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The Architecture of Pedagogical Encounters

Ronald G. SULTANA

Introduction

When teachers approach their first experience of classroom interaction, they often tend to focus on curricula, syllabi, schemes of work, educational technology, and the various challenges that have to be faced in teaching a group of around thirty different students who, though having the same age, are characterised by distinct personalities, abilities, aptitudes, interests and levels of motivation. The pedagogical encounter in this sense is very challenging indeed: decisions have to be made regarding what to teach, when to teach, how to teach and to whom. As teachers, we have to decide about the pace of the delivery of the lesson, how and when to involve students in participatory interactions, when to use small and large group teaching and so on. There are issues of discipline and order in the classroom, as there are ethical dilemmas that need to be resolved, related to all the aspects of the teaching-learning encounters mentioned above. There are also issues concerning not only relationships with students, but also relationships with policy-makers, colleagues, parents, and the wider community. All this takes place in a context of uncertainty, to the extent that no recipe-answers exist to that perennial question: how does a good teacher teach? Individuals and human, interactive contexts are far too complex, and it is therefore difficult if not impossible to predict responses and reactions in any communicative situation. Indeed, it is this very complexity that legitimizes teachers' claim that their work constitutes a 'profession', given the inadequacy of fixed responses to pedagogical challenges. Teachers can only be good workers by reflecting carefully on their own experience, and by drawing on their baggage of theoretical understandings so that they can improve as they go about their task.

But among this uncertainty of shifting foundations for human interaction, there is one context which is crucial and which is perhaps slightly more predictable and rather more subject to direct manipulation, and that is school and classroom architecture. The physical or material context in which teaching takes place is the most obvious, and unfortunately the least referred to - at least in local educational research - among the variables that have

an influence on the pedagogical encounter. The fact that parents are so sensitive to the state of repair of school buildings does indicate, however, the extent to which there is a popular understanding of the link between teaching, and the context in which it is carried out. Let me explain what I am referring to by 'material context' before I proceed to examine what I am here calling 'the architecture of pedagogical encounters'.

The Material Contexts of Teaching

'Material context' refers to the ensemble of locations and spaces that are made use of when teachers go about their business in facilitating learning in formal, institutional settings. In this sense 'architecture' is nothing but the use of space for particular ends, and more often than not, this space is somehow delineated and delimited in structured ways so that particular ends are more effectively reached. Such delineation and delimitation from countless possibilities of organising space tells us a lot about how the particular activity to be enacted is perceived by the architect, by the commissioning body, and by the users. The structure of the edifice is therefore a function not only of the developments in the technology of materials and of building tools and skills, but is also a function of the conceptual approach to the activity or activities in question, the values associated with it, aesthetic sensibility and so on.

An appropriate exercise in this context would be to consider church architecture, and how this developed throughout the centuries in response to not only technological innovations and aesthetic taste, but also in response to different and evolving conceptions that prevailed about God, God's relationship to humanity and *vice versa*. There is a world of difference in such conceptualisations between, say, the dramatic, heavy, and overwhelming detail of baroque architecture, and the elegant, ethereal transcendence of the gothic. When Vatican Council II encouraged a less hierarchical basis for the relationship between God, humanity and the intermediary priest, the view of an accessible, personal deity was reinforced by a radical

change in both the edifice of churches, and the use of internal space. Circular constructions brought people closer together and emphasised face-to-face interaction; movable chairs replaced pews and fixed benches, priests went down from podia and pulpits and began facing people, even entering into a dialogue with them; territory previously reserved for the clergy now became accessible to the laity. The organisation and use of space changed, therefore, in response to new theological ideas.

