capacity for 4,500 pupils, this was the first combined secondary and pre-university school to be built and it still has the reputation for being one of the best in the country.

[10] For example, shortage of food, electricity power cuts, lack of transportation etc.

were in a state of near collapse (López, 1995)[11]. Help emerged from a seemingly unlikely source, Spain. The 'mother country' not only gave Cuba substantial 'loans' but also offered practical assistance. Various Spanish regions began to sponsor specific restoration projects[12]. During the field study in 1997 work had just commenced on the ground floor of one of the buildings belonging to the primary school No. 2.16, Juan Triana. New toilets and wash-hand basins were being installed, walls and windows were being repaired and the entire ground floor was going to be painted. Due to the sensitivity of foreign investment in Cuba at that time[13] MINED was only prepared to confirm that the restoration work was financed from Spain. Given the overall scale of the problem this tiny contribution may seem insignificant, but it did make a difference - at least to the children who attend Juan Triana.

Between 1976 and 1996 nine primary schools in the municipality of Plaza de la Revolución were closed down due to the critical condition of the buildings (see Appendix E). This has contributed to the overcrowding in the remaining schools. Maintenance records for all schools are kept in the office of the DAU in each municipality. The copies obtained during the field visit in April 1997 (see Appendix B) specify the dates of the survey reports. For some schools this indicates that it has been more than ten years since a survey was carried out. The "Present Status" section (i.e. at the time of the last survey) reveals the extent of the deterioration of nearly all the houses. The fact that physical conditions such as *"non-structural walls are crumbling due to subsidence"* (No. 2.16 Juan Triana) and *"roofs leaking in two rooms"* (No. 4.30 Tomas Romay) are ranked as "average", whilst a rank of "poor" applies to buildings where *"collapses have occurred"* (No. 1.12 Hermanas Girald and No. 2.13 Ignacio Agramonte) gives not so much an indication of the seriousness of the situation, but of the Cuban's perception of the problem. In other words the degree of quality is relative to the overall context.

This does not imply that the authorities are in any way complacent about the situation. In fact it is a good example of an excellent management strategy. It shows first, an understanding of the difference between what is 'urgent' and what is 'important', and second, that actions are carried out based on the degree of relationship between these two categories. Recording the failures in detail indicates that the authorities are aware that these are important issues. However, action can only be taken on the defects that are both important and urgent (i.e. where collapse is imminent). Non-urgent repairs simply have to wait either until resources are available or until their status is upgraded to urgent. If no resources are forthcoming the school would simply be closed down as others have been in the past. In the meantime the *casas adaptadas* continue to function as primary schools as they have done for almost half a century despite the lack of maintenance.

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[11] Notes from lecture given by Arq. Luis López Medrano at UNIACC in March 1995.

[12] For example, each region in Spain is responsible for the restoration of one block of buildings on the Malecón. I visited the project office (located in a very dilapidated building on the Malecón) for this development on more than one occasion. Whilst the proposals were well advanced, the Cubans were still waiting for the financial backing from the Spanish regions.

[13] Namely the Helms-Burton legislation (see chapter 5.5.1).

7.2.4 Contextual Summary

With regard to the first proposition therefore this section has demonstrated how various political, economic, social and cultural factors were the dominant influences on the decision to use houses for primary school education in the urban areas of Havana. It has also revealed that once this decision had been made it became increasingly difficult to make any changes to this strategy during the first three decades and that by the fourth decade it was too late as external events had led the country into a period of stagnation. Hence, it is reasonable to conclude that the *casas adaptadas* evolved as a response to contextual needs that were driven by not only by political strategies, economic policies and social issues in Cuba but also by international events

7.3 From House-school to Schoolhouse

The aim of the second objective was to examine the relationship between, and the effect of, building type, form, function and aesthetics on the adaptive reuse of buildings. This was introduced in chapter three and explored in more depth in subsequent chapters.

First, by examining the component of type it was found that most buildings are categorised by the type of function they accommodate even after this function has been changed. To the people who occupy the buildings the change of labels does not seem to pose a problem, although chapter six found that most of the teachers in the *casas adaptadas* wanted to work in a purpose built school rather than 'a house'. When form was added to the equation the issue became more complex. The concept that a certain type of building with a specific function has a prescriptive form is distorted when the form is changed to accommodate a different function and the original type is no longer applicable to either.

Regarding the symbolic and aesthetic meaning of a building it was found that many of the traditional symbols of the past have been eroded by the plethora of new architectural styles that developed in the twentieth century. Various 'landmark' buildings have rejected the language that was used in the past to communicate meaning and identity and have created a language of individuality. Moreover, when the historical development of school buildings was reviewed it was found that the iconography of these was equally confusing. Some schools built in the sixteenth century looked like houses and some in the twentieth century could be mistaken for office buildings. Nevertheless as Drouin, (2000: 11) notes *"older facilities have their importance, both symbolically and architecturally. They create not only a feeling of belonging but also an image that remain in the minds of all former students."* Furthermore, when a new function is placed in a building for which it was not designed a degree of confusion occurs, as if two languages were being spoken simultaneously. What appears to be consistent is the 'compatibility factor' when the original form and the new function complement each other is some way. But even this has exceptions as chapter three demonstrated in some exceptionally unusual transformations of buildings all of which

appear to be acceptable solutions. This section therefore re-examines these elements and relates the outcomes of the previous discussion to the analysis of the *casas adaptadas* surveyed in Havana.

7.3.1 Type, Form and Function Revisited

> *"The school is a building type which has passed beyond the limits of architectural form to approach the human activity it houses."* (Holt, 1975:184)

Chapter 3.2.2 explained how the concept of modern architectural typologies emerged from the writings of the French theorist Durand and that his rationale linking form, function and type made a substantial contribution towards the requirement to complete a wide range of buildings as quickly as possible during the Napoleonic period. A similar approach was used in the post war era in the UK when, during the 1960s, the method of system building proliferated in order to produce both the large number of schools required to meet education requirements and also mass housing developments. It could be argued that such an approach was simply a means of resolving a practical problem. In this respect the rationale parallels the concept of using houses for schools in Cuba because, on the one hand the need to create centres of learning as quickly as possible was a priority, and on the other hand, the practice of educating young children in houses already existed as chapter four explained.[14]

Chapter 3.5 described how the categorization of 'school' evolved over a period of time during which the various sub-divisions have become ever more prescriptive in terms of the form that is stipulated for the functions that each element is required to perform. It would be unreasonable to suggest that the *casas adaptadas* could replicate the new typology of a 'primary school' as it is currently defined in terms of space standards, codes and regulations. Indeed, some of the problems that have been identified in the *casas adaptadas* can be attributed to the fact that the specification requirements for a 'school' were imposed on the typology of a 'house' without any adaptation to the existing building. Whilst it was found that some of the functions could be carried out satisfactorily, many areas were deemed unsuitable. Nevertheless, chapter 6.4 demonstrated that some of the houses could provide adequate accommodation for a primary school if both renovations and extensions were carried out. The resultant building would represent the 'meta duck' described in chapter 3.3.3, a building that looks like a house, but which functions as a school. However, as section 7.3.3 will explain, by reinstating the 'schoolhouse' as a specific category of educational buildings that sets out different criteria in terms of function that are more akin to its form, then the whole approach to the issue of educating children in houses could be resolved in a different but more successful manner.

When function and form were added to the equation, chapter 3.2.4 illustrated how the users of a building associated its typology with its new use, even when the form and aesthetics bore no relationship to the new function. In contrast, non-users of the building and those unfamiliar with

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[14] In fact, the term 'schoolhouse' is an expression that is still commonly used in the United States. See chapters by McDonald, Gore, Grave, and Toffler, in Toffler 1968.

the new function tended to refer to its original classification. The ambiguity was in the mind of the beholder who was either ambivalent or confused by the metamorphosis. However, the apparent acceptability of the *casas adaptadas* could be attributed to sociological and symbolic factors. Both a 'house' and a 'school' are buildings in which children are raised and nurtured. Both are places where children interact with their peers and elders (siblings and parents in the home, and pupils and teachers in school), and both are places where different types of learning and development occur. By association therefore the transformation from house to school is seen to be satisfactory.[15]

The discussion on the relationship between form and function also illustrated that even a very prescriptive form could be adapted to suit a new function. Yet the analysis of the *casas adaptadas* has revealed that the original form can accommodate an entirely different function **without any adaptation** to the building, even if this is with a limited degree of user satisfaction. This suggests that, with appropriate alterations, the houses could satisfy the function of a primary school. Whether or not this is desirable is the subject for consideration in the following sub-section.

7.3.2 A Rationale for Using Houses

> *"An educational facility – a shed, a warehouse, museum, resource center or school building – should nurture an understanding and appreciation for the dimensions of life as it is, as it has been and as it might conceivably be."* (Buttenweiser quoted in Holt, 1975:184)

The question of whether it is worth improving the standard of these houses in order to create a more satisfactory environment for primary educational purposes can be answered by examining the following components:-

a) **Cost** - it is often more economical to convert and extend an existing building than to create a new building provided that the existing structure is sound, and that a variation in the normal space standards and regulations is acceptable (Dale, 1999:3). The analysis shows that a considerable amount of maintenance work needs to be carried out on all of the *casas adaptadas*. This would be a pre-requisite to any additional changes in order to make the premises safe and secure. However, if the number of pupils were reduced to the capacity that the houses are capable of holding, then, apart from adding extra toilet facilities, only minor adaptations would be required. This would increase the quality of the facilities and improve the user satisfaction whilst keeping the costs to a minimum in accordance with Figure 6.28 in section 6.3 illustrating the Optimisation of Value. Although the cost of land acquisition on which to build a new school is not a major issue in Cuba[16] the availability of a site in a suitable location in these urban areas is a problem. Another difficulty facing the Ministry of Education is the cost of materials (see chapter 5.5). Since the quantity required to construct a new school is considerably more than the amount needed for renovation work, the lower cost factor of adaptive reuse is a high incentive for retaining the *casas adaptadas*.

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[15] See the discussion by Markus (1993a:30-33) outlined in chapter 3.3.4.

[16] This is done on a compulsory purchase order based on the value of the land since some premises and land are in private ownership.

b) Function – the investigation has shown that the basic functions of a primary school (educate children; improve fitness; inculcate knowledge; enhance beliefs; unite community etc.) are educational, social and political functions, not architectural. The need to provide a space in which to carry out these functions manifests itself in the architectural response (Dale, 1999:4). The survey has illustrated that the existing houses can partially fulfil the basic functions and that with some alterations the secondary functions could also be improved. It also revealed how some functions did not need to take place within the confines of the school building and that, by using the resources of the city (such as parks, swimming pools and museums), these functions could be satisfied elsewhere. Whilst, in Havana, this is due mainly to necessity because of the lack of facilities within the *casas adaptadas*, it parallels the current approach to providing education in urban areas in the future, where education extends beyond the boundary of the school building into the city itself (Duckenfield, 1995; Drouin, 2000; Nair, 2000; Jilk, 2001).[17]

c) Scale - a house has a domestic scale that young children can relate to, although this factor can limit the capacity of the school. Discussions with Barbosa at MINED (July, 1996) revealed that the preferred size for a primary school is between 360 and 420 pupils[18] and that this is also the most economically efficient number with regards to staffing. Hence it is better to have smaller schools located within close proximity of the residents they serve instead of larger ones that would be more distant from the children's homes. Section 6.1.2 illustrated that the houses in Vedado are particularly large mansions originally designed for the wealthy entrepreneurs in the Republican era. The number of rooms is more than in an average house since most had servants' quarters, three or four bathrooms and rooms for entertainment. The size of the rooms is also considerably greater than average although they still retain a certain domestic atmosphere. However, the number of pupils these rooms can contain is still less than the normal standard of thirty per class.

d) Familiarity - a converted school-house becomes an extension of one's own home (Dale, 1999:3). Chapter 5.6.4 explained that in order to facilitate working parents, the Cuban schools are open from 6.00am to 7.00pm so that children can play or work under the supervision of the auxiliary helpers before and after the school activities. Hence, many children spend more waking hours in school that at home. In the schools visited, the children in the first four grades seemed more relaxed and happy in their surroundings than the older children who were more conscious of the space restrictions. Also, since most children attended the school nearest their home they can identify with, and feel secure in the surrounding environment. The psychological benefits of being educated in familiar surroundings were explained in chapter 2.2.3 and also expressed in the initial quotation in chapter one by Holt (1975:143-144). For most young children primary school is their first experience of an educational environment. A schoolhouse can act as a bridge between the domestic surroundings of their early infant years and the more institutional atmosphere of a secondary school that is encountered in adolescence.

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[17] This concept is not new but has been the topic of debate for over thirty years, as chapter 3.5.4 illustrated.

[18] That is six forms with thirty to forty pupils in each form and a two form-entry system. If a pre-school (kindergarten) is needed, one additional classroom for thirty infants should be added. Barbosa noted that if a school has more than 420 pupils (a 6 x 2-form entry system) an additional Assistant Director (Head Teacher) is needed.

HOME	SCHOOLHOUSE	SCHOOL
Domestic		**Institutional**
Private		**Public**
Familiar		Strange
Relaxed		Formal
Parents		Teachers
Secure		Exposed
Protected		Vunerable
Comfortable		Impersonal

Figure 7.1 Schoolhouse - a Bridge between Home and School

"School buildings usually have a long life, often much longer than originally intended" (Duckenfield, 1995:23). The *casas adaptadas* have been in use for over forty years[19]. Given the existing political and economic context outlined in chapter 5.5, it is most unlikely that they will be replaced with new purpose built schools in the foreseeable future[20]. Hence, it would be worth improving the standard of these houses in order to create a more satisfactory environment.

7.3.3 A Schoolhouse in Context

> *"Today's schools are obsolete because they are still giving out information in a society which has other sources more appealing and more influential to students. [Coleman] advocates a type of school somewhat like the home/community of 100 years ago when students learned how to become more productive members of the family, the community and the country."* (Holt, 1975:187)

The obsession with building types has proliferated to such an extent that every branch of the educational sector has its own specifications for the design of buildings for increasingly prescribed functions. Unfortunately the *casas adaptadas* do not fit in to any of these categories. The discussion on type, form and function raises another question. Should the *casas adaptadas* be considered as a separate building type? - a Schoolhouse?

The traditional Schoolhouse was a building, usually a house, which was used for the purpose of educating young children of primary school age. It was predominantly used in rural areas that were too distant from towns with conventional schools for the children to access. Often the Schoolhouse contained only one room in a cottage in which the teacher also lived. Though common in many part of the United States in the early 1900s, it is now almost extinct in most countries due to the fact that it represents only a very small percentage of primary schools. The influence of the US in Cuba in the first half of the twentieth century led to the continued use of houses for primary schools in Havana, a precedent that had been established in the colonial era as chapter four illustrated.

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[19] This could be compared with the HORSA (Hutting Operation for Raising the School-Leaving Age) huts that were built in England in 1945 *"to provide a great deal of extra secondary-school accommodation in a hurry"* (Saint, 1987:55) but were still being used in the 1990s. The same can be said with regards to the use of Portakabins for 'temporary' classrooms.

[20] Duckenfield, (1995:36) notes that, even in the US, *"Schools and colleges buy 'non-educational' facilities for specialized or short-term use, such as buses as mobile education units* ***and houses for temporary conversion to classrooms.***"

If the 'Schoolhouse' were reinstated as a 'new' building typology in its own right, new educational and architectural parameters would have to be established and these would need to differ from those of a conventional primary school. Due to the number of *casas adaptadas* throughout Havana such a suggestion does not seem unreasonable. If the number of pupils per class and the number of forms per grade were restricted to fit within the physical constraints of a Schoolhouse, a substantial improvement could be made. This would probably result in the need for more Schoolhouses to take the pupils who would be displaced from the existing schools, but if the concept is seen to be satisfactory to the users and the Educational Authority, it is worth consideration. Perhaps, as Holt (1975) suggested in the opening quotation in chapter one, the Schoolhouse could be the school of the future rather than the past.

7.4 Linking the Layers

With regards to the first proposition, the study has shown that the dominant influence that led to the houses in the urban areas of Havana being used as primary schools was a response to the contextual needs that were driven by political events, economic policies and social issues. However, it was demonstrated that these needs are also functions, and as functions they constitute a crucial component of the design procedure.

With regards to the second proposition the analysis has also revealed the confusion that exists when the function of one building typology and the form of another are combined. However, in this particular instance (unlike many other adaptive reuse projects) an alternative typology, that combines these two components, already exists in the form of the Schoolhouse.

The study demonstrated in chapter three that if the function, instead of the building, instigates the task, both a better and a wider range of solutions can be obtained. This is not to imply that there are not some instances when it may be more advisable to start with the building, but if function analysis methodology is also used in these cases, this would yield even more potential resolutions. The use of value analysis and in particular function analysis methodology ensures a better understanding of the problem or task to be resolved. By placing the focus on the function of 'educating children', rather than on the building, the case study analysis revealed that the *casas adaptadas* do in fact satisfy the needs of the Educational Authority by providing the facilities for carrying out this function with the minimum amount of resources. In this respect therefore, the *casas adaptadas* make a valuable contribution to inner city primary education. This contrasts with the more traditional method of architectural analysis of recycled buildings where the emphasis is placed on the quality of the building fabric, the facilities provided and the space requirements. In this instance the analysis illustrated that the *casas adaptadas* were mostly unsatisfactory. A value study would evaluate both analyses before making any recommendations although all proposals put forward would concentrate on ways to resolve the functional requirements – and this may, or may not, include the building.

Another issue raised in chapter one was the interface between theory and practice. The aim was to find out why there is such a gap between the two in respect of adaptive reuse and to ascertain if it is really necessary to close the gap. Whilst it was beyond the scope of this study to explore the development of architectural theory, chapter three touched on some of the principles, from Durand to Venturi, to demonstrate how theories not only change according to the era they represent but also how they build upon each other and, as such, precedents are either established or overturned. Chapter three highlighted that in trying to develop theoretical principles on adaptive reuse, there is a risk of undermining the existing principles of design. There does not seem to be a problem with the concept of form because this can be applied universally to new or adapted buildings. The main area of concern relates to typology - the concept of classifying buildings according to their original functional usage. Specific types of buildings are used as precedent studies to teach architectural students how to design buildings for certain functions. There are numerous books on specific building types. However, each building can be adapted for a wide variety of different uses. This does not result in a new classification since each adapted building will have a different function. Each becomes a unique, one-off project making it difficult to apply universal principles of design with respect to type. However, the previous section illustrated that in the case of the *casas adaptadas* a typology exists that can be applied to the adapted buildings and that this helps to overcome the confusion in the new use.

Returning then to the two key questions (how and why) used in function methodology the case study analysis in chapter six demonstrated **how** the existing conditions could be improved and **how** the implementation of a strategic development plan could provide a suitable approach to the selection of houses for educational purposes in the future. The 'how' questions were therefore centred on issues relating to the type, form and function of the building but, because the building already exists, the response to these resulted in pragmatic issues rather than theoretical principles. Conversely the 'why' questions examined the philosophical rationale for using houses as primary schools. In response to the questions, **why** were the houses used in the first place? **why** do they continue to be used? and **why** are they in such a poor condition? the investigation revealed in chapters four, five and seven that the causative factors that instigated the procedure were due to the contextual issues – political policies, economic strategies and social needs that can also be described as functions. The 'gap' between theory and practice appears to be due to the focus on building types. Since the categorisation of buildings is unlikely to be abandoned, a change of perspective is required when analysing the adaptive reuse of redundant buildings.