One could also argue that the transformation of buildings influences and shapes the thoughts and perceptions of those inhabiting the new spaces. Thus, as with other structures in human interaction, such as language and social institutions for instance, one could claim that architecture is both an object and a subject of particular conceptualisations, to the extent that it draws on a specific philosophy (in the case of sacred/religious buildings, a philosophy of god and relations between deity and humanity) created by particular conceptualisations and itself creates and reinforces such conceptualisations. To pursue the example given above, while specific church forms and styles reflect ideas about god, they also reinforce these same ideas by structuring the relations and interactions of people entering them, and by evoking feelings, emotions, and interests of a specific kind in those attending functions in them. There is therefore a duality in the structure of edifices: buildings are both constituted by human agency, and at the same time they are the very medium of this constitution.

Such reflections can be brought to bear on those spaces organised for the purpose of formal instruction and education. 'Schools' are a relatively modern invention, and their contemporary form can be traced back to the early 19th century and to the industrial revolution and the birth of the nation state which gave rise to mass compulsory elementary education for all. Of course, formal schooling of a sort existed for centuries before this in various societies around the world. However, modern schooling represents a rupture from the past not only in the sense that it became democratised, that is, offered to all rather than to a select elite, but also because increasingly it became to be seen as a specialised activity, to be exercised by a *cadre* of specially trained personnel who made use of specific pedagogical strategies that had to be learnt. Additionally, and most importantly given the focus of this volume, this pedagogical activity was not hosted in domestic houses, in palaces or in convents. Nor was it part and parcel of the flow of life, where young people learnt by observing and mimicking their elders, as was most often the case in pre-modern societies. Rather, the 19th century saw the rise of



A sixteenth century schoolroom that illustrates the coexistence of classing and individualized instruction. Note, too, the possible assistant teacher at the back of the schoolroom. Taken from a German broadsheet, translated into English, and published in 1575. (Euing Broadside Ballad No. 1, copy in Glasgow University Library Department of Special Collections).

specially built edifices which were conceived in such a way as to facilitate the fulfilment of educational goals. We can note the enthusiasm and excitement in Canon Paul Pullicino's 1858 report when, as the third and most influential Director of Maltese elementary schools, he comments about one of the first purpose-built schools, that of Floriana. Joseph Fenech's commentary on this report outlines the key features of this architecture, and how this reflected pedagogical concerns of the time.

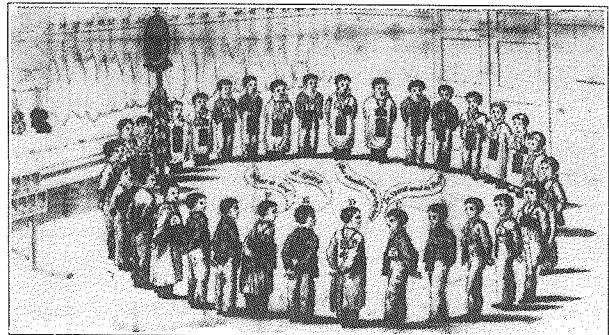
Thus, as with the example given earlier regarding churches, so too purpose-built schools structured pedagogical encounters. By looking at the way school buildings have developed since the 19th century, we have, as it were, a living document of the development of educators' conceptualisation of the pedagogical project, of beliefs about the learning child, of the value or otherwise of surveillance, open space, privacy, physical activity, recreation and so on. While not spelling out the relationship between architecture and changing conceptions of the educational enterprise, Conrad Thake does provide us with a useful historical outline of the development of school architecture in Malta. This historical dimension can also be gleaned from practically all the contributions in this issue. Students of education can delve into this 'archeology of forms' in order to construct a critical account of the history of pedagogical ideas.

In this critical historical glance at the past, we note both continuities and ruptures. Despite changing styles, school buildings in the 19th as much as in the 20th century are characterised by similar 'givens': closed edifices, often walled up to keep children 'in' and intruders 'out', with space parcelled up in what came to be known as 'classrooms', often (though not always)

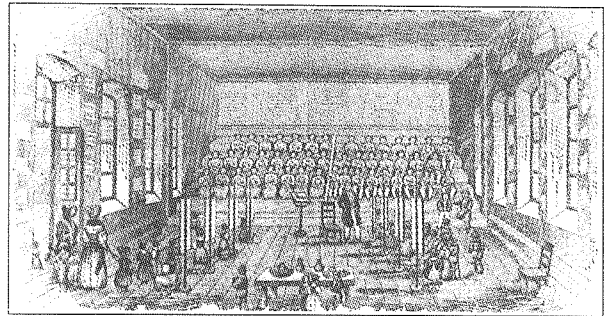
congregating groups of students according to specific criteria such as age or gender. These continuities and similarities are important indicators of the hard core or basic ideas that have structured our thinking about formal schooling for the past two hundred years. We realise the endurance of these concepts when we look at pictures of schools and classrooms in different European countries from the 1850s onwards. As my five year-old son exclaimed, pointing at one such illustration in a history of education book portraying life in a turn-of-the-century European teaching establishment: "That's my school!".

The durability of certain structures that configure school life becomes similarly clear to us when we consider what passes today as 'radical' education, which, in most cases, takes the school and the classroom in this 'classical' sense as given. Indeed, it is only Ivan Illich who has critiqued this basic structure of schools in any sustained manner by proposing that purpose-built edifices give way to 'networks of learning' organised through the home and the community. If we, like Illich, adopt to problematise the taken-for-granted view of grouping children in specialised spaces called schools, then we can begin to understand the social construction of these very same spaces, as well as their historical contingency. As anthropologists have pointed out, so-called 'primitive' cultures, like feudal societies of old, ensure the reproduction and transmission of knowledge and skills through interaction with parents and elders in a social group. Apprenticeship, the precursor of formal institutional learning was a way of learning directly from life and on - the - job, and not a few educators have questioned the extent to which schooling is, in fact, an improvement on immersion learning. Creatures from outer space visiting our planet might indeed be quite non-plussed by the curious fact that we spend such large amounts of energy and money to isolate children from life and pack them in schools, only to spend even more amounts of energy and money to bring life into the classroom through such means as audio-visual aids, textbooks, field-trips, and so on!

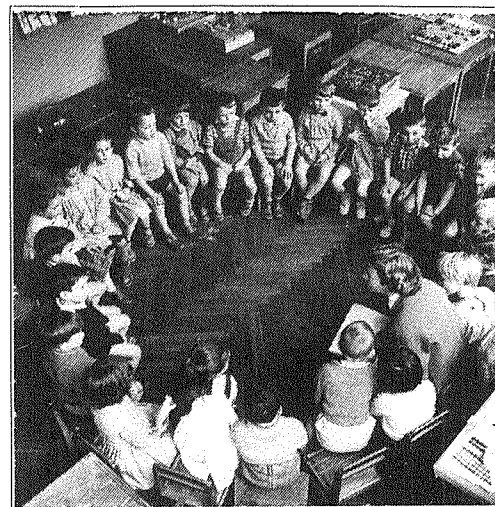
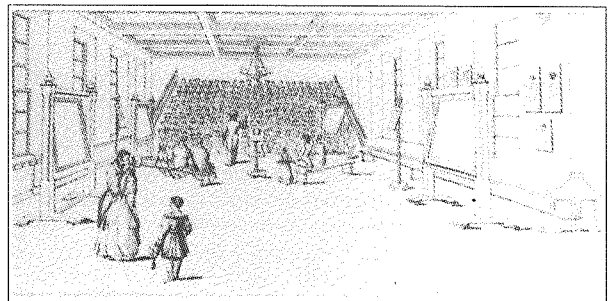
But it is also instructive to look beyond these basic continuities and to consider ruptures in the conceptualisation of what I have called 'the architecture of pedagogical encounters'. Despite superficial similarities, there is a world of difference, for instance, between the early schools based on the monitorial system, and classrooms in a modern school. This is a fundamental point made by Joseph Falzon in his analysis of the typology of school buildings. The monitoring classroom, pioneered by Bell and Lancaster in the early 1800s in Britain, and exported to the continent by a number of enthusiastic followers,



A version of mutual instruction derived from Bell's monitorial system. Taken from J. Stoot, *A Description of the System of Inquiry; or Examination by the Scholars themselves*, London, 1826 (Glasgow University Library)



Different representations of schoolrooms in the 1836 and 1850 editions of David Stow's *The Training system* (Glasgow and London).