7.5 New Horizons

The exploratory nature of the research led to an awareness of the possibilities for future research directions at a relatively early stage in the investigation. As stated in chapter two the aspect of generalizability suggests that there are various components where replication could be carried out using either different functions, or different building types, or different locations, or any

combination of these (Robson, 1993:72)[21]. Although the study indicates that there are potential areas for further investigation in related fields, such as sociology and pedagogy, the following proposals will focus on the architecturally related issues.

The continuing debate in the OECD (PEB) publications regarding the plight of, and approach to inner city educational buildings implies that further research could be carried out on the reuse of houses or other building types (such as office buildings, redundant warehouses and factories) for educational purposes. A study in the UK would be particularly useful as it would complement the current focus on urban regeneration and the use of brown field sites and buildings as explained in the Urban Task Force Report (1999). Cities in the United States could also provide an appropriate location for the same functional use. This type of research would probably be policy driven. The range of proposals expands substantially if the new function is changed from primary school use to another usage and the purpose is to find a suitable building for the new function. In addition, the behavioural issues relating to people's perception of working in adapted buildings could add another dimension to this debate.

On the theoretical side it has been demonstrated that there are many issue that could be explored in more depth. The study of how buildings are classified once they have been adapted is one such issue. Another is the issue of iconography. What role for example, does symbolism have once the function of the building changes? Is the aesthetic meaning of a building important in the consideration of an adaptive reuse project? Expanding on the question by Markus (1993a:12) *"What does it mean if a building designed for the first function was capable of being used for the second?"* perhaps the most complex theoretical question to develop further would be, if the form, function and aesthetic meaning of an adapted building is considered to be satisfactory to both the general public and the users of the building, and is deemed acceptable by the architectural fraternity, how does this effect the existing fundamental principles of design as they have been taught and practised over the centuries? The relationship between type, form and function with regards to adaptive reuse is an area that has still not been resolved satisfactorily. The decision as to whether these components should be examined individually or together also has the potential for further investigation.

7.6 Conclusion

> *"We conclude with the schoolhouse – but not the walled fortress or inward-turning monument of the past. For if the school is, in fact, more and more intimately tied to its urban context, then the schoolhouse itself must be seen in a fresh light."* (Toffler, 1968:163)

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[21] Zeisel (1984:86) illustrates how replication studies followed the research on Boston's Italian community, *"Street Corner Society"* by Whyte(1943 &1955). In Young & Willmott (1957) and Brolin (1972) the locations changed to England and India respectively; in Cooper (1975) and Zeisel (1973) the community changed to blacks and Puerto Ricans respectively; and in Ziesel & Griffin (1975) a different low-income neighbourhood in Boston was investigated.

The revitalization of historic inner city areas is dependant on a holistic approach. This can, and should be, achieved through the conservation, renovation and adaptation of the existing buildings where possible. The provision of primary schools is only part of the equation but it is essential to maintain the link between all the components if the vitality of the city is to be truly regenerated. This study has demonstrated that the concept of the Schoolhouse could be revitalised as a building type suitable for certain inner city areas.

The focus of the investigation was about change. At the macro scale, it was about adaptive reuse of redundant buildings in urban areas and about understanding the reason for their change of form and change of function. At the micro scale it was about how and why houses were changed into primary schools in an inner city municipality in Havana. Perhaps the biggest change was a personal change in attitude and perception. I started out looking at dilapidated buildings with unsanitary, cramped conditions but when I observed the happy faces of the children focused on the task of learning and oblivious to their surroundings I realised the potential these houses could achieve, and then I understood the difference between looking and seeing.

Figure 7.2 Young Primary School Children
Source: Cedisac (1997: EDUF/ 31)

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Appendices

Appendix A : List of Persons Interviewed

The following is a list of individuals who were interviewed during the course of the fieldwork in Cuba. Most were interviewed on each visit. Some of the officials have since moved posts, and some have left the country.

Ministerio de Educación (MINED)

Arq. Rafael Barbosa Rovira	Director de Mantenimiento e Inversiones

Ministerio de la Construcción (MINCON)

Arq. Josefina Rebellón Alonso	Directora de Construcciones Escolares
Arq. Maria Elena Frade Faiña	Especialista Ramal en Proyectos
Arq. Raul Gonzales Romero	Especialista Ramal en Proyectos

Municipio de Plaza de la Revolución

Departamento Arquitectura y Urbanismo (DAU) - Municipio Plaza de la Revolución

Liliana del Portillo	Jefe del Departamento

Departamento de Educación - Plaza de la Revolución

Mario Mesa	Director Municipal de Educacción Primaria
Caridad Puente	Directora Municipal de Estadisticas

Empresa Provincial Proyectos (Oficina Rehabilitación)- Poder Popular (Municipio Plaza)

Arq. Felix Torres Lozada	Especialista en proyectos de rehabilitación de edificios y obras varias

Head Teachers of Individual Schools Visited in Plaza del la Revolución

Zone & Code	Name of School	Head Teacher
1.12	Hermanas Girald	Elsie Casares Zayas
1.20	Orlando Pantoja	Martha Irene Sánehoz Alemán
2.13	Ignacio Agramonte	Jorgelina F. Rodríguez Corvo
2.16	Juan Triana	Marta Temprano Hernández
3.24	Petro Portuondo	José Cabaero Castro
3.34	Frank Hidalgo Gato	María Elena Torres Arazo
4.25	Rene Ramous Latour	Cecilia Lara Quiala
4.30	Tomas Romay	Miguel A. Hernández Cardaso
5.04	Combatientes de Bolivia	Luis Ramón Pérez Cruz
5.10	Gustavo Ferrer	Delia Reinoso Acosto
7.01	Adalberto Gomez Nuñez	Josefa Abad Hernándes
7.08	Gonzalo de Quesada	Cecilia Cárdenas Blanco
7.23	Pedro Albizu Campo	Erundina S. Rodríguez Villavicencio

Instituto Superior Polytécnico "José Antonio Echeverría" (ISPJAE) / (CUJAE)

Centro de Estudios de Construcción y Arquitectura Tropical (CECAT)

Prof. Dr. Arq. Rubén Bancrofft	Director
Prof. Arq. Manuel Pi Rodríguez	Director Division de Postgrado

Facultad de Arquitectura

Arq. Obdulio Coca Rodríguez	Decano
Prof. Arq. Gema Fleitas Corona	Profesora de Arquitectura
Prof. Arq. Sergio Ferro Cisneros	Profesor Titular
Prof. Dra. Arq. Eliana Cardenas	Profesor Titular de Historia de Arquitectura
Prof. Dra. Arq. Dania González Coure	Profesor Titular
Prof. Dra. Arq. Viviana Rodríguez Gómez	Profesora de Arquitectura
Dra. Arq. Lourdes Ortega Morales	Jefe del Grupo de Vivienda
Prof. Alfonso Alfonso	Profesor Titular
Prof. Mario González	Profesor Titular
Lic. Ileana Nieto Bonet	Especialista en Investigaciones Sociologicas
Lic. Roberto Cuba Alvarez	Jefe de Departamento de Idiomas
Lic. Marcos Rodriguez Villamil	Profesor Auxillar de Idioma Inglés
Lic. Reinaldo Acosta López	Profesor Auxillar de Idioma Inglés
Arq. Lourdes de la Rosa	Especialista de Biblioteca

ISPJAE Architecture Students who assisted in the fieldwork - 5th - 23rd May 1997

NAILE PEREZ BARTROLI

JUAN CARLOS RODRIGUEZ GARCIA

FRANK BARRIOS HERNANDEZ

EVELYN GONZALEZ RAPETTI

MAURYN M. LEON MENDOZA

YAQUELIN MOREJON BACERIO

YARELIS BOULLON DELGADO

JOSE SAULO PEREZ RUSO

ADRIANA CHOY LEON

JORGE ENRIQUE RAMOS HERRERA

Other Institutions

Instituto Planificacion Fisica (IPF)

Arq. Mirta Hernandez González	Vice Directora
Dr. Arq. Sergio Baroni Basoni	Profesor Titular Adjunto
Arq. Isabel León Candelario	Especialista en Arquitectura
Lic. Héctor Arranz González	Especialista

Oficina Nacional de Estadísticas (ONE) - Centro de Estudios de Población y Desarrollo (CEPDE)

Juan Carlos Alfonso	Jefe del Departamento
Alina Concepción Alfonso	Assistante

Centro de Estudios Demograficos (CED)

Ania Hernández	Especialista en Biblioteca
Mary López Ahren	Especialista

Instituto Cubano de Geodesía y Cartografía (GEOCUBA)

Roberto Aumeng Kesser	Especialista Comercial

Union Nacional de Ingenieros y Arquitectos Cubanos (UNIACC)

Arq. Sergio Garcia	Presidente

Centro Técnico de la Vivienda y el Urbanismo (CTVU)

Dra. Ing. Ana Margarita Hernández Cruz	Directora de Desarrollo Tecnologico

Grupo para el Desarrollo Integral de la Capital

Prof. Arq. Mario Coyula Cowley	Subdirector

Grupo del Proyectos de Municipio del Playa

Arq. Oscar Hernandez	Director de Proyectos

Cubálse

Arq. Félix Borges Ibáñez	Especialista en Proyectos

Centro Nacional de Conservacion Restauración y Museologia (CENCREM)

Arq. Zoila Cuadras Sola	Jefe del Departamento Docente - Metodologico
Arq. Alina Ochoa	Vice Directora Arquitectura

Arquitectura y Urbanismo - Ciudad de La Habana (DCH)

Prof. Arq. Francisco Casal Iglesias	Especialista Principal en Arquitectura Alternativa
Arq. Silvia Cotarelo Prieto	Especialista Principal en Proyectos
Arq. Daniel Lugo Miranda	Especialista Principal en Proyectos
Arq. Luis López Medrano	Especialista Principal en Proyectos

Municipio de La Habana Vieja

Departamento Arquitectura y Urbanismo (DAU) – Municipio de La Habana Vieja

Arq. Maria del Carmen Calviño	Especialista Principal en Proyectos

Departamento de Educación - La Habana Vieja

Lic. Mario Pérez	Director Municipal de Educación

Dirección Provincial de la Vivienda - Archivo de Propiedad - La Habana Vieja

Lourdes Matinez	Especialista Principal
Olga López	Especialista Principal

Appendix B : Details of Each Individual School Visited

The following is a list of the information obtained for each of the schools visited.

The purpose is to give the reader a comprehensive overview of the location, layout and visual appearance of each school. It has therefore been necessary to reduce the size of the original 1:2000 location plans and the 1:500 block plans, and as such, the reproduced images are not to scale. In some cases it was not possible to include all of the block plans for those schools that occupy more than one site. The Building Records (*Historias*) and the graphical analysis of the User Survey results for the classrooms and the external areas have been included to substantiate the information in Chapter 7.

Schedule of the Documentation Included for Each School

Zone & Code	**Name of School**	1:2,000 Location Plan	1:500 Block Plan *'Manzanas'*	Sketch Floor Plans	Photo Images	Building Record *'Historias'*	User Questionnaire Graphical Analysis
1.12	Hermanas Girald						
1.20	Orlando Pantoja						
2.16	Juan Triana						
2.13	Ignacio Agramonte						
2.16	Juan Triana						
3.24	Petro Portuondo						
3.34	Frank Hidalgo Gato						
4.25	Rene Ramous Latour						
4.30	Tomas Romay						
5.04	Combatientes de Bolivia						
5.10	Gustavo Ferrer						Not available
7.01	Adalberto Gomez Nunez			Not available			
7.08	Gonzalo de Quessada						
7.23	Pedro Albizu Campo						

Sources:-

1:2000 Location Plans: DAU (Plaza) hand copied by Author

1:500 Block Plans: DAU (Plaza) either photocopied or hand copied by Author

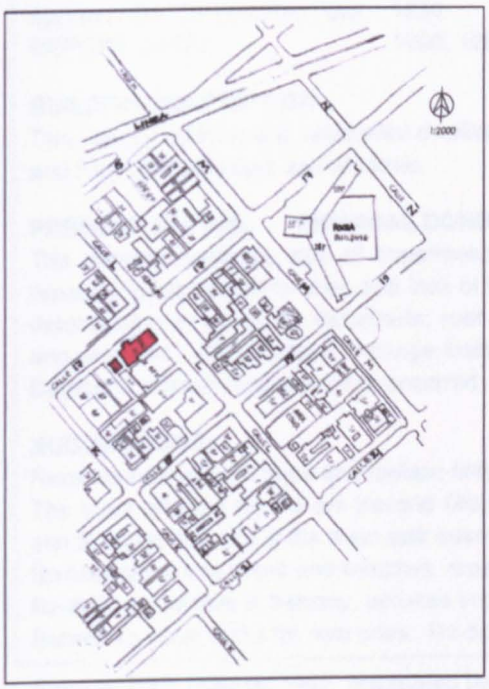
Sketch Floor Plans: Freehand sketches reproduced by Author from freehand sketches produced by the following Cuban students of the School of Architecture at ISPJAE

Photographs: Author

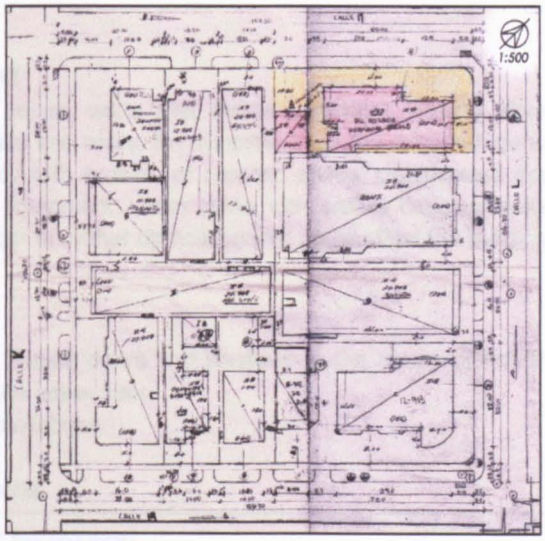
Building Record (*Historias*): DAU (Plaza) hand copied by Cuban Students and translated by Kendra Ashton

Graphical Analysis of User Questionnaire for Classrooms and External Areas: Author

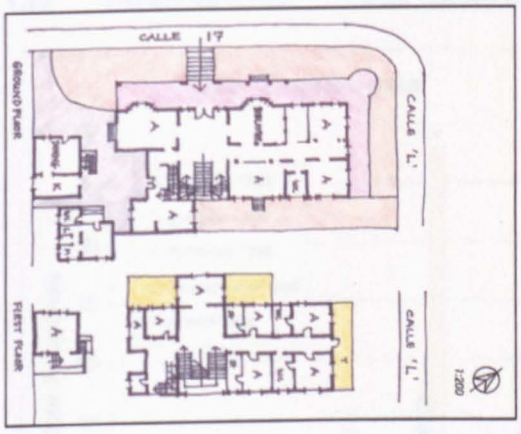
1.12 Hermanas Girald



Location Plan (1:2000)



Block Plan (1:500)



Floor Plans

1.12 Hermanas Giraldo Building Record *(Historia)*

ADDRESS: 17 y L
Approximate Construction Date: 1930
REPORT DATES: 1990, 1989, 1985

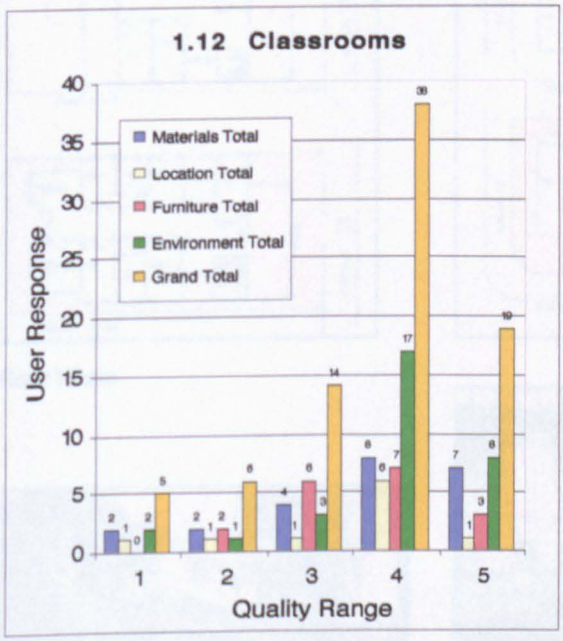
BUILDING DESCRIPTION:
Two storey building and residential dwelling. Brick walls, floor slabs and roof made of concrete, marble floors and French Style doors and windows.

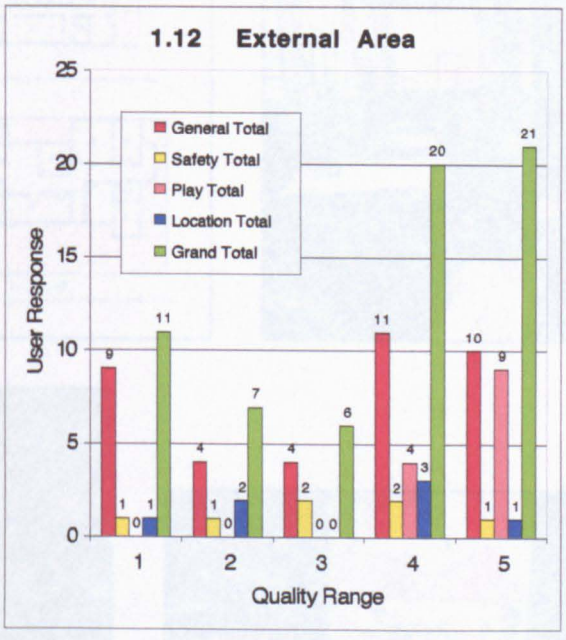
PRESENT STATUS: PHYSICAL CONDITION: POOR
The building presents lack of impermeability in roof eaves, walls with marks of former leaking already repaired, gaps behind finishes and lack of finishes in walls and roofs; the concrete bars are exposed; general deterioration in parapets, balustrade; roof impermeability with erosion of ceramic slates; deteriorated doors and windows. Deteriorated drainage installations and equipment; water tanks with cracks causing leaking. Degree C (minor) collapses have occurred. Existing danger of further demolition that could affect the building.

SUGGESTIONS:
Remove finishes with gaps and replace finishing.
The most affected rooms are Second Grade A and B. Repair doors and windows in the rooms of Fourth A and B, repair the roof of the main stair case and halls in the upper floor.
General repairs to doors and windows, repair sanitary installations.
Re-build balustrade in balcony, terraces and parapets.
Substitute water tanks for new ones. Re-build their supports.

Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

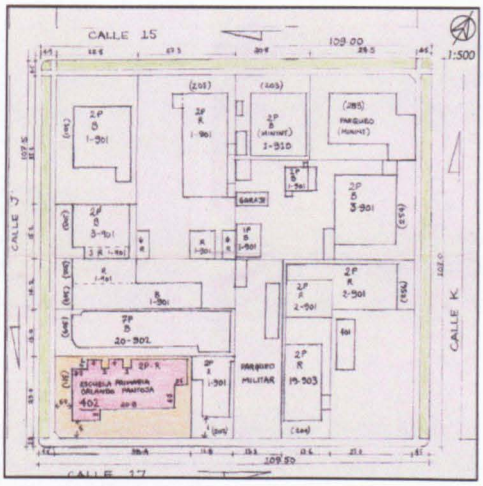
1.12 Hermanas Giraldo User Survey Graphical Analysis (Classrooms & External Area)



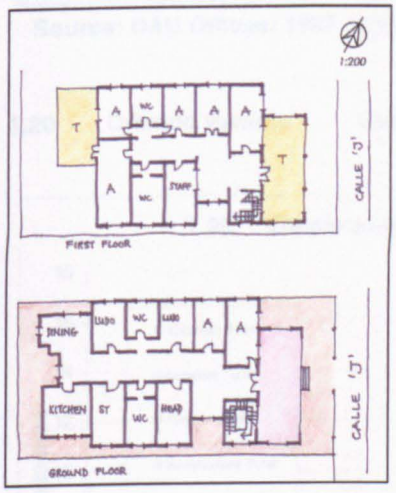


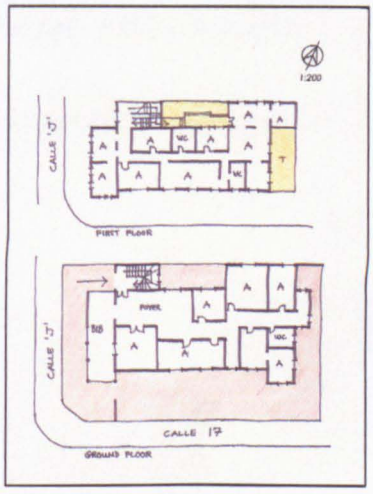
1.20 Orlando Pantoja

Location Plan (1:2000)

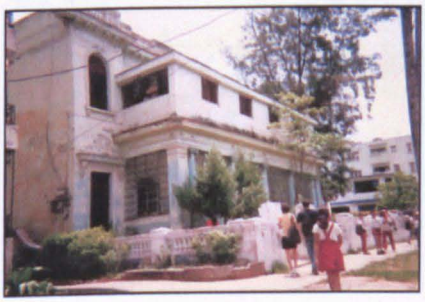


Block Plan (1:500)





Floor Plans



1.20 Orlando Pantoja **Building Record** *(Historia)*

ADDRESS: Calle J # 306 e/ 15 y 17
Approximate Construction Date: 1935
REPORT DATES: 1992, 1988

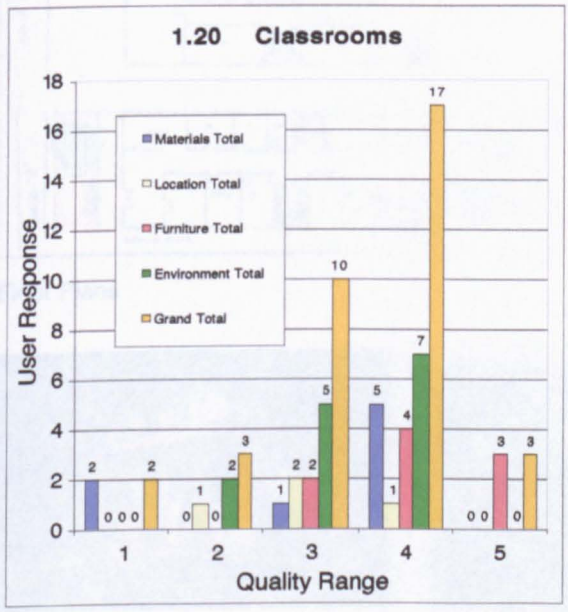
BUILDING DESCRIPTION:
Three storey building with side passageway access. The ground floor and part of the first floor have been assigned to a Primary School. There are old garages converted into classrooms. The building has load bearing brick walls, concrete floor slabs, concrete roof, Granite tiles, French Style doors and windows. An extension to the building has been constructed on the roof. These works are completed.

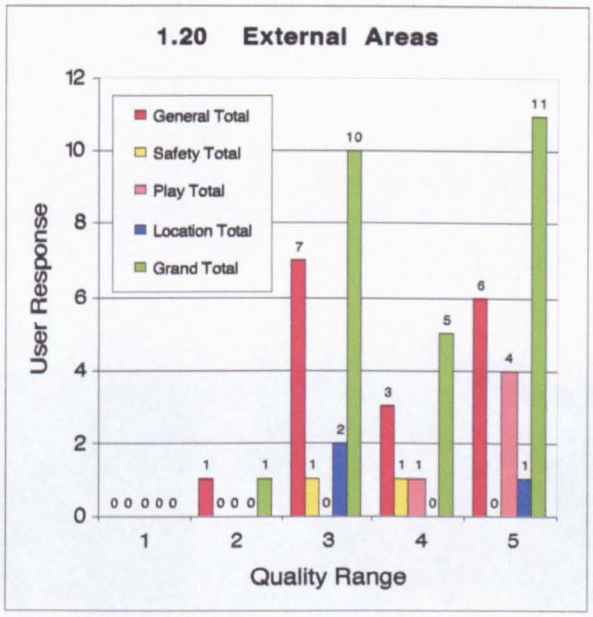
PRESENT STATUS: PHYSICAL CONDITIONS: AVERAGE
Steel spiral staircase with high grade of corrosion. This staircase is currently the only access to the building. Concluding that a spiral staircase is not adequate for the main access to a school; please, find enclosed sketch and dimensions of the side passageway where building a new staircase is possible while using the passageway as a circulation space.

SUGGESTIONS:
To build an adequate (straight) concrete staircase to be used as entrance or circulation area to the left hand side passageway. A licence must be obtained before starting the works. This suggestion should be discussed with the Provincial Directorate of Planning and Architecture, taking into account that the ground floor of the building has been designated to a Primary School.

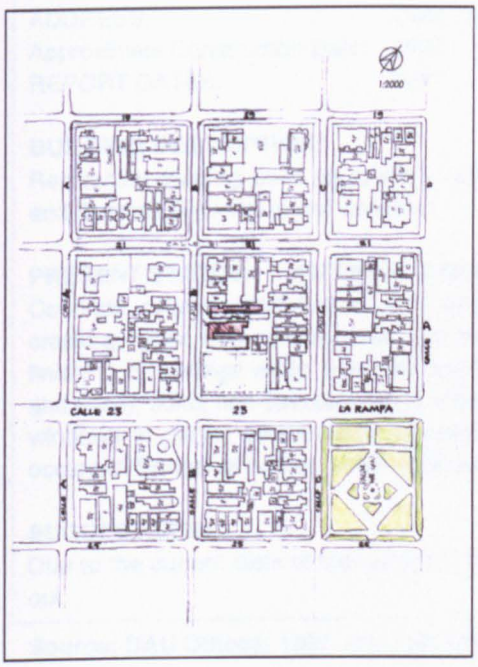
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

1.20 Orlando Pantoja User Survey Graphical Analysis (Classrooms & External Area)

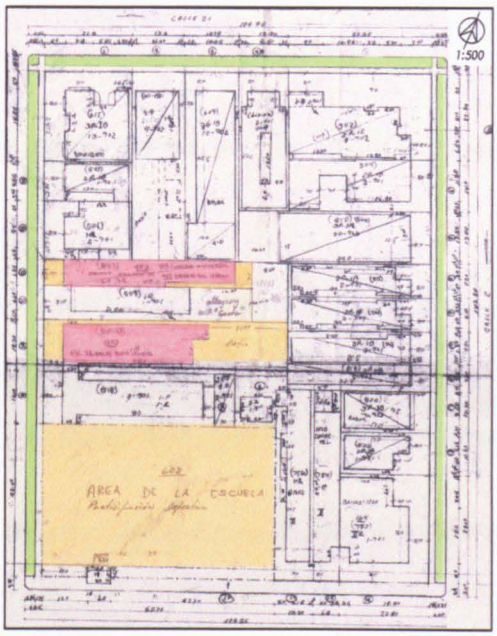




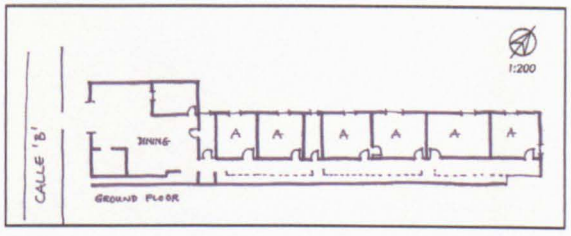
2.13 Ignacio Agramonte



Location Plan (1:2000)



Block Plan (1:500)



Floor Plans

2.13 Ignacio Agramonte **Building Record** *(Historia)*

ADDRESS: Calle 23 # 708 e/ B y C
Approximate Construction Date: 1930
REPORT DATES: 1987

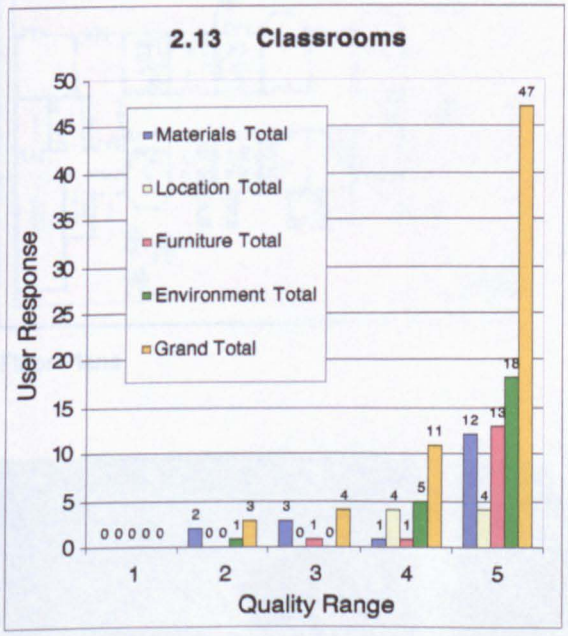
BUILDING DESCRIPTION:
Residential dwelling used as school's dining hall with brick walls, concrete roof and structure, Granite tiles, and Spanish Style doors and windows.

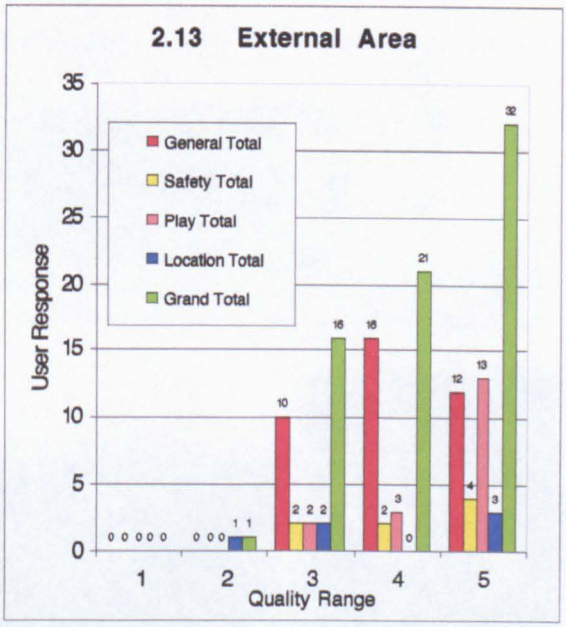
PRESENT STATUS: PHYSICAL CONDITIONS: POOR
Concrete columns and beams with damaged finishing in the direction of the steel, some walls show cracking, gaps between the wall and the finishing, and finishing failures (absence of it); partial lack of finishing on ceilings which allow the corroded steel reinforcement bars to be seen; deformed floors (settled and lifted); some non-structural walls show signs of humidity and gaps between finishing and wall; doors and windows in partial deterioration; advanced damage of roof elements. Grade "C" (minor) collapsing has occurred. Danger of further partial collapse within the building. These defects are located in roofs and walls.

SUGGESTIONS:
Due to the current state of the building, it should not be used as a dining hall until repairs have been carried out.

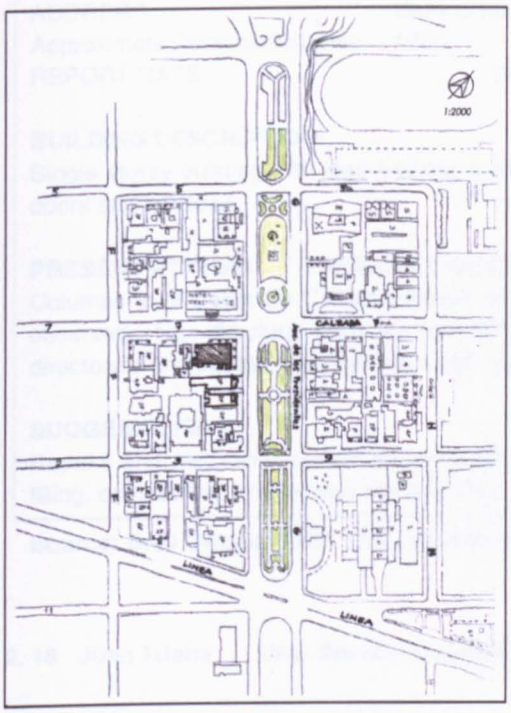
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

2.13 Ignacio Agramonte **User Survey Graphical Analysis** (Classrooms & External Area)

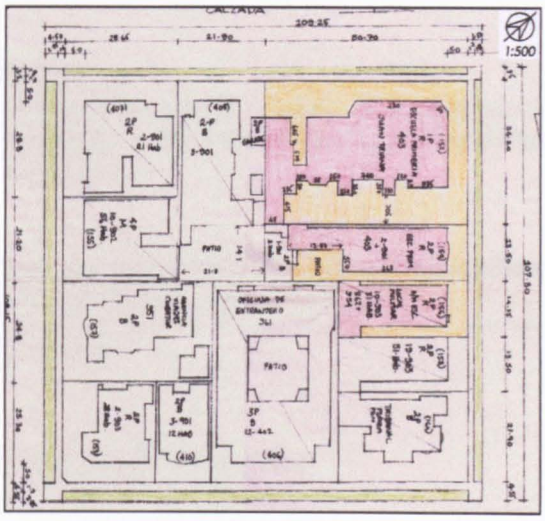




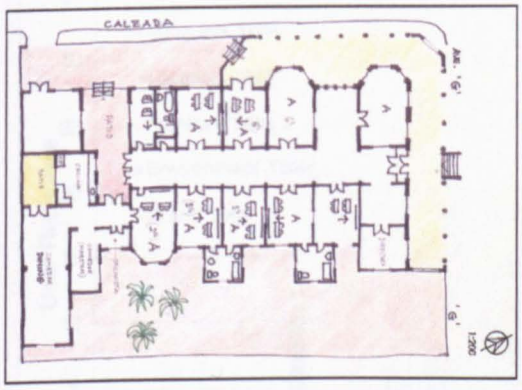
2.16 Juan Triana

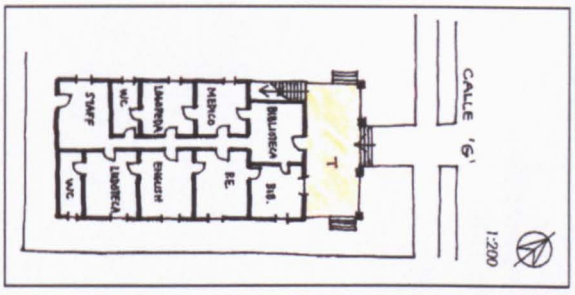


Location Plan (1:2000)



Block Plan (1:500)





Floor Plans

2. 16 Juan Triana **Building Record** *(Historia)*

ADDRESS: Calle G Esq. Calzada
Approximate Construction Date: 1930
REPORT DATE: 1993, 1988, 1985

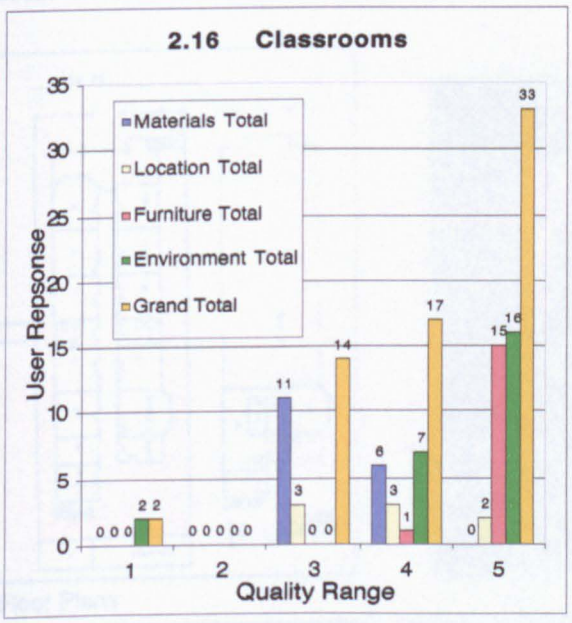
BUILDING DESCRIPTION:
Single storey building with load bearing masonry walls, concrete roof, Granite floor tiles, and French Style doors and windows.

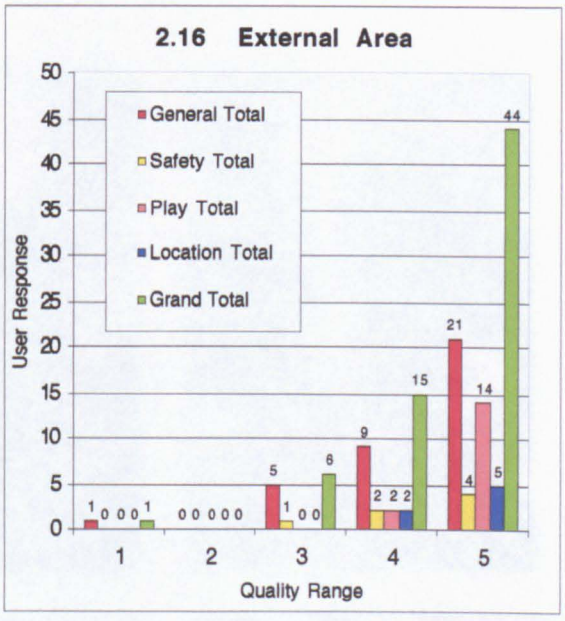
PRESENT STATUS: PHYSICAL CONDITIONS: AVERAGE
Columns in a porch by Calzada Street are subject to compression failures. Cracks in capitals can be observed. Non-structural walls are crumbling due to subsidence. In the areas of the porch, entrance hall, directorate and internal passageway much subsidence has occured.

SUGGESTIONS:
Repairs and restoration should be considered. It would consist of lifting the floor subjected to subsidence, filling, compacting, and to relay the floor tiles. Repair the cracked columns in the porch area.

Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

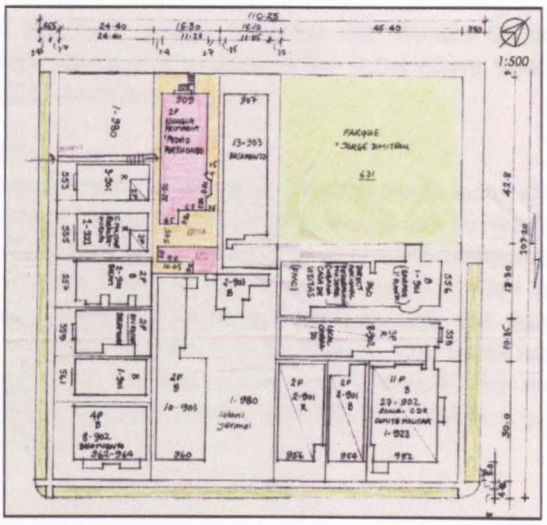
2. 16 Juan Triana **User Survey Graphical Analysis** (Classrooms & External Area)



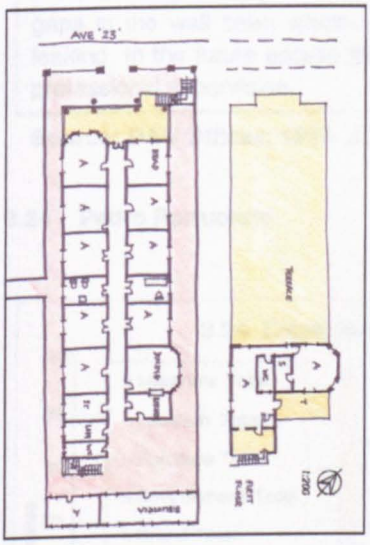


3.24 Pedro Portuondo

Location Plan (1:2000)



Block Plan (1:500)



Floor Plans

3.24 Pedro Portuondo **Building Record** *(Historia)*

ADDRESS: 23 e/ 2 y Paseo
Approximate Construction Date: 1915-1920
REPORT DATES: 1991

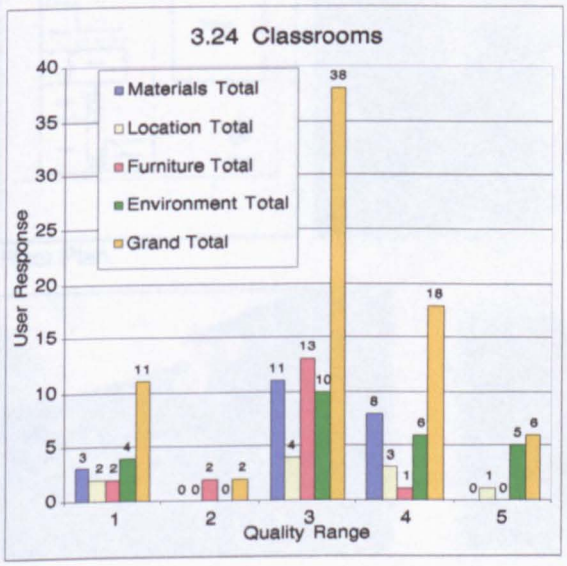
BUILDING DESCRIPTION:
Former residential dwelling in two storey building with basement garage converted into Primary School. Load bearing brick walls on the ground floor and concrete beams and columns in the floors above, beam-and-slab roof structure, mixed types of floor and French Style doors and windows.

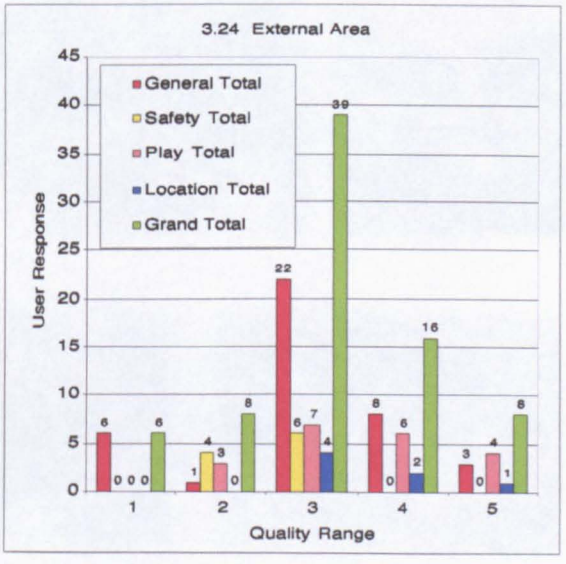
PRESENT STATUS: PHYSICAL CONDITION: POOR
The walls have isolated cracking. The plaster finish has fallen from the ceiling in the Directorate room, also the roof leaks in this room and the next one (Second Grade 2). Sinking and humidity marks can be seen in the roof slabs of the following rooms: Third Grade A, Pre-School B, Second Grade B and the Directorate. There is roof leaking in with doors and windows in a bad state (some of the windows or parts of them are missing) (in Pre-school and Speech Therapist's rooms). There are functional problems with the water installations (performance) in the two classrooms and the toilets located in the first floor. The toilets leak water to the ground floor and there are some problems with the bath. The round staircase, the roof impermeability and the floor tiles, which have erosion and joints with missing adhesive are also in a bad state. The walls have gaps between the finishing and the walls.

SUGGESTIONS:
To prop up vertically the rooms of Third Grade A, Pre-School A and B, Second Grade B, corridor in front of the Dining Hall, Speech Therapy rooms and Directorate room. Otherwise use an alternative proping method. If the building is not proped up within twenty days, the rooms that require it must be evacuated. To fill the gaps in the wall finish which could cause collapse if left. Repair the roof with a cement mixture to avoid leaking. In the future access to the roof could be prohibited. Carry out the total building repair works under professional supervision.

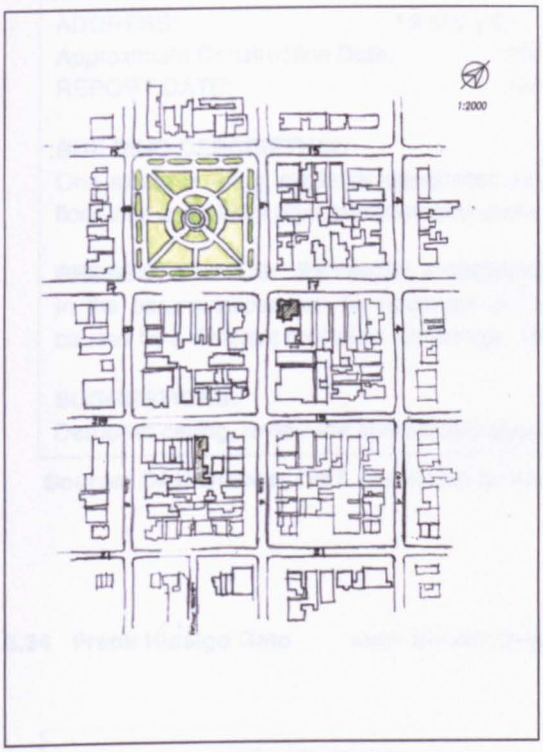
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

3.24 Pedro Portuondo **User Survey Graphical Analysis** (Classrooms & External Area)

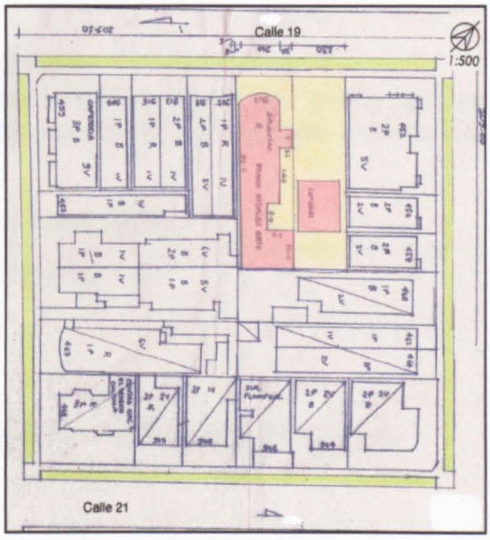




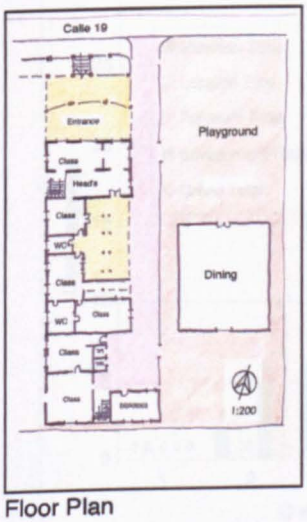
3.34 Frank Hidalgo Gato



Location Plan (1:2000)



Block Plan (1:500)



Floor Plan

3.34 Frank Hidalgo Gato **Building Record** *(Historia)*

ADDRESS: 19 e/ 6 y 8
Approximate Construction Date: 1960
REPORT DATE: 1983

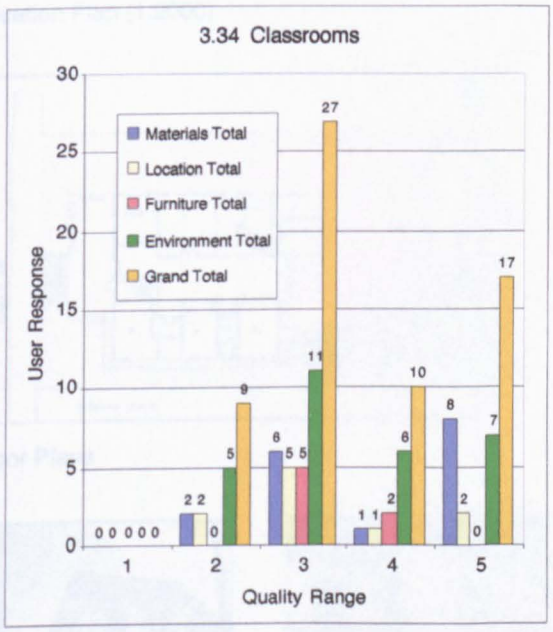
BUILDING DESCRIPTION:
One storey building, originally designated as a dining hall, with timber walls and fibrocement roof, Granite floor tiles and Miami Style windows and doors.

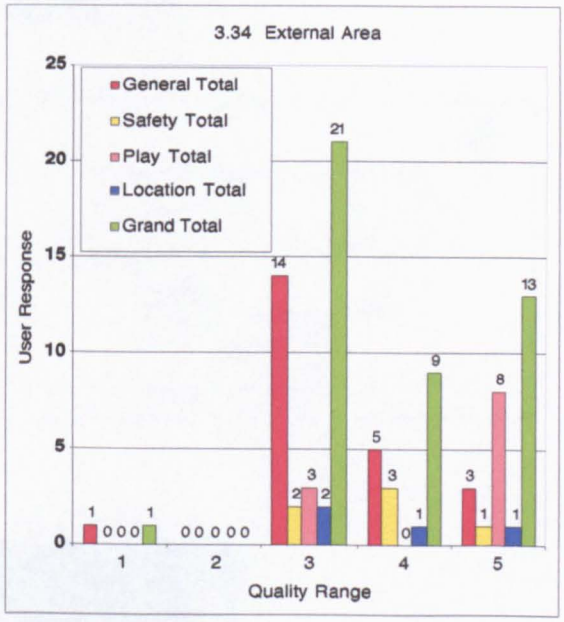
PRESENT STATUS: PHYSICAL CONDITIONS: AVERAGE
In the beams traces can be observed of Comejen (an insect that eats wood), leaking roof, seemingly caused by a deficient roof slate mountings. This situation has caused humidity marks on the ceiling.

SUGGESTIONS:
Demolish ceiling, review the fibrocement slates and re-build the ceiling.

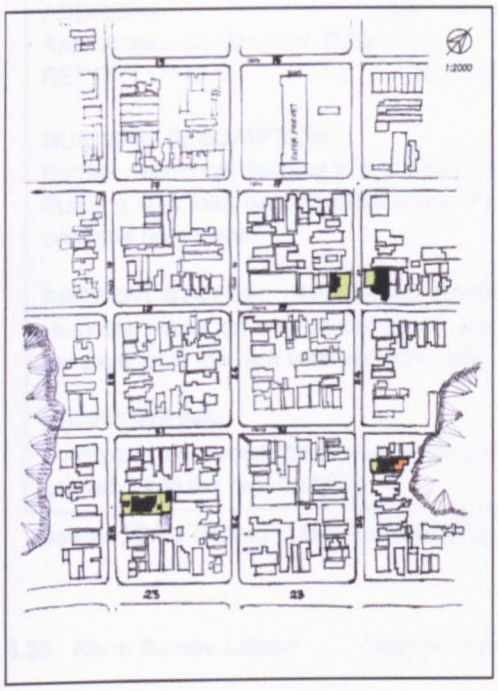
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

3.34 Frank Hidalgo Gato **User Survey Graphical Analysis** (Classrooms & External Area)

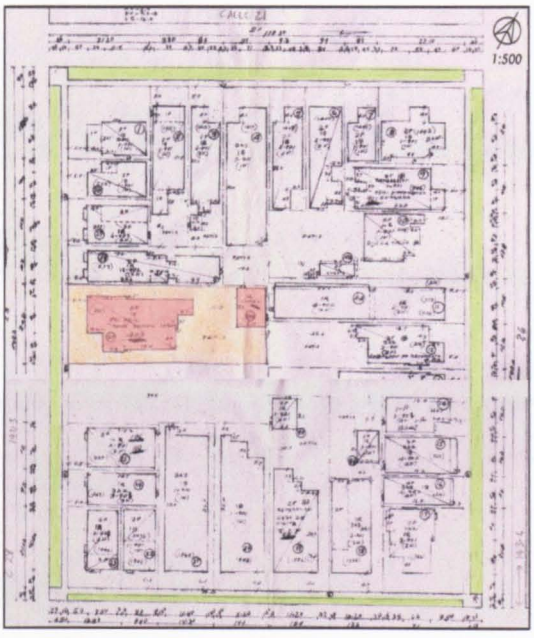




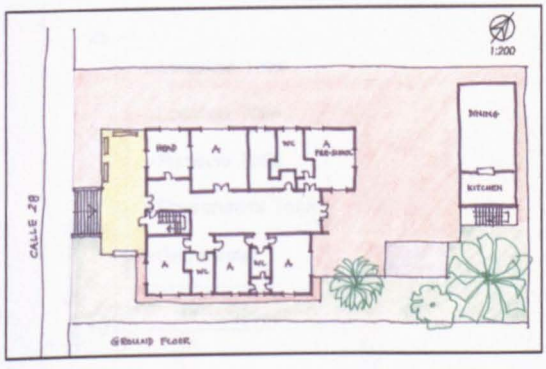
4.25 Rene Ramos Latour

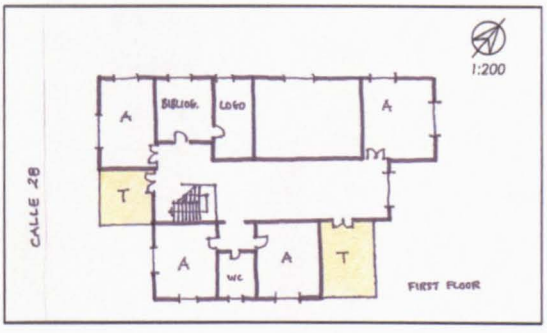


Location Plan (1:2000)



Block Plan (1:500)





Floor Plans

4.25 Rene Ramos Latour **Building Record** *(Historia)*

ADDRESS: 28 # 261 e/ 21 y 23
Approximate Construction Date: 1945
REPORT DATES: 1990, 1982

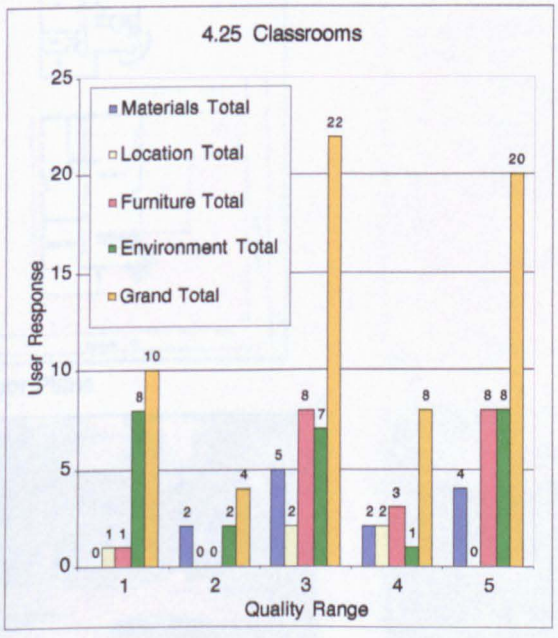
BUILDING DESCRIPTION:
Former residential dwelling in two storey building designated as a Primary School.
Building with load bearing brick walls, concrete roof, Granite floor tiles, French Style doors and windows, concrete floor slabs.

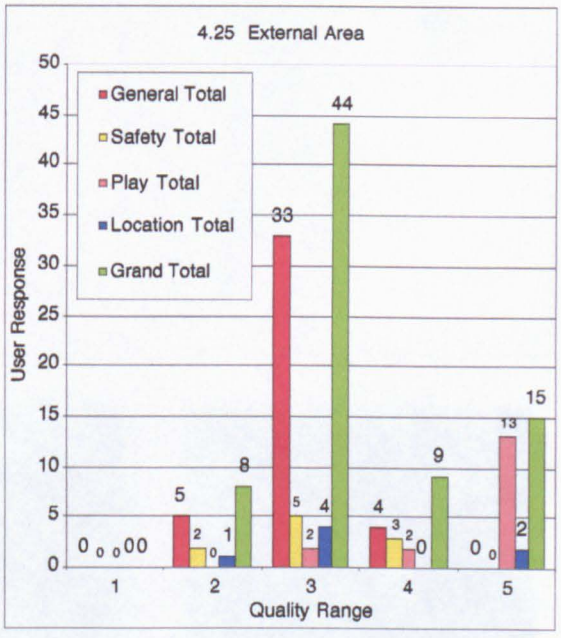
PRESENT STATUS: PHYSICAL CONDITION: AVERAGE (Repairable by minor works)
Humidity marks on and cracks in the walls, doors and windows in average state and partial collapsing of the parapet to the next building (28 # 259).

SUGGESTIONS:
To repair the present damage and co-ordinate with the Housing Repairs Enterprise for repair works to be carried out to the next building.

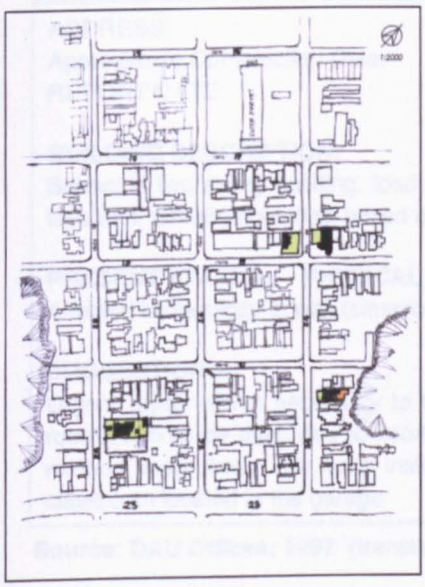
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

4.25 Rene Ramos Latour **User Survey Graphical Analysis** (Classrooms & External Area)

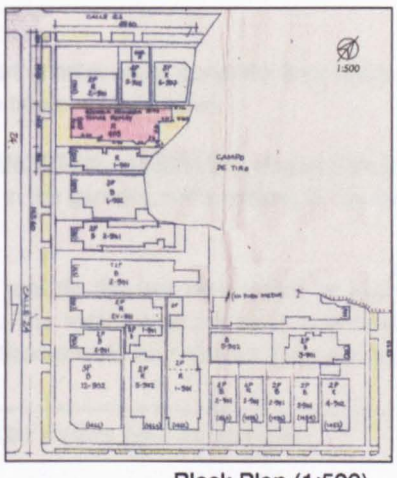




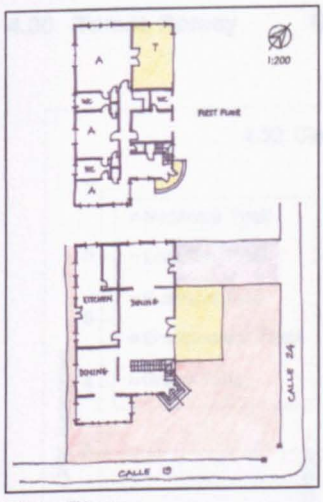
4.30 Tomas Romay

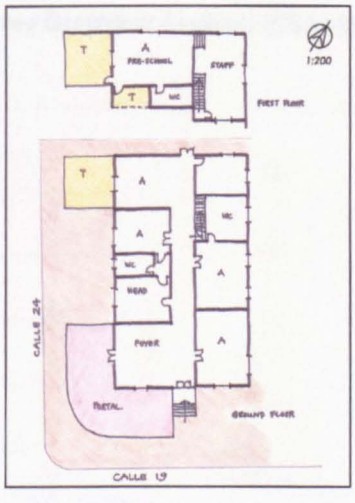


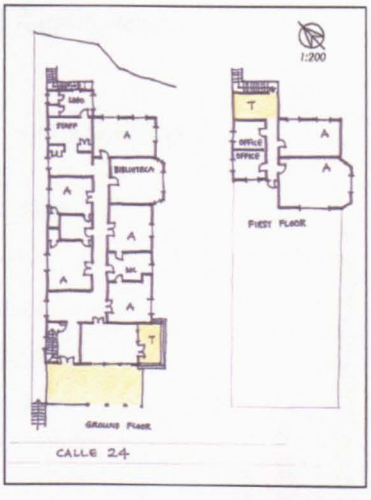
Location Plan (1:2000)



Block Plan (1:500)







Floor Plans

4.30 Tomas Romay **Building Record** *(Historia)*

ADDRESS:	24 e/ 21 y 23
Approximate Construction Date:	1930
REPORT DATE:	1984, 1982

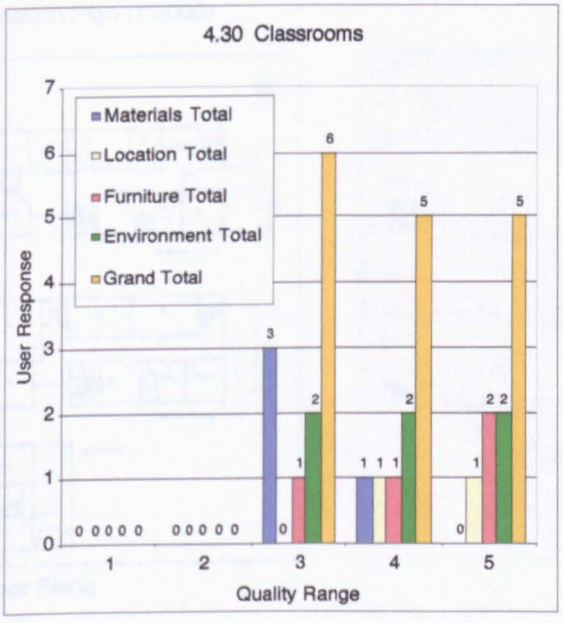
BUILDING DESCRIPTION:
School in two storey building, load bearing brick walls, concrete floor slabs, concrete and asbestos cement tiles roof, Granite floor tiles, mixed style doors and windows.

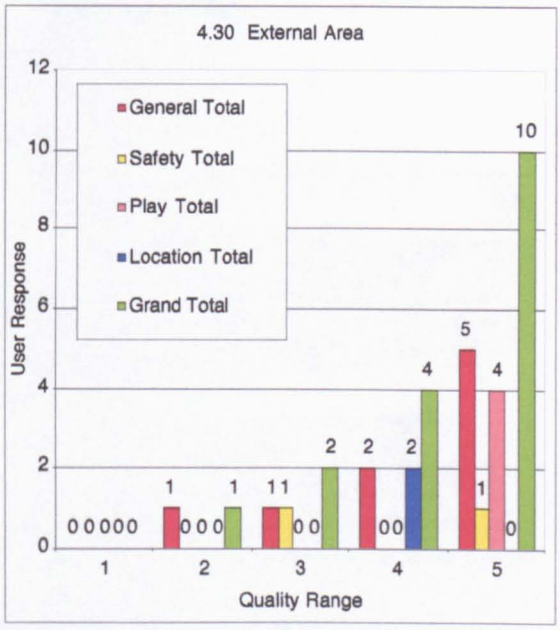
PRESENT STATUS: PHYSICAL CONDITION: AVERAGE (Repairable by minor works)
Affected by humidity in wall (classroom in the garage), roofs leaking in two rooms.

SUGGESTIONS:
Urgent repair works necessary to the roof (in the two classrooms on the first floor). When it rains these rooms cannot be used due to flooding. The roof is new but badly constructed, nor has any impermeability method been used. The water installations should be repaired, they are causing humidity in the wall of the classroom located in the garage

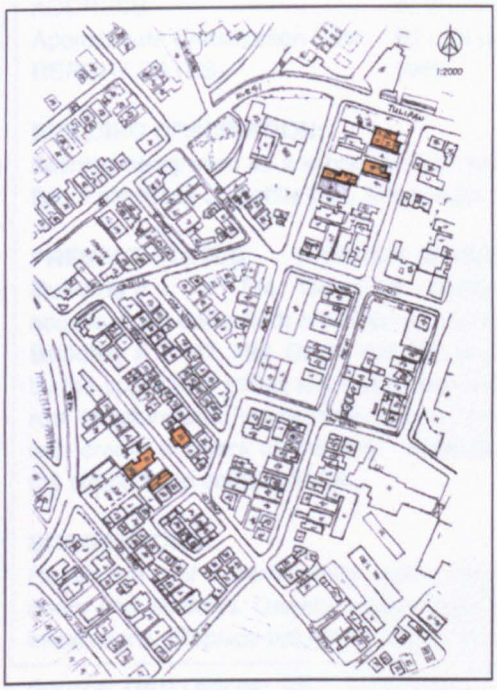
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

4.30 Tomas Romay **User Survey Graphical Analysis** (Classrooms & External Area)

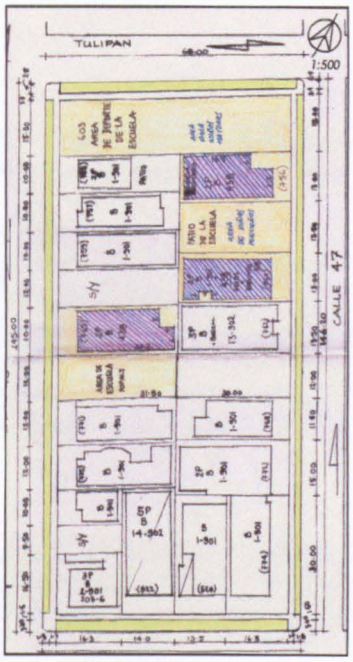




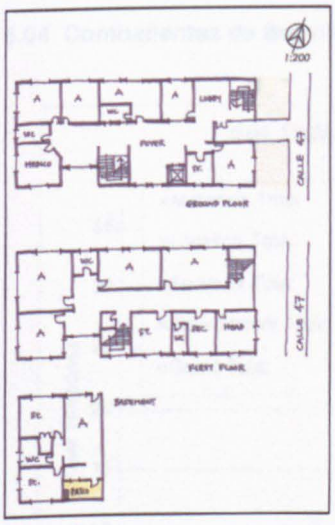
5.04 Combatientes de Bolivia

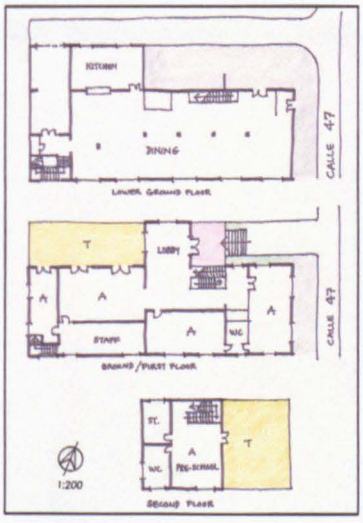


Location Plan (1:2000)

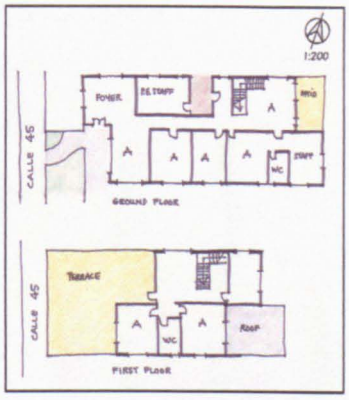


Block Plan (1:500)





Floor Plans



5.04 Combatientes de Bolivia **Building Record** *(Historia)*

ADDRESS: 47 # 754 y 756 e/ Tulipan y Conil
Approximate Construction Date: 50's Decade
REPORT DATES: 1982

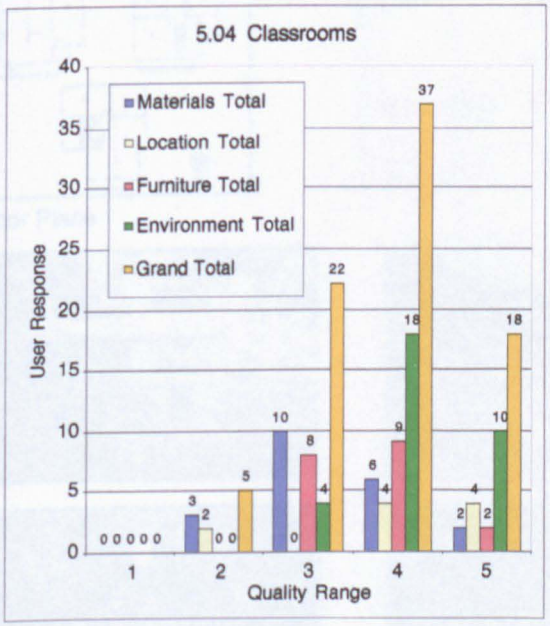
BUILDING DESCRIPTION:
Building designated as a school, built on two storeys. The floor and roof structures are made of concrete, the floors are made of granite tiles, Miami-style doors and windows of iron and glass. Roof of plane tiles.

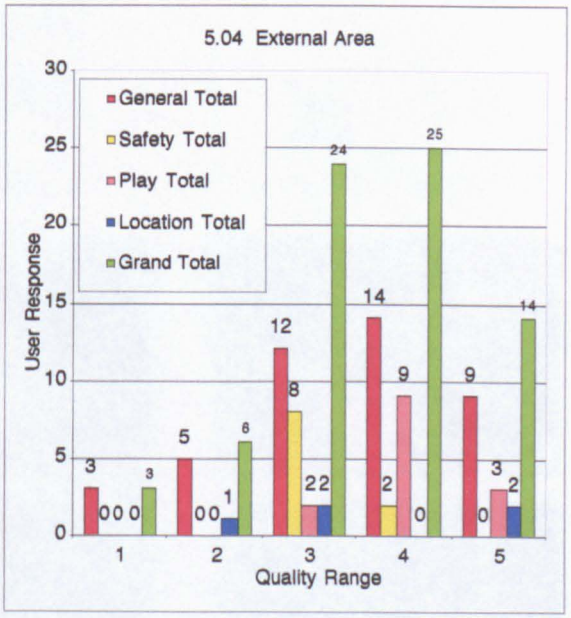
PRESENT STATUS: PHYSICAL CONDITION: POOR
Building # 1: 47, 754. Doors and windows notably deteriorated. Some steps of the stair case which give access to the upper floor are missing. Leaking roofs caused by impermeability defects.
Building # 2: 47, 756. Doors and windows notably deteriorated. Sewage leaking in the middle floor caused by the upper floor toilets and associated drainage problems. The porch roof has gaps between the finish and roof structure and has humidity marks, due to leakages caused by bad state of the impermeability. Roofs with cracks and lack of finishing. Baranda of the stair case which gives access to the upper floor has lost the support and could collapse.

SUGGESTIONS:
Repair the roof impermeability (plain ceramic slates) on the terrace and roof. Substitute broken glass in doors and windows. General repair works in Miami Style windows. Repair damage and leaking in drainage installations. Replace balustrade support and steps of the staircase. Finishes to walls and roofs.

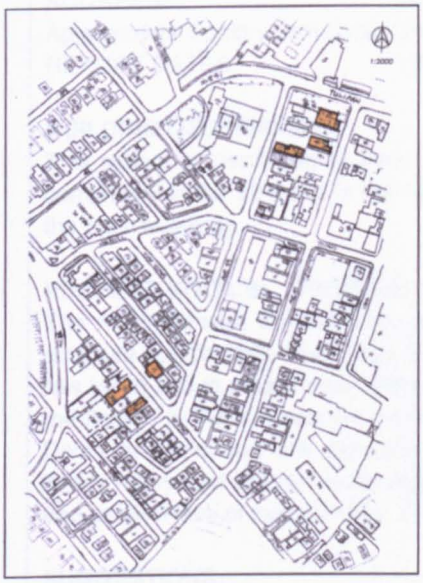
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

5.04 Combatientes de Bolivia **User Survey Graphical Analysis** (Classrooms & External Area)

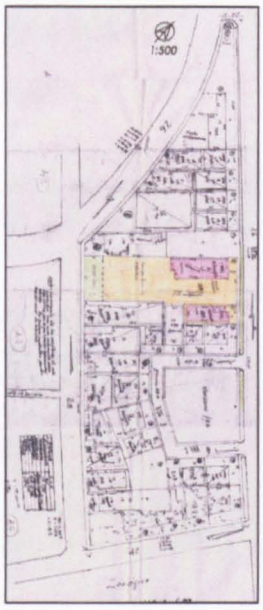


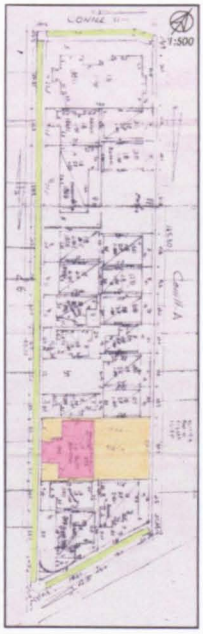


5.10 Gustavo y J. Ferrer

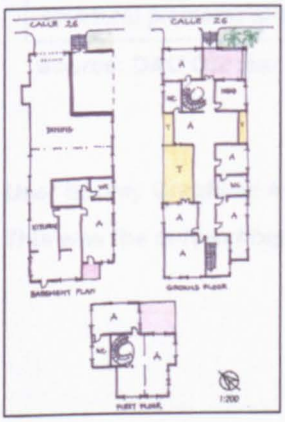


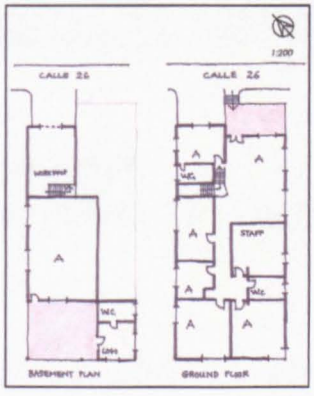
Location Plan (1:2000)

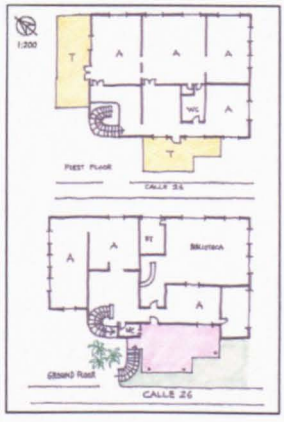




Block Plan (1:500)







Floor Plans

5.10 Gustavo y J. Ferrer Building Record *(Historia)*

ADDRESS: 26 #86 e/ 45-A y Calle 26
Approximate Construction Date: 50's Decade
REPORT DATES: 1996, 1988, 1982

BUILDING DESCRIPTION:
This school is distributed in three residential dwellings and a piece of land with two yards. Built almost completely in the 50's it is a two storey building with basement, one of them is used as the dining hall (in the main building).

PRESENT STATUS: PHYSICAL CONDITION: AVERAGE
The main damage the buildings present is leaking roof because of the poor impermeability of the roof structure (particularly where sun heaters were located). In various classrooms the internal roof finishing has fallen and in others areas there are large areas with no finishings and with gaps between the walls and the finish. In these areas the steel reinforcement bars can be seen with considerable degree of oxidation. Doors and windows are generally in a bad state of repair (lack of some of the elements: glass and ironmongery and are not maintained. There are drainage problems in almost all the toilets in the school and general lack of maintenance. There is danger of the roof finishing collapsing in the classrooms.

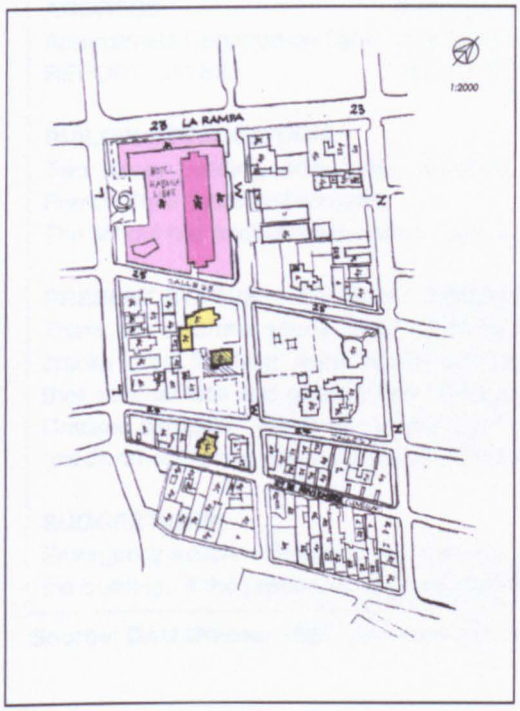
SUGGESTIONS:
Urgent repairs are necessary to all the buildings belonging to the school, although they do not present structural problems at the moment the present damage could provoke them.

Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

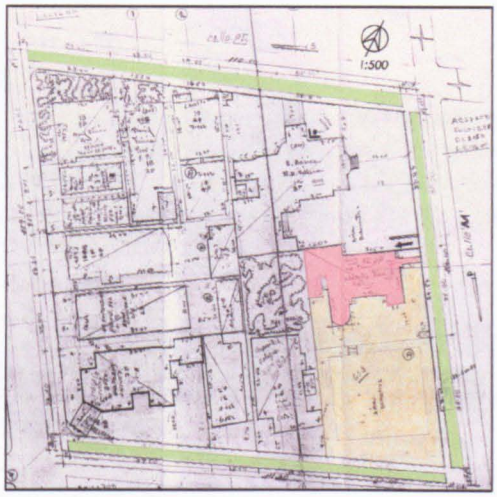
User Survey Graphical Analysis – not available.

This was the only school that did not return the Questionnaires.

7.01 Adalberto Gomez Nunez



Location Plan (1:2000)



Block Plan (1:500)

(No Floor Plans for this school)

7.01 Adalberto Gomez Nunez with Habana Libre Hotel behind

7.01 Adalberto Gomez Nunez **Building Record** *(Historia)*

ADDRESS: Calle M # 406 e/ 25 y 27
Approximate Construction Date: 30's Decade
REPORT DATES: 1989, 1988, 1984, 1983, 1982

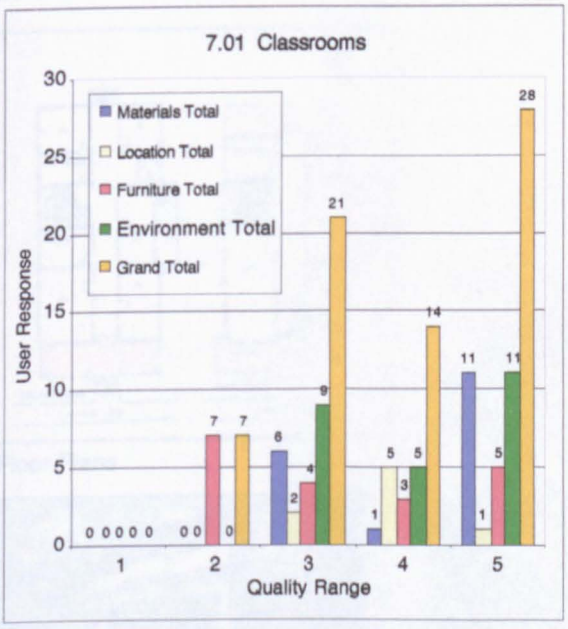
BUILDING DESCRIPTION:
Two storey building, brick walls; structure, floor slabs and roofs made of concrete, Granite floor tiles, French Style doors and windows.
The school has another three-storey building.

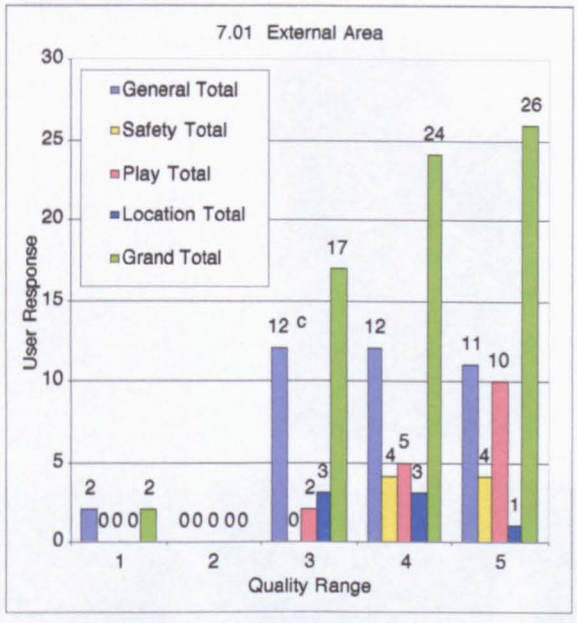
PRESENT STATUS: PHYSICAL CONDITION: POOR
There are columns where major cracking has occured in some classrooms, walls with humidity marks, cracks to the finishing; some beams with cracks; roofs and floor slabs with gaps between the finishing and their internal face and general lack of finishes. Substantial marks of leakages due to installation blockage. Cracked parapets. Walls with cracks due to foundation failure. Deteriorated doors and windows. Degree B (medium) collapsing has occurred and there is danger of further collapsing.

SUGGESTIONS:
Emergency action: - Eliminate the finishing with gaps in roofs and floor slabs. Urgently repair and complete the building. If the present damage persists the building will be in ruin in a few years. Unblock drains.

Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

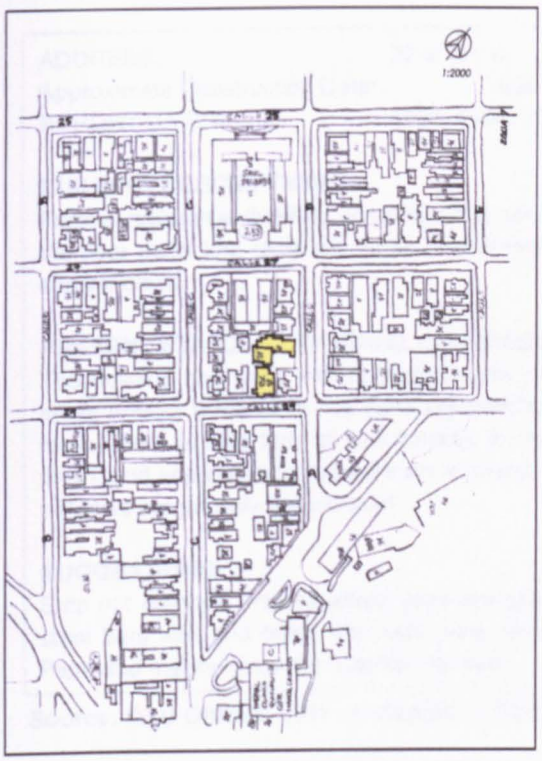
7.01 Adalberto Gomez Nunez **User Survey Graphical Analysis** (Classrooms & External Area)



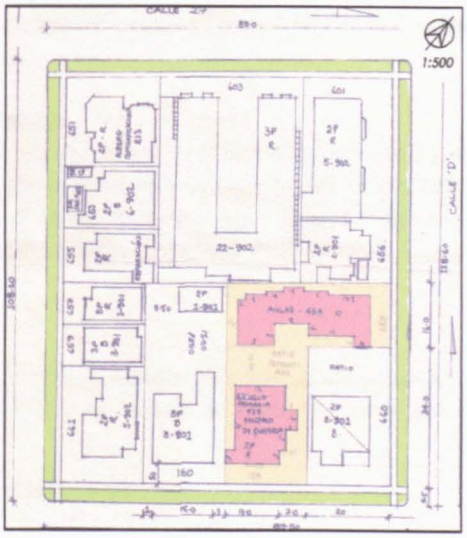


NOTE: This house was a secondary school before 1959.

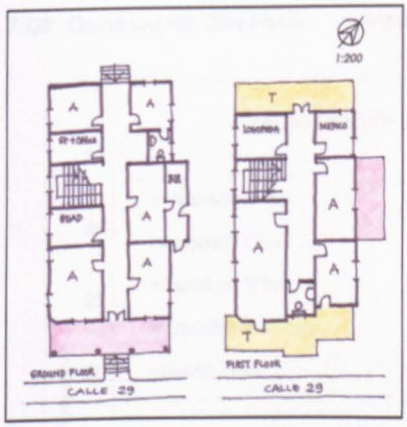
7.08 Gonzalo de Quesada



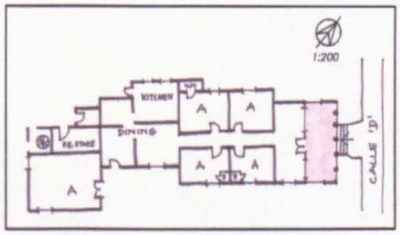
Location Plan (1:2000)



Block Plan (1:500)



Floor Plans



7.08 Gonzalo de Quesada **Building Record** *(Historia)*

ADDRESS: 29 e/ C y D
Approximate Construction Date: 1930
REPORT DATES: 1992, 1990, 1984, 1982

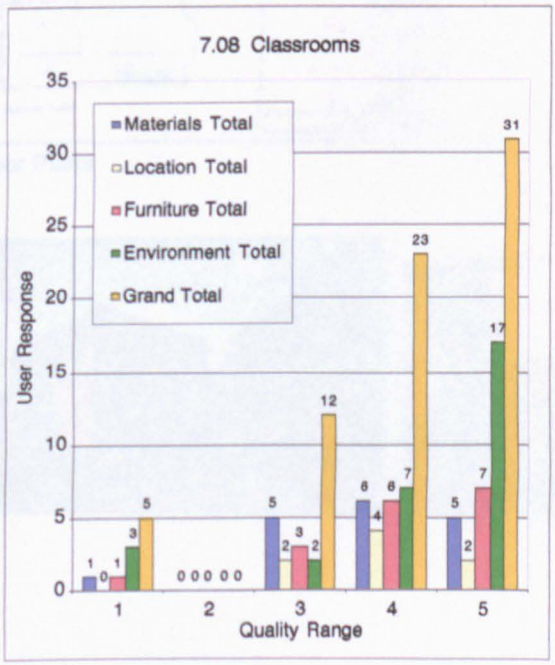
BUILDING DESCRIPTION:
Former residential dwelling converted into school. It is a two storey building with load bearing brick walls; the floor slabs and roofs are made of concrete; mixture floors of ceramic slates and marble; French doors and windows.

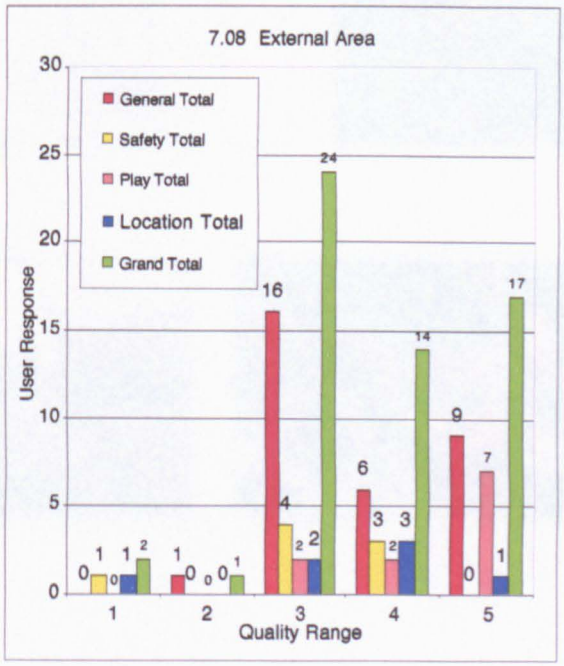
PRESENT STATUS: PHYSICAL CONDITION: AVERAGE
The building has walls with humidity marks particularly on the edges and corners, with cracks and small areas without finishes. It has gaps between the wall finish and the internal face of the roof in almost every room, there is also lack of wall finishes in the rooms of Pre-school and Sixth grade; there is no ceiling finish, and unprotected steel bars are showing in the rooms of First, Third and Fifth Grades. The doors and windows are partially deteriorated.

SUGGESTIONS:
Strip out damage finishes where gaps are present under roof in classrooms and halls; brush the exposed steel bars well and finish with sand and cement all the surface. General repairs to doors and windows. Paint and maintenance the building regularly.

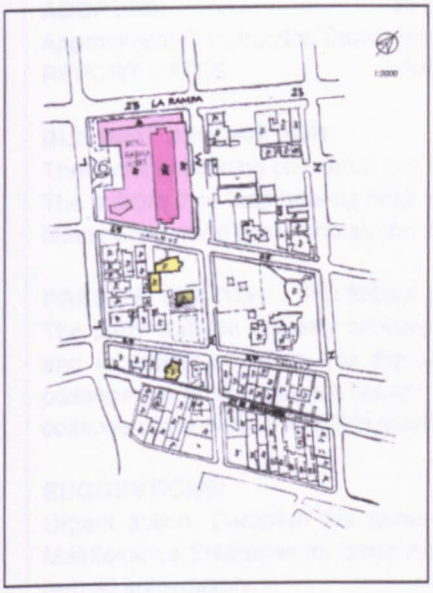
Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

7.08 Gonzalo de Quesada **User Survey Graphical Analysis** (Classrooms & External Area)

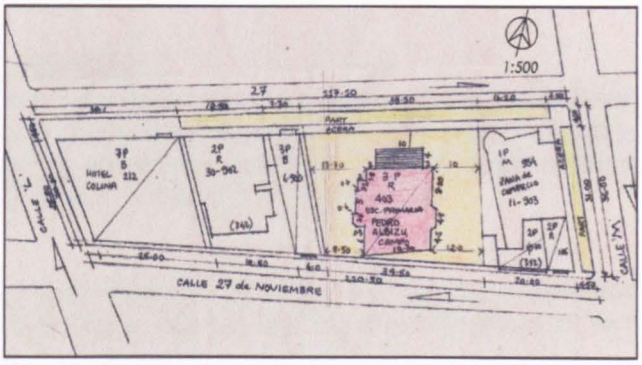




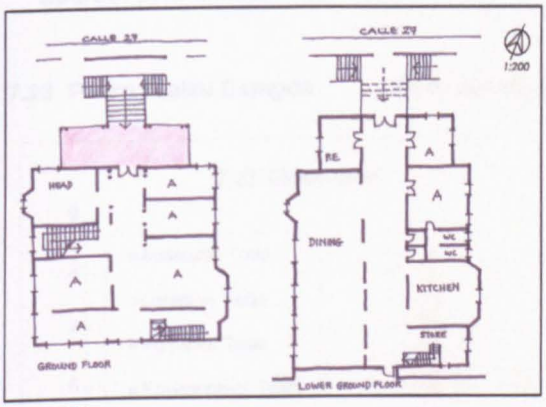
7.23 Pedro Albizu Campo

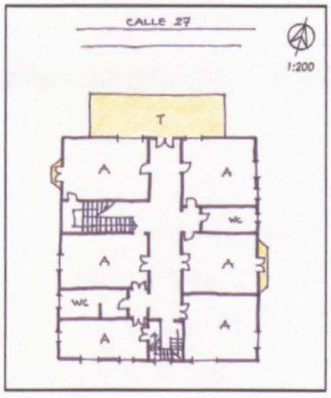


Location Plan (1:2000)



Block Plan (1:500)





Floor Plans

7.23 Pedro Albizu Campo **Building Record** *(Historia)*

ADDRESS: 27 # 115 e/ L y M
Approximate Construction Date: 1920-1930
REPORT DATES: 1989, 1984, 1983, 1979, 1978

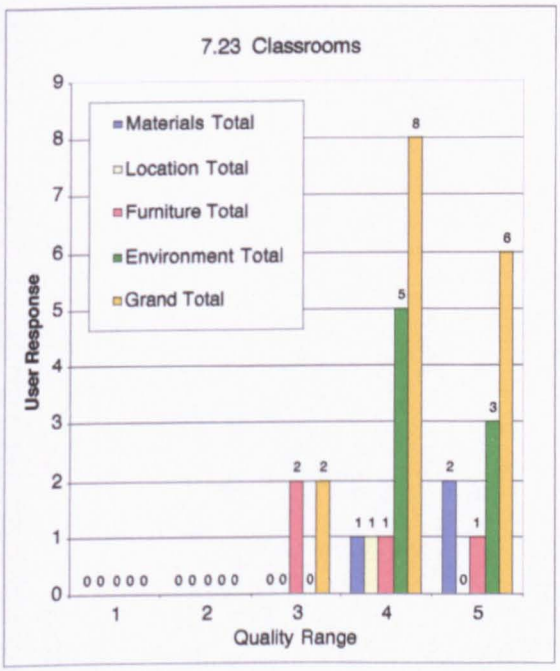
BUILDING DESCRIPTION:
Three storey building converted into school.
The building has load bearing brick walls; the floor slabs and roofs are made of concrete; Granite floor tiles; Miami Style wood doors and windows.

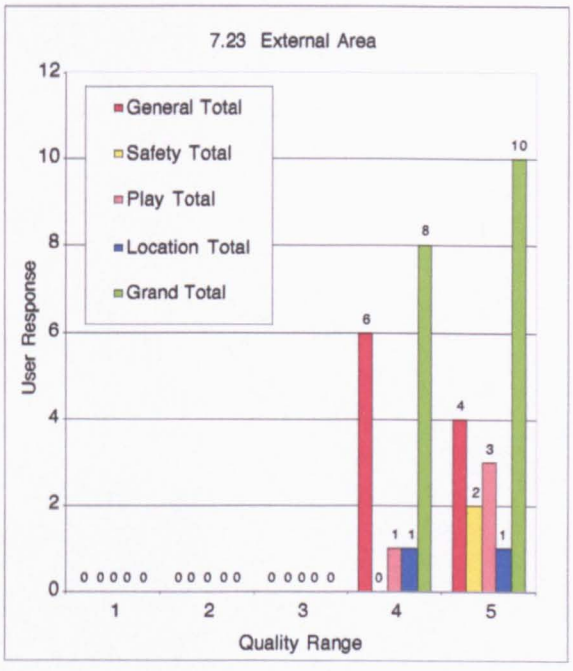
PRESENT STATUS: PHYSICAL CONDITION: AVERAGE
The party wall the property between the school and the adjacent building is cracked, partially demolished and in danger of falling into the school yard (It is currently approximately 2m lower than the sanitary passageway of the adjacent house). Degree C (minor) collapses have occurred. There is danger of partial collapse of the party wall which could affect the school and the students who use the yard.

SUGGESTIONS:
Urgent action: Demolish the party wall, which is near collapsing. Request order from the Constructive Maintenance Enterprise for demolition of various elements, so that this order can be executed and the wall re-built immediately.

Source: DAU Offices: 1997 (translated by Kendra Ador Agramonte)

7.23 Pedro Albizu Campos **User Survey Graphical Analysis** (Classrooms & External Area)





Appendix C : Example Copy of User Questionnaire

This Appendix contains a copy of a completed User Questionnaire that was issued at the start of the visit to each school during the survey in May 1997.

Copies of the questionnaires were left with the Head Teacher of each school for distribution to members of staff. The questionnaires were collected one week later. Only one school did not return any questionnaires. The attached copy represents a typical example of the responses returned.

Nombre - Escuela PEDRO PORTUONDO

Dirección + Tel. No.

Ref. No. PR 97

PARA USO DEL ENCUESTADO

Nombre

Profesión MAESTRO (DIRECTOR)

1 ¿ Qué tipo de trabajo usted realiza? Marque con una ✔

Docente X	No docente	No respuesta

2a Marque con - 1, 2, 3 o 4 - los lugares donde usted trabaja:-

1 = muchas veces 2 = algunas veces 3 = muy pocas veces 4 = nunca

a	Aula	2	e	Oficina del director	2
b	Areas Sanitarias	–	f	Oficina del administrador	–
c	Patio / área colectiva	1	g	Cátedra	–
d	Comedor	2	h	Cocina	2
x	Aula exterior para juegos	2	z	Otras Areas	2

2b Si usted es un(a) maestro(a), diga a cuál Grado usted enseña? 6to. Ciencias. No respuesta ☐

3 ¿ Cuántos años lleva trabajando en esta escuela?

menos de 5 años	5 -10 años X	10 -15 años	más de 15 años	No respuesta

4a ¿ Ha trabajado en otras escuelas?