The Spirit of the 60s.

hosted hundreds of students of different ages at the same time. Monitors were chosen from among the best of these, and were placed in charge of groups of students in order to teach them specific subjects. The teacher became, under this system, a sort of orchestra maestro, and he or she sat high on a podium directing the monitors' efforts through a complex code of signs and sounds. Clearly, such a conception of the task of teaching had a direct influence on the type of school buildings that were erected. A school would typically house one very large classroom, and the internal design of space gave a premium to surveillance and discipline which, as Foucault has argued, were key 'epistemes' or organising principles in the construction of other new institutions that arose with the school at the turn of the 19th century, namely the factory and the prison. The 'panoptic' (all-seeing) structure of the monitorial classroom gives the archeologist of school buildings clear signs regarding the pedagogical encounter prevailing then: student-teacher interactions were built on a very clear hierarchy, with the teacher holding the reigns of power, with the monitors acting as floor supervisors, and with the pupils cast in a subservient and passive role, as consumers of knowledge.

Contrast this with what passes for teaching in modern schools: students are separated from each other according to age, and in some cases according to ability. Classes cater for thirty or so children in all, and the parcelling of school space is therefore quite different from that required by the monitoring system. In order to interpret these and other changes and ruptures in the development of school buildings, we need a typology or paradigm of the various forms that have evolved as architects the world over grappled with the challenge of providing structures that welded form and function in response to the educational enterprise at hand. Joseph Falzon provides this typology, and draws on his expertise in architecture and his experience as an educator to show how features like location, size (both demographic and physical) and community context are of concern when it comes to providing a context for teaching. Falzon, the co-editor of this issue, does this by drawing comparisons with architectural practice in the United Kingdom, where standards of safety, besides those of function and comfort, have been regulated in tighter ways than they are currently in Malta, despite Legal Notice 150 which, since 1990, has stipulated the national minimum conditions for all school buildings. This comparative dimension is further enhanced through our interview with Professor Colin Stansfield-Smith, a British architect with a series of impressive achievements in the field that led to such honours as the Royal Gold Medal (1974), the Building of the Year Award (1987),

and the B.B.C. Design Award. Stansfield-Smith reflects on both his achievements and his struggles in order to pioneer new approaches in the building of educational establishments in Britain.

The challenges that face us in Malta in this regard come into sharp focus on reading the report by architect Edwin Mintoff who, as director of a number of research projects within the Urban Design Stream of the Faculty of Architecture and Civil Engineering at the University of Malta, presents us with an evaluative overview of the state of government schools. It is clear from this report that such schools fall far short from the ideal in a number of respects. However, Mintoff and his team do not stop at criticism. They come up with a series of recommendations that are as sensible as they are timely, recommendations that policy-makers would do well to take into account.

All the papers in this issue highlight the need for a concerted effort to tackle problems that are as real as they are pressing. In a sense, one could arguably claim that while the teaching profession and general education provision in Malta are geared to face the 21st century, the material context in which this education is to take place looks back at a distant past. Of course, it is often financially less exacting to change pedagogies rather than to change buildings! Reflecting on a global audit of accommodation in state secondary schools commissioned by his Ministry, Michael Falzon, present Minister of Education and Human Resources - and himself an architect by profession - notes some of the challenges he has had to face. He focuses not on the state of repair of older schools, but on a new school that is to be built at Santa Lucija. The Minister argues that this presents us with a unique opportunity to break away from previous typologies and to come up with a design that reflects the current conception of optimal educational practice.

Here again, as with all other articles collected in this issue, we note the intimate relationship between structures and action, between architecture and pedagogic encounters. In this regard, I find it apt to conclude by quoting at some length from the Consultative Committee's Report, commissioned by the Minister of Education and entitled *Tomorrow's Schools: Developing Effective Learning Cultures* (1995, p.16):

We know from detailed case-studies of different school buildings in Malta and Gozo that school sites are rarely safe or welcoming. Large glass panes, uneven and slippery floors, mouldy walls, inadequate lighting, excesses of heat and cold, inaccessible rooms for wheelchair-bound students, and so on are only part of the dark picture that requires immediate attention. Most

schools are also bereft of a stimulating and pleasant environment, whether this concerns colour schemes, comfortable, functional and attractive furniture, decoration accessories, or landscaping of grounds. Compared to what most children are accustomed to in their own homes, schools look back to an indigent past, rather than to a relatively affluent present. They certainly fail to respond to the aspirations many parents have for the well-being of their own children. The situation is worse precisely for those schools that ought to be the priority of the state, if we are to adopt the principles of equity and economy. It is impossible for schools to become

learning communities, and for students (or teachers and parents) to identify positively with their schools, if the places that we offer them fall far below the standards many of us would accept for our own homes. Indeed, the physical environment gives the first and arguably most important lesson in the covert curriculum of the school: it declares, through a state of affairs that speak louder than words, the kind of esteem children are held in.

It is through a concerted effort on the part of architects, educators and those that are ultimately responsible for the provision of quality education for all students in Malta, that our schools can indeed become suitable 'homes for learning'.

A Historical Outline of School Architecture in Malta

Conrad THAKE

Although the history of education in Malta is well documented, the architectural history of local educational facilities is still as yet uncharted territory. The available literature on the architecture of schools in the Maltese islands and their underlying design philosophy is almost non-existent. A tentative outline can only be sketched on the basis of the substantial corpus of surviving drawings, various *ad hoc* reports and for the international style modern schools, built in the 1950's and 60's, by direct verbal communications with their architects. This paper will present a concise historical exposition on school architecture in Malta and Gozo.¹

From Humble Origins

Before the crystallisation of formal educational institutions during the British Colonial period, educational facilities were severely limited both in number and also, in terms of their typology. The arrival of the Jesuit Order in Malta in 1592, was a landmark in the history of local education.² In the early seventeenth century, the Jesuits constructed their *Collegio* adjoining the Jesuit church in Merchants' Street Valletta. The Jesuit College known as the *Collegium Melitense* survived for over 150 years and it served as the quarters for the educational of several novices. Some of the most distinguished Maltese scholars including Gian Francesco Abela (1582-1655), received their education at the college under the tutelage of the Jesuits. On the instigation of Bishop Gargallo, the King of Spain had donated the sum of two thousand scudi for the foundation of the college.³ The Jesuits acquired a whole isolated block in Valletta which was bounded by Merchants' Street on the west, Christopher Street on the north, St. Paul Street on the east, and Archbuship's Street on the fourth side. The college was constructed over half the block with the other half serving as the site of the Jesuit church.

The college was originally constructed to the design of the Neapolitan Jesuit architect, Giuseppe Valerino who was also responsible for the design of the adjoining church. The plan of the college is based on a linear series of rectangular rooms around three sides of an open central courtyard which is flanked on the northern and western sides by cloisters. Valeriano's plan was modified by the interventions of the Order's

military engineer, Francesco Buonamici during the first half of the 17th century when he built more instruction rooms over part of the courtyard and reconstructed the façade overlooking Merchants' Street.⁴ This basic arrangement of rooms around a central open court was particularly well-suited not only in terms of facilitating access between the adjoining classrooms but also for alleviating the intense summer heat by cross-ventilation to the internal spaces. This central court block typology adopted for the Jesuit college, also served as the model for a number of primary schools built by the British Colonial Government in the early twentieth century.

When the Jesuits were expelled from Malta in 1768, Pope Clement XIV granted permission for their property to be taken over as a university which was officially instituted by Grand Master Emanuel Pinto.⁵ The public university of general studies included Faculties of Theology, Medicine and Law, with additional schools of Navigation, Naval Architecture and Cartography being set up a few years later.

Throughout the rule of the Order of St. John in Malta (1530-1798), there was no educational institutional set-up on a national level. Education was mainly entrusted to a few religious and private schools. A number of religious noviciates especially Dominicans and Friars Minors, held religious classes within their convents or residential houses which were improvised into classrooms. The diocesan Church encouraged priests to instruct local children in the elementary, Latin and Italian.⁶

With the end of the Order's rule in 1798 and the brief French interlude, the British Colonial Government set about to introduce formal educational institutions at a national level. The secretary of the State for the Colonies, Lord Bathurst had in his instructions to the British Governor, Sir Thomas Maitland, made it explicitly clear that the establishment of 'public schools on the economic lines introduced in this [United] Kingdom' was a highly desirable objective.⁷ The intentions were politically motivated so as to diminish the influence of the Italian culture in Malta and to promote the English language. An elementary school was opened in Valletta (St. Christopher Street) in 1819 and this was followed, shortly after, by other similar

schools in Lija and Vittoriosa.⁸ Still, these modest schools were financed by non-Governmental philanthropic organisations with all their severe financial limitation. The acute shortage of adequate facilities was undoubtedly a major stumbling block to the improvement of the educational set-up on the island.

In 1838, a specially appointed Royal Commission headed by Sir George Cornewall and Dr. John Austin, lamented about the general lack of interest in education and the very few schools available.⁹ They deplored the poverty and the ignorance in which the Maltese population had been kept by the Colonial Government and the complete neglect of education. In fact, only three elementary Government schools were operational at the time that the Commission presented its report; one of the schools was in Valletta, another in Senglea and the third school was to be found in Gozo. The Commission urged the government to embark on a school building programme, recommending a minimum of ten primary schools to be constructed; one in Valletta, two other schools to serve the Cottonera area and seven other schools to be built in the various outlying *casali* or districts.¹⁰

Although the number of schools increased substantially by the late 19th century, most of these schools were of sub-standard quality. In 1880, Sir P.J. Keenan was appointed to report on the state of educational facilities in Malta and Gozo.¹¹ It was reported that over 7,500 students were registered at over 79 government primary schools. In addition, there were also two secondary schools, one for male and the other for female pupils, the Lyceum with almost 500 students and the University which hosted 168 students.¹² However, most of the school buildings were privately owned houses which were appropriated by the government on the basis of a yearly rental lease. Although usually the more spacious property was selected, overcrowding and inadequate ventilation was quite common place. The internal planning of rooms intended for a residence had a limited flexibility to adequately serve as a school. Sir P.J. Keenan was particularly appalled by the standard practice of constructing water closets in the school houses or yards: "It would be difficult to imagine any arrangement more repugnant to good taste, or more injurious to health, than those to which I refer. Frequently, the odours from these closets were simply sickening; indeed in some cases more than sickening, intolerable such as for example at Cospicua and Senglea."¹³

Besides the sub-standard sanitary facilities, another serious deficiency identified by Keenan was

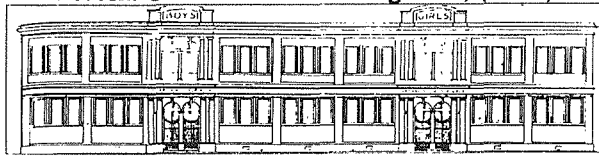
the total lack of playgrounds in many school-houses. However, the pioneer for the foundation of a national system of primary education which was accessible to the local population was not a British personality but the Maltese Canon Paolo Pullicino (1815-1890). In 1849, the British Governor, Sir Richard More O'Ferrall earmarked the young Maltese cleric, who at that time was a teacher of a primary school in Zejtun, to completely overhaul and reform primary education in Malta.¹⁴ Pullicino embarked on a study tour of educational facilities in Italy, France, England and Ireland. Upon his return to the island, he set out to reform and disseminate primary education to all local towns and villages. Besides drafting a new curriculum which also included music and art classes Pullicino selected and rented premises for use as schools. Although, Pullicino was not an architect by profession, he personally drew design proposals for a Girls' Secondary School in Valletta (1865) and the Boys' Lyceum in Gozo.¹⁵ Throughout his distinguished thirty year career, he constantly strove to construct new schools to supercede the older school-houses.

The lack of finances required for an intensive school building programme persisted throughout the nineteenth century. In 1883, S. Savona, director of primary schools observed in a report on educational facilities that "no portion of the public money can be better spent than that which is devoted to the physical, intellectual and moral improvement of people."¹⁶ Problems with student overcrowding became even more acute by the end of the nineteenth century, so much so that by the year 1896-7, it was estimated that almost 7,000 children could not be accommodated within primary schools.¹⁷

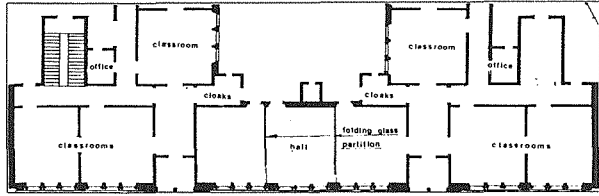
Schools in the early 20th century

The primary schools of Rabat and Mosta, both referred to as school 'A' and kindergarten, were constructed during the last decade of the nineteenth century. Both schools had separate physical quarters for boys and girls, as explicitly indicated on the raised centrepiece on the school façade. The plan of the Rabat primary school (1894), is based on the arrangement of a series of classrooms around a rectangular court which served as the playground. This layout was reflected almost identically in the other half of the school building. The introverted nature of the plan also underlies the 'T' shaped arrangement of classrooms adopted for the Mosta primary school (1896). The façades for both schools are symmetrical and academically restrained in character.

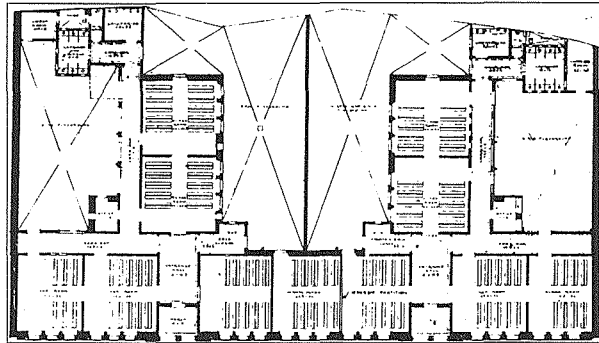
Mosta: School 'A' & Kindergarten, (1896)



Front Elevation



First Floor

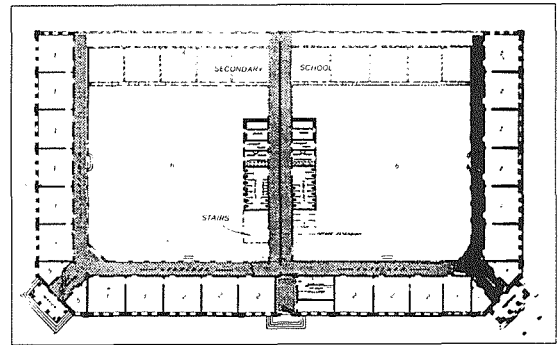


Ground Floor

A considerable number of primary schools were built during the first two decades of the twentieth-century. Some of the finest primary schools such as that in Sliema (1915), Hamrun (1919), B'Kara (1924), and Żejtun (1929) were constructed during this period. The plans of the Sliema and B'Kara schools are almost identical in that they occupy a whole block with the classrooms lining the outer perimeter and being planned around two large internal courtyards. The sanitary facilities for both the male and female pupils were accommodated in free-standing units, back to back along the central axis.

The plan of the Żejtun school deviates from the standard central court model. Instead, it is situated on an emphatically longitudinal site, with an uninterrupted line of classrooms along the extremely long façade with four shorter perpendicular arms of three to four classrooms which separate the three internal open courtyards. Access to the classrooms along the main façade is through a narrow corridor, some three hundred feet in length, and which is well-lit by the open courts.

The Żejtun primary school ranks as one of the finest twentieth century Neo-Classical buildings in Malta. Externally, an open portico runs continuously around three sides of the school building. This is repeated on both the ground floor and the first floor level. The regular rhythm of superimposed Doric columns



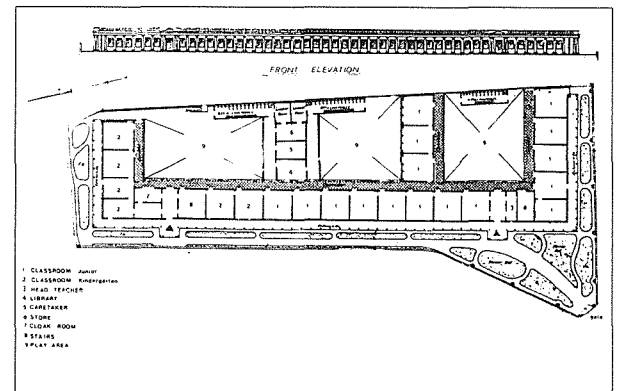
Birkirkara: School 'A' & Kindergarten, School 'B', (1924)



Żejtun Primary School (1929), façade



Żejtun Primary School, detail of façade



Żejtun: School 'A' & Kindergarten, School 'B', (1929).

contributes to an imposing and majestic façade. The Greek Doric revival style employed in the Żejtun school was iconographically closely associated with the British Colonial Government. One of the first major public

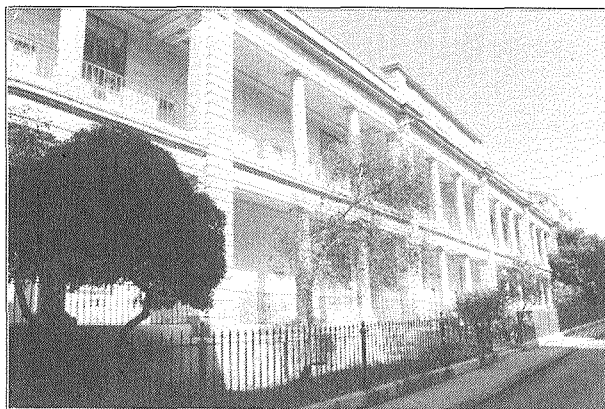
buildings to be constructed in Malta by the British was the Bigħi Naval Hospital which was a monumental Neo-Classical ensemble of buildings with impressive Doric Order colonnades. The adoption of the Greek Doric revival style for the Żejtun primary school could symbolically be interpreted as a rhetorical political statement that projected the British Colonial government as a benevolent and paternalistic institution with the local community's social welfare at heart.

The Sliema Primary school which pre-dates that of Żejtun by more than a decade, was designed by the Maltese architect, Andrea Vassallo (1855-1927). Vassallo was one of the most active architects on the island during the late nineteenth century and the first quarter of the twentieth century. Undoubtedly, his architectural magnum opus is the monumental and eclectic, pseudo-Romanesque 'Ta' Pinu' church, situated in the open countryside on the outskirts of Għarb, in Gozo.¹⁸ In the Sliema Primary school, Vassallo adopts a more restrained Palladian style with porticos along each of the four sides of the school. Each corner of the building block is boldly emphasised by rusticated square towers which although integrated within the building fabric, project over the parapet wall at roof level. The low segmental pediments that cap the squat roof projections add visual interest to the school's roof-line.

In the 1920's, a large number of primary schools were built including those of Floriana, Għargħur, Għaxaq, Hamrun, Paola and Qormi.¹⁹ These schools were typical of contemporary schools in the United Kingdom with the traditional arrangement of classrooms