Sí X	No	No respuesta

4b Si su respuesta es sí, ¿ en cuáles escuelas ha trabajado? (1) Pedro Portuondo. (2) Renato Reci (3) Combatientes de Playa Girón. (4) Jesús Menéndez (5) U.I.E. (6) Chapi del Perú.

4c ¿ En qué tipo de edificio estaba la escuela?

edificio nuevo 5 y 6.	una casa adaptada 1-2-3-4	no sé	No respuesta

5 ¿ Cuándo usted trabaja?

En la mañana	En la tarde	Ambas X	No respuesta

6 ¿ De cuántos alumnos es usted responsable?

menos de 10	10 -20	20 -30	más de 30 X	No respuesta

7 ¿ Preferiría trabajar en un nuevo edificio / escuela ?

Sí X	No	No sé	No respuesta

8 ¿ Preferiría seguir trabajando en este edificio ?

Sí	No X	No sé	No respuesta

9a ¿ Cree que el diseño del edificio es importante para el funcionamiento de la escuela?

muy importante X	importante	No es importante	No respuesta

9b ¿ Cree que el diseño del edificio pudiera ser mejor?

Sí X	No	No sé	No respuesta

9c Si su respuesta es sí, diga qué aspectos usted mejoraría:- Aulas con condiciones y requisitos para aulas. Iluminación, espacio. Despacho para el Dator.

10a Tienen problemas de seguridad?

Sí	No X	No sé	No respuesta

10b Si su respuesta es sí, diga qué problemas de seguridad enfrentan:-

11a ¿ Es importante el área exterior para juegos?

muy importante X	importante	No es importante	No respuesta

11b ¿ Cree que el diseño del área exterior puede ser mejor?

Sí X	No	No sé	No respuesta

11c Si su respuesta es sí, diga qué aspectos usted mejoraría:- Espacio más amplio en correspondencia matrícula centro.

12a ¿Cree que el edificio debería ser utilizado por otras personas después del horario de clase

Sí	No X	No sé	No respuesta.

12b Si su respuesta es sí; ¿ para qué actividades se pudiera utilizar?

AULAS

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

GRADO No. _____		1	2	3	4	5	Observaciones
C1a	Ubicación del aula dentro de la escuela				✓		INTERFERENCIAS
C1b	Orientación con respecto al sol y el aire			✓			
	MEDIO AMBIENTE						
C2	TEMPERATURA			✓			
C3	ILUMINACIÓN Natural			✓			
C4	Artificial				✓		
C5	Reflejada				✓		
C6	VENTILACIÓN Natural				✓		
C7	Artificial					✓	
C8	Contaminación				✓		
C9	RUIDO Interno			✓			
C10	Externo			✓			
	MATERIALES DE TERMINACION						
C11	PAREDES - Material + Color			✓			
C12	MURALES			✓			
C13	VENTANAS			✓			
C14	PISOS - Material + Color				✓		
C15	FALSO TECHO - Material + Color						

C16 ¿Es el color importante? Sí ✓ No ☐ No sé ☐

C17 ¿Qué color le gustaría para el aula? VERDE CLARO. AZUL CLARO.

	MUEBLES						
C18	Cantidad			✓			
C19	Calidad			✓			
C20	Pizarra			✓			
C21	Otros			✓			
C22	Espacio de almacenamiento				✓		
C23	Otros comentarios / Problemas y Sugerencias						

PATIO / AREA COLECTIVA

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

PATIO / AREA COLECTIVA		1	2	3	4	5	Observaciones
G1	Localización, Orientación y Accesibilidad			✓			PEQUEÑO-
	MEDIO AMBIENTE						
G2	TEMPERATURA			✓			
G3	ILUMINACIÓN Natural			✓			
G4	Artificial					✓	
G5	Reflejada				✓		
G6	VENTILACIÓN Natural			✓			
G7	Artificial					✓	
G8	Contaminación			✓			
G9	RUIDO Interno			✓			
G10	Externo			✓			
	MATERIALES DE TERMINACION						
G11	PAREDES - Material + Color			✓			
G12	VENTANAS			✓			
G13	PISOS - Material + Color				✓		
G14	FALSO TECHO - Material + Color						
	EQUIPAMIENTO						
G15	Cantidad				✓		
G16	Calidad				✓		
G17	Otros				✓		
G18	SEGURIDAD			✓			
G19	Espacio de almacenamiento				✓		
G20	Otros comentarios / Problemas y Sugerencias						

COMEDOR

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✓

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

	COMEDOR	1	2	3	4	5	Observaciones
D1	Localización,				✓		Debía estar fuera del módulo edificio - (Aledaño)
	Orientación				✓		
	y Accesibilidad			✓			
	MEDIO AMBIENTE						
D2	TEMPERATURA				✓		
D3	ILUMINACIÓN Natural			✓			
D4	Artificial				✓		
D5	Reflejada				✓		
D6	VENTILACIÓN Natural			✓			
D7	Artificial					✓	
D8	Contaminación			✓			
D9	RUIDO Interno				✓		
D10	Externo			✓			
	MATERIALES DE TERMINACION						
D11	PAREDES - Material + Color			✓			
D12	VENTANAS			✓			
D13	PISOS - Material + Color			✓			
D14	FALSO TECHO - Material + Color						No procede
	MUEBLES						
D15	Cantidad				✓		Por el espacio pequeño -
D16	Calidad			✓			
D17	Otros			✓			
D18							
D19	Espacio de almacenamiento					✓	
D20	Otros comentarios / Problemas y Sugerencias						

COCINA

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✓

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

	COCINA	1	2	3	4	5	Observaciones
K1a	Localización del y al comedor			✓			
K1b	Orientación			✓			
K1c	Acceso Exterior			✓			
	MEDIO AMBIENTE						
K2	TEMPERATURA			✓			
K3	ILUMINACIÓN Natural			✓			
K4	Artificial					✓	
K5	VENTILACIÓN Natural			✓			
K6	Artificial					✓	
K7	Contaminación / olores				✓		
K8	RUIDO Interno			✓			
K9	Externo			✓			
K10	DRENAGE			✓			
K11	Abastecimiento de agua			✓			
K12	LATONES de BASURA				✓		
	MATERIALES DE TERMINACION						
K13	PAREDES - Material + Color			✓			
K14	VENTANAS			✓			
K15	PISOS - Material + Color			✓			
K16	FALSO TECHO - Material + Color						No procede

EQUIPAMIENTO

K17	¿ Cocinan la comida en la escuela?	Sí ☐ No ☒ No sé ☐
K18	Si su respuesta es sí, qué tipo de cocina tienen?	Electrica ☐ Gas ☒ Luz brillante ☐ Otros ☐

		1	2	3	4	5	
K19	Calidad de zona de preparación			✓			
K20	Calidad de zona de cocción				✓		
K21	Calidad de zona de servicio			✓			
K22	Calidad de fregaderos			✓			
K23	Espacio de almacenamiento			✓			
K24	Otros comentarios / Problemas y Sugerencias						

CATEDRAS

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

	CATEDRAS	1	2	3	4	5	Observaciones
S1	Localización, Orientación y Accesibilidad			✔			
	MEDIO AMBIENTE						
S2	TEMPERATURA			✔			
S3	ILUMINACIÓN Natural			✔			
S4	Artificial				✔		
S5	Reflejada				✔		
S6	VENTILACIÓN Natural			✔			
S7	Artificial					✔	
S8	Contaminación			✔			
S9	RUIDO Interno			✔			
S10	Externo			✔			
	MATERIALES DE TERMINACION						
S11	PAREDES - Material + Color			✔			
S12	VENTANAS			✔			
S13	PISOS - Material + Color				✔		
S14	FALSO TECHO - Material + Color						No procede.
	MUEBLES						
S15	Cantidad			✔			
S16	Calidad			✔			
S17	Otros			✔			
S18							
S19	Espacio de almacenamiento				✔		
S20	Otros comentarios / Problemas y Sugerencias						

OFICINA del ADMINISTRADOR No procede.

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

	OFICINA del ADMINISTRADOR	1	2	3	4	5	Observaciones
A1	Localización, Orientación y Accesibilidad						
	MEDIO AMBIENTE						
A2	TEMPERATURA						
A3	ILUMINACIÓN Natural						
A4	Artificial						
A5	Reflejada						
A6	VENTILACIÓN Natural						
A7	Artificial						
A8	Contaminación						
A9	RUIDO Interno						
A10	Externo						
	MATERIALES DE TERMINACION						
A11	PAREDES - Material + Color						
A12	VENTANAS						
A13	PISOS - Material + Color						
A14	FALSO TECHO - Material + Color						
	MUEBLES						
A15	Cantidad						
A16	Calidad						
A17	Otros						
A18							
A19	Espacio de almacenamiento						
A20	Otros comentarios / Problemas y Sugerencias						

AMBIENTE EXTERIOR

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno ✔ 4 = Regular 5 = Malo

	AMBIENTE EXTERIOR	1	2	3	4	5	Observaciones
X1	El area alrededor de la escuela:- Calidad general del sitio						
X2	Ruido			✔			
X3	Contaminación			✔			
X4	Sol			✔			
X5	Viento			✔			
X6	Malos olores			✔			
X7	Basura			✔			
X8	Arboles			✔	✔		
X9	Ausencia de un jardín		✔				
X10	Calidad de acera o camino			✔			
X11	Seguridad del edificio			✔			
X12	Seguridad del lugar/ zona			✔			

	AREAS de JUEGO						
X13	Calidad general				✔		
X14	Canchas de juego						No procede
X15	Césped						No procede
X16	Equipamiento de juego				✔		
X17	Otros?				✔		Faltan implementos

X18	Calidad del área donde se encuentra la escuela			✔			
X19	Transporte						No procede
X20	Otros comentarios / Problemas y Sugerencias						

OFICINA del DIRECTOR

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✔

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

	OFICINA del DIRECTOR	1	2	3	4	5	Observaciones
H1	Localización, Orientación y Accesibilidad			✔	✔		Podría ser solo para esta función

	MEDIO AMBIENTE						
H2	TEMPERATURA			✔			
H3	ILUMINACIÓN Natural			✔			
H4	Artificial				✔		
H5	Reflejada				✔		
H6	VENTILACIÓN Natural			✔			
H7	Artificial					✔	
H8	Contaminación			✔			
H9	RUIDO Interno				✔		
H10	Externo				✔		

	MATERIALES DE TERMINACION						
H11	PAREDES - Material + Color			✔			
H12	VENTANAS			✔			
H13	PISOS - Material + Color			✔			
H14	FALSO TECHO - Material + Color						No procede

	MUEBLES						
H15	Cantidad			✔			
H16	Calidad			✔			
H17	Otros			✔			
H18							
H19	Espacio de almacenamiento				✔		
H20	Otros comentarios / Problemas y Sugerencias						

SERVICIOS SANITARIOS

Diga su opinión en cuanto al estado de las siguientes áreas en los aspectos que se especifican, marcando con una ✓

1 = Excelente 2 = Muy Bueno 3 = Bueno 4 = Regular 5 = Malo

SERVICIOS SANITARIOS		1	2	3	4	5	Observaciones
T1	ACCESIBILIDAD			✓			(Pocos -
T2a	Localización en el edificio			✓			
T2b	Orientación			✓			
	MEDIO AMBIENTE						
T3	ILUMINACIÓN Natural			✓			
T4	Artificial					✓	
T5	VENTILACIÓN Natural			✓			
T6	Artificial				✓		
T7	Contaminación / olores			✓			
T8	RUIDO Interno			✓			
T9	Externo			✓			
T10	DRENAGE				✓		
T11	Abastecimiento de agua			✓			
	MATERIALES DE TERMINACION						
T12	PAREDES - Material + Color			✓			
T13	VENTANAS			✓			
T14	PISOS - Material + Color			✓			
T15	FALSO TECHO - Material + Color						No procede.
	EQUIPOS SANITARIOS						
T16	inodoros - Cantidad					✓	
T17	inodoros - Calidad			✓			
T18	lavamanos - Cantidad				✓		
T19	lavamanos - Calidad			✓			
T20	urinarios - Cantidad + Calidad					✓	
T21	duchas - Cantidad + Calidad					✓	
T22	Otros equipamientos					✓	
T23	Otros comentarios / Problemas y Sugerencias						

Nombre - Escuela Pedro Portuondo -

PARA USO DEL ENCUESTADO

Nombre _____

Profesión Maestro -

OBSERVACIONES Otros comentarios / Problemas y Sugerencias

Si usted piensa que hay comentarios que pudieran ayudar en la obtención de buenos resultados en este estudio y no han sido reflejados en el cuestionario, por favor, escríbalos a continuación.

Appendix D : Example Copy of Architectural Survey Form

This Appendix contains a copy of an Architectural Survey completed by the author during a visit to the school.

ARCHITECTURAL SURVEY

Name of School PEDRO PORTUONDO

Address + Tel No.

Ref. No. PR/ 97

Date of Survey 8/May97 Location Plan 4

GENERAL DESCRIPTION

Date Building was Constructed	
Type of BUILDING	
Date converted to Primary School	1961
Number of Floors *	1 2 + Basement.
No. Buildings the School Occupies on this site	2 3 Blds - same site.
No. Buildings the School Occupies on other sites	

7am - 7pm
Class 8:00 - 4.20.
12:15 - 2:30 lunch.
GF + 2 class 1st grade on 1st floor with external staircase.

POPULATION - 1996-97	Pre-E	1er	2o	3er	4to	5to	6to	TOTAL
Total No. PUPILS		60	56	53	38	60	47	314
Externos								
Semi - Internos								268
Total No. Boys								
Total No. Girls								
Total No. **Teachers**		2	2	2	1	2	2	11
Male / Female Teachers								
Total **Administrative Staff**		Auxiliar = 10			Ed.Física = 2.			
Male / Female Admin.Staff		Logopeda = 1			Comedor = 2.			
		Biblioteca = 1			Limpiar = 4.			

1 cook +

STRUCTURE	Type	Condition
Walls		
Roof		

2 = Sereno
Watch
6:30pm - 6:30am.

UTILITIES

Gas	Electricity	Water	Drainage	Telephone
✓	✓	✓	✓	

30-46-20.
calle.

ACCOMMODATION

No. Classrooms	11		Head Teacher's Room	✓
Toilet Blocks			Administration / Office	
* Hall / Gym	—		Teachers Staff Room	—
Dining Room	✓ 1		Kitchen	✓
- Biblioteca.	✓			

4 personas.

- Logopeda ✓ Enfermeria XXX.

* ~~Audit~~ Ludoteca [LUDOTECA = Room for Games + Teachers Office.

Municipo - Plaza de la Revolucion J.Dale 1997

ARCHITECTURAL SURVEY

Name of School

Address + Tel No.

Ref. No. PR/ 97

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

EXTERNAL SITE ANALYSIS

	SITE	1	2	3	4	5	NOTES
x1	**External Environment** - Overall Quality of Site				✓		not enough space
x2	Noise			✓			
x3	Pollution			✓			
x4	Sun / Shade		✓				no trees.
x5	Wind			✓			
x6	Drainage			✓			
x7	Litter		✓				
x8	Natural Vegetation				✓		
x9	Garden Area on site					✓	
x10	Pavements on site				✓		
x11	Site Safety		✓				
x12	Site Security			✓			

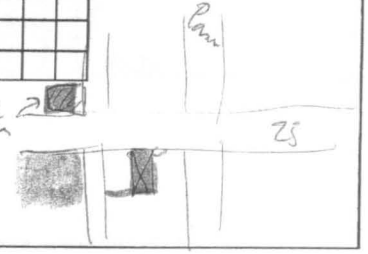
Play Areas

x13	Overall Quality				✓	✓	not sufficient.
x14	Hard Play					✓	
x15	Grass Play	—	—	—	—	—	None. *
x16	Play Equipment				✓		
x17	Other?						

x18	Quality of Surrounding Area / Location			✓			23 main Road.
x19	Bus service to site		✓				

x20 Other Comments

* Play area opposite



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ARCHITECTURAL SURVEY

Name of School _____

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Ref. No. PR/ 97

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	CLASS / Year No. 3ro	1	2	3	4	5	**NOTES**
C1a	**Classroom Location** 28						
C1b	**Orientation** PLANTA BAJA						
	ENVIRONMENT						
C2	TEMPERATURE				✓		
C3	LIGHTING Natural				✓		
C4	Artificial					✓	
C5	Glare						
C6	VENTILATION Natural				✓		
C7	Artificial	—	—	—	—	—	
C8	Pollution			✓			
C9	ACOUSTIC Internal				✓		
C10	External		✓				
	SURFACE MATERIALS						
C11	WALLS Material + Colour				✓		BLANCO
C12	Display Boards						
C13	WINDOWS Material + No.				✓		1
C14	FLOORS Material + Colour			✓			B
C15	CEILING Material + Colour				✓		
	FURNITURE						
C18	Quantity				✓		
C19	Quality				✓		
C20	Blackboard						PEQUEÑA
C21	Other Equipment						
C22	**STORAGE** Space						CLOSETS
C23	Other Comments: MUCHOS ESTUDIANTES EN ESPACIO MUY PEQUEÑO						

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ARCHITECTURAL SURVEY

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Ref. No. PR/ 97

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	CLASS / Year No. 2do	1	2	3	4	5	**NOTES**
C1a	**Classroom Location** 26						
C1b	**Orientation** P.B.						
	ENVIRONMENT						
C2	TEMPERATURE				✓		
C3	LIGHTING Natural				✓		
C4	Artificial				✓		
C5	Glare						
C6	VENTILATION Natural			✓			
C7	Artificial	—	—	—	—	—	
C8	Pollution		✓				
C9	ACOUSTIC Internal				✓		
C10	External		✓				
	SURFACE MATERIALS						
C11	WALLS Material + Colour				✓		BLANCO
C12	Display Boards						
C13	WINDOWS Material + No.				✓		1
C14	FLOORS Material + Colour			✓			B
C15	CEILING Material + Colour				✓		
	FURNITURE						
C18	Quantity						
C19	Quality						
C20	Blackboard						P.
C21	Other Equipment						
C22	**STORAGE** Space						CLOSETS
C23	Other Comments						

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ARCHITECTURAL SURVEY

Name of School _____ **Ref. No.** PR/ 97

Address + Tel No. _____

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

	CLASS / Year No. 4TO	1	2	3	4	5	NOTES
C1a	**Classroom Location** 30						
C1b	**Orientation** PLANTA BAJA						
	ENVIRONMENT						
C2	TEMPERATURE		✓				
C3	LIGHTING Natural				✓		
C4	Artificial				✓	✓	
C5	Glare						
C6	VENTILATION Natural				✓		
C7	Artificial	—	—	—	—	—	
C8	Pollution		✓				
C9	ACOUSTIC Internal		✓				
C10	External		✓				
	SURFACE MATERIALS						
C11	WALLS Material + Colour						AZUL, BLANCO
C12	Display Boards		✓				3
C13	WINDOWS Material + No.			✓			P
C14	FLOORS Material + Colour			✓			
C15	CEILING Material + Colour			✓			
	FURNITURE						
C18	Quantity		✓				
C19	Quality			✓			
C20	Blackboard			✓			— SMALL
C21	Other Equipment						CLOSET
C22	**STORAGE** Space			✓		✓	
C23	Other Comments						

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ARCHITECTURAL SURVEY

Name of School _____ **Ref. No.** PR/ 97

Address + Tel No. _____

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	CLASS / Year No. 5TO	1	2	3	4	5	NOTES
C1a	**Classroom Location** 30						
C1b	**Orientation** PLANTA BAJA						
	ENVIRONMENT						
C2	TEMPERATURE				✓		
C3	LIGHTING Natural				✓		
C4	Artificial					✓	
C5	Glare			✓			
C6	VENTILATION Natural				✓		
C7	Artificial	—	—	—	—	—	
C8	Pollution			✓			
C9	ACOUSTIC Internal			✓			
C10	External		✓				
	SURFACE MATERIALS						
C11	WALLS Material + Colour				✓		BLANCO
C12	Display Boards				✓		NO
C13	WINDOWS Material + No.				✓		1
C14	FLOORS Material + Colour			✓			B
C15	CEILING Material + Colour				✓		
	FURNITURE						
C18	Quantity		✓		✓		
C19	Quality				✓		
C20	Blackboard						PEQUEÑA
C21	Other Equipment						
C22	**STORAGE** Space						CLOSETS
C23	Other Comments						

INSUFICIENTE ESPACIO ✓

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ARCHITECTURAL SURVEY

Name of School _____

Address + Tel No. _____

Ref. No. PR/ 97

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

	CLASS / Year No. 6PTO	1	2	3	4	5	NOTES
C1a	**Classroom Location** 24						
C1b	**Orientation** PLANTA B.						
	ENVIRONMENT						
C2	TEMPERATURE				✓		
C3	LIGHTING Natural				✓		
C4	Artificial				✓		
C5	Glare						
C6	VENTILATION Natural				✓		
C7	Artificial	—	—	—	—	—	
C8	Pollution		✓				
C9	ACOUSTIC Internal				✓		
C10	External		✓				
	SURFACE MATERIALS						
C11	WALLS Material + Colour			✓			BLANCO
C12	Display Boards						1
C13	WINDOWS Material + No.				✓		B
C14	FLOORS Material + Colour			✓			
C15	CEILING Material + Colour			✓			
	FURNITURE						
C18	Quantity						
C19	Quality						
C20	Blackboard						BIEN
C21	Other Equipment						CLOSET
C22	**STORAGE** Space						
C23	Other Comments						

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	CLASS / Year No.	1	2	3	4	5	NOTES
C1a	**Classroom Location**						
C1b	**Orientation**						
	ENVIRONMENT						
C2	TEMPERATURE						
C3	LIGHTING Natural						
C4	Artificial						
C5	Glare						
C6	VENTILATION Natural						
C7	Artificial						
C8	Pollution						
C9	ACOUSTIC Internal						
C10	External						
	SURFACE MATERIALS						
C11	WALLS Material + Colour						
C12	Display Boards						
C13	WINDOWS Material + No.						
C14	FLOORS Material + Colour						
C15	CEILING Material + Colour						
	FURNITURE						
C18	Quantity						
C19	Quality						
C20	Blackboard						
C21	Other Equipment						
C22	**STORAGE** Space						
C23	Other Comments						

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	DINING ROOM	1	2	3	4	5	NOTES
D1	**Location and**		✓				
	Orientation			✓			
	Accessability GF main block		✓				
	ENVIRONMENT						
D2	TEMPERATURE		✓				
D3	LIGHTING Natural				✓		
D4	Artificial						
D5	Glare						
D6	VENTILATION Natural			✓			
D7	Artificial						
D8	Pollution		✓				
D9	ACOUSTIC Internal			✓			
D10	External		✓				
	SURFACE MATERIALS						
D11	WALLS Material + Colour			✓			3
D12	WINDOWS Material + Number			✓			Baldosa + Tiles
D13	FLOORS Material + Colour			✓			plastic.
D14	CEILING Material + Colour				✓		
	FURNITURE						
D15	Quantity				✓		24
D16	Quality					✓	
D17	Other Equipment						
D18							
D19	**STORAGE** Space						
D20	Other Comments						

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	KITCHEN	1	2	3	4	5	NOTES
K1a	Location from / to Dining		✓				
K1b	Orientation			✓			
K1c	External Access		✓				
	ENVIRONMENT						
K2	**TEMPERATURE**			✓			
K3	**LIGHTING** Natural			✓			
K4	Artificial						
K5	**VENTILATION** Natural				✓		
K6	Artificial						
K7	Pollution/ Smell			✓			
K8	**ACOUSTIC** Internal			✓			
K9	External		✓				
K10	**DRAINAGE**		✓				
K11	**WATER SUPPLY**		✓				Boil water for drinking
K12	**RUBBISH DISPOSAL**						
	SURFACE MATERIALS						
K13	WALLS Material + Colour				✓		plaster
K14	WINDOWS Material + Number					✓	1
K15	FLOORS Material + Colour				✓		Tile
K16	CEILING Material + Colour				✓		
	EQUIPMENT						
K17	Are the meals cooked in the school? Part. Yes ❑ No ❑ Don't know ❑						
K18	What type of equipment / cooker is used? Electric ❑ Gas ☒ Oil ❑ Other ❑						
K19	Quality- Preparation area				✓		
K20	Quality - Cooking area				✓		
K21	Quality - Servery				✓		
K22	Quality - wash-up area				✓		
K23	**STORAGE** Space				✓		
K24	Other Comments Refrigerator.						

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ARCHITECTURAL SURVEY

Name of School _____

Address + Tel No. _____

Ref. No. PR/ 97

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	TOILETS	1	2	3	4	5	NOTES
T1	ACCESSABILITY		✓				
T2	Location 1st Grade		✓				
	Orientation 1st Flow		✓				

	ENVIRONMENT						
T3	LIGHTING Natural		✓				
T4	Artificial	—	—	—	✓		no
T5	VENTILATION Natural		✓				
T6	Artificial	—	—	✓			
T7	Pollution / SMELL			✓			
T8	ACOUSTIC Internal			✓			
T9	External		✓				
T10	DRAINAGE						
T11	WATER SUPPLY		✓				water + bath ✓

	SURFACE MATERIALS						
T12	WALLS Material + Colour				✓		Green Tiles
T13	WINDOWS Material + Number					✓	
T14	FLOORS Material + Colour				✓		
T15	CEILING Material + Colour			✓			plastic white

	FIXTURES						
T16	W.C.s . - Number					✓	1
T17	W.C.s . - Quality					1	
T18	wash basins .- Number					1	
T19	wash basins . - Quality	—	—	—	—	—	no water
T20	Urinals - No. + Quality	—	—	—	—	—	Baño
T21	Showers- No.+ Quality	—	—	—	—	—	
T22	Other Equipment	—	—	—	—	—	none
T23	Other Comments cupboard for cleaners						

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ARCHITECTURAL SURVEY

Name of School _____

Address + Tel No. _____

Ref. No. PR/ 97

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	TOILETS	1	2	3	4	5	NOTES
T1	ACCESSABILITY		✓				
T2	Location		✓				
	Orientation P.B						

	ENVIRONMENT						
T3	LIGHTING Natural		✓				
T4	Artificial	—	—	—			
T5	VENTILATION Natural		✓				
T6	Artificial	—	—	—			
T7	Pollution / SMELL		✓				
T8	ACOUSTIC Internal			✓			
T9	External		✓				
T10	DRAINAGE					✓	
T11	WATER SUPPLY		✓				

	SURFACE MATERIALS						
T12	WALLS Material + Colour			✓			T. rojo
T13	WINDOWS Material + Number					✓	1 T. rojo V dark red
T14	FLOORS Material + Colour			✓			
T15	CEILING Material + Colour						

	FIXTURES						
T16	W.C.s . - Number				✓	✓	1 1
T17	W.C.s . - Quality					✓	
T18	wash basins .- Number					✓	1
T19	wash basins . - Quality					✓	
T20	Urinals - No. + Quality	—	—	—	—	—	
T21	Showers- No.+ Quality	—	—	—	—	—	Baño closet
T22	Other Equipment	—	—	—	—	—	
T23	Other Comments not appropriate						

Municipo - Plaza de la Revolucion J.Dale 1997

ARCHITECTURAL SURVEY

Name of School ____________________ **Ref. No.** PR/ 97

Address + Tel No. ____________________

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

	HALL / GYM	1	2	3	4	5	NOTES
G1	**Location and Orientation Accessability**						
	ENVIRONMENT						
G2	TEMPERATURE						
G3	LIGHTING Natural						
G4	Artificial						
G5	Glare						
G6	VENTILATION Natural						
G7	Artificial						
G8	Pollution						
G9	ACOUSTIC Internal						
G10	External						
	SURFACE MATERIALS						
G11	WALLS Material + Colour						
G12	WINDOWS Material + Number						
G13	FLOORS Material + Colour						
G14	CEILING Material + Colour						
	EQUIPMENT						
G15	Quantity						
G16	Quality						
G17	Other Equipment						
G18	**SAFETY**						
G19	**STORAGE** Space						
G20	Other Comments						

ARCHITECTURAL SURVEY

Name of School ____________________ **Ref. No.** PR/ 97

Address + Tel No. ____________________

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

	HEAD TEACHER's ROOM	1	2	3	4	5	NOTES
H1	**Location and Orientation** P.B **Accessability**		✓				[illegible] 23.
	ENVIRONMENT						
H2	TEMPERATURE		✓				
H3	LIGHTING Natural			✓			
H4	Artificial				✓		
H5	Glare						
H6	VENTILATION Natural			✓			
H7	Artificial						(crossed out)
H8	Pollution		✓				
H9	ACOUSTIC Internal				✓		
H10	External				✓		
	SURFACE MATERIALS						
H11	WALLS Material + Colour			✓			BLANCO
H12	WINDOWS Material + Number			✓			2
H13	FLOORS Material + Colour		✓				B
H14	CEILING Material + Colour			✓			
	FURNITURE						
H15	Quantity				✓		3 Desks. 5 chairs,
H16	Quality				✓		
H17	Other Equipment						cupboards.
H18							
H19	**STORAGE** Space				✓		
H20	Other Comments: Share with 4 person [illegible]						

ARCHITECTURAL SURVEY

Name of School _____

Address + Tel No. _____

Ref. No. PR/ 97

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

		1	2	3	4	5	NOTES
	Location and Orientation Accessability						
	ENVIRONMENT						
	TEMPERATURE						
	LIGHTING Natural		✓				
	Artificial						
	Glare						
	VENTILATION Natural		✓				
	Artificial						
	Pollution		✓				
	ACOUSTIC Internal		✓				
	External		✓				
	SURFACE MATERIALS						
	WALLS Material + Colour			✓			
	WINDOWS Material + Number		✓				6
	FLOORS Material + Colour						
	CEILING Material + Colour				✓		
	FURNITURE						
	Quantity						
	Quality						
	Other Equipment		✓				shelving + books. OK.
	STORAGE Space						NO-
	Other Comments						

ARCHITECTURAL SURVEY

Name of School _____

Address + Tel No. _____

Ref. No. PR/ 97

1 = Excellent 2 = Good 3 = Adequate 4 = Poor 5 = Unacceptable

SUMMARY

Persons Interviewed

Municipo - Plaza de la Revolucion J.Dale 1997

Appendix E: Schedule of all Primary Schools in Plaza

The following two Tables have been included to substantiate the data referred to in Chapter 7.

Table E 1 Schedule of Primary Schools in Plaza de la Revolución that have Closed since 1976

No	Name	Capacity	1976	1981	1986	1991	1996	Notes
1	Capitán San Luis	360	339					**Closed ***
2	La Edad de Oro	238	227					**Closed ***
3	Bernardo Domínguez	420	359					Basic Secondary
4	Fructuoso Rodríguez	637	718					Basic Secondary
5	Guerrilleros de América	155	270					Basic Secondary
6	Coronel Juan Delgado	411	302					Special School
7	Julio López	200	401					Basic Secondary
8	Orlando Nodarse	220	238					Basic Secondary
9	Huberto de Blank	190	186					Basic Secondary
10	Fabrico Ojeda	109	444	141				**Closed ***
11	Neguyen Van Troi	415	449	316				**Closed ***
12	Jesús Menéndez	405	441	253				**Closed ***
13	Pueblos de América	300	307	232				**Closed ***
14	José Luis Tassende	500	415	160	52			**Closed ***
15	Eusebio Cañer	400	389	300	152			Basic Secondary
16	Anibal Ponce	255	290	201	146	198		To Tomas Romay
17	Guido Fuentes	550	713	603	527	477		To Saul Delgado
	Total No. Schools Closed			9	13	15	17	
	Total No. Schools in Use		53	44	40	38	36	Read with Table E2

Source: Departamento de Educación – Municipio de Plaza de la Revolución (1997)

Information provided for author on request (total calculations by author)

Note: * Reason for closure given as the poor condition of the building.

Table E 2 Schedule of All Existing Primary Schools in Plaza de la Revolución in 1997

Zone	No.	Name of School	No.Pupils	Capacity	% over / % under	Classrooms	Type of School
1	2	Arturo Montori	390	350	+ 11%	15	Pre '59 - Private
1	3	Carlos Hernandez	287	227	+ 26%	10	Casa Adaptada
1	12	Hermanas Girald	382	214	+ 78%	13	Casa Adaptada
*1***	*15*	*Juan Fernandez Duque ***	*0*	*186*	*- 100%*	*10*	*Casa Adaptada*
1	20	Orlando Pantoja	601	402	+ 49%	24	Casa Adaptada
2	13	Ignacio Agramonte	222	156	+ 42%	11	Casa Adaptada
2	16	Juan Triana	451	293	+ 54%	14	Casa Adaptada
2	28	Tania la Guerrillera	107	235	- 54%	14	Casa Adaptada
2	29	Tomas David Royd	446	1343	- 67%	40	Pre '59 - Private
3	19	Nicolas Estevanez	415	240	+ 73%	13	Casa Adaptada
3	24	Pedro Portuondo	314	223	+ 41%	12	Casa Adaptada
3	31	Union Interno de Estudiantes	467	325	+ 43%	13	Convencional
3	32	Valdes Rodriguez	772	1425	- 46%	37	Pre '59 - Private
3	34	Frank Hidalgo Gato	420	374	+ 12%	18	Casa Adaptada
4	21	Ormani Arenado	652	1010	- 35%	34	Pre '59 - Private
4	22	Patria Nueva	122	181	- 32%	8	Casa Adaptada
4	25	Rene Ramos Latour	178	195	+ 10%	11	Casa Adaptada
4	30	Tomas Romay	364	342	+ 6%	19	Casa Adaptada
4	36	Elroy Alfaro	325	520	- 37%	13	Convencional
4	26	Amistad Cubano Mexicana	182	179	+ 1%	11	Convencional
5	4	Combatientes de Bolivia	541	396	+ 37%	22	Casa Adaptada
5	10	Gustavo y J. Ferrer	592	352	+ 68%	21	Casa Adaptada
5	11	Gustavo Pozo	332	760	- 56%	14	Convencional
5	17	Luis Arcos Bergnes	304	271	+ 12%	13	Casa Adaptada
5	18	Martires del II Frente	228	253	- 10%	12	Casa Adaptada
5	27	Republica del Peru	191	168	+ 13%	8	Convencional
5	35	Jose Luis Arrunada	452	2288	- 80%	46	Convencional
5	38	Calixto Garcia	352	400	- 12%	10	Convencional
6	5	Eduardo Garcia Delgado	393	343	+ 14%	13	Convencional
6	6	Ejercito Rebelde	492	840	- 41%	20	Giron
6	7	Frank Pais	559	585	- 4%	21	Casa Adaptada
7	1	Adalberto Gomez Nunez	394	350	+ 13%	12	Pre '59 - Private
7	8	Gonzalo de Quesada	528	425	+ 24%	15	Casa Adaptada
7	14	Jose A. Echeverria	449	597	- 25%	17	Casa Adaptada
7	23	Pedro Albizu Campos	290	280	+ 4%	10	Casa Adaptada
7	33	Saul Delgado	499	860	- 42%	15	Pre '59 - Private
7	37	Felipe Poey	713	1240	- 42%	26	Pre '59 - Private

Source: MINED (1997) – Information provided for author on request (% calculation by author)

Note: ** School No 1.15 has not been included in the calculations as it has recently closed.
The schools visited in the study are shaded yellow.
All "Convencional" schools and the 'Giron' school are purpose built schools

Appendix F : Official Letters of Authorisation from MINED

This Appendix contains a copies of two letters of authorisation from the Ministry of Education (MINED). These enabled me to access various documentation from different government departments as well as giving official access to the schools.

Ciudad de La Habana, 23 de julio de 1996
"ANO DEL CENTENARIO DE LA CAIDA EN COMBATE DE ANTONIO MACEO"

A QUIEN PUEDA INTERESAR:

Compañero:

La profesora Julia Dale de la Universidad de HUDDERSFIELD, Inglaterra, se encuentra realizando como parte de su tesis de doctorado, un trabajo de investigación sobre la red de escuelas primarias en tres de los municipios seleccionados en la provincia Ciudad de La Habana: Habana Vieja, Plaza de la Revolución y Habana del Este.

La profesora Dale ha contado con nuestra colaboración en la entrega de datos estadísticos sobre el tema, no obstante ella requiere de otros que no poseemos, por lo que solicitamos su ayuda, en la medida de sus posibilidades, para su completamiento en la documentación siguiente:

-Area del Municipio

-Población, desde 1976 hasta 1996

-Número de escuelas desde la nominación del municipio actual (1976)

-Matrícula de primaria desde la nominación del municipio actual (1976)

En espera de su atención al respecto, le saluda,

Revolucionariamente,

Arq. Rafael Barbosa Rovira
DIRECTOR MANTENIMIENTO E INVERSIONES
MINISTERIO DE EDUCACION

em.

1515

25 / 4 / 97

Ciudad de La Habana,25 de Abril de 1997
"ANO DEL 30 ANIV. DE LA CAIDA EN COMBATE DEL GUERRILLERO HEROICO Y SUS COMPANEROS"

Co. Francisco Fereira
Viceministro de Educaciòn y
Director Provincial de Educaciòn
CIUDAD DE LA HABANA

Compañero:

A partir del 5 de Mayo y hasta el 22 del propio mes, serán visitadas un grupo de escuelas en los municipios de Habana Vieja y Plaza de la Revolución, con el objetivo de hacer un estudio conjunto de un proyecto firmado entre Inglaterra y la Facultad de Arquitectura de la CUJAE. Tenemos a bien comunicarselo para que usted nos brinde todas las facilidades en ambos municipios para poder recorrer las escuelas sin dificultades.

El grupo en cuestiòn tiene autonomia propia, no requiriendo de ningùn gasto por parte de la Direcciòn Provincial de Educaciòn.

Acompañamos con esta nota la relaciòn de centros a visitar en ambos municipios.

Estas coordinaciones fueron realizadas por la Direcciòn de Mantenimiento e Inversiones del MINED.

Saludos,

Amado Carrasco Quintana
DIRECTOR
MANTENIMIENTO E INVERSIONES

Appendix G: Background Bibliography

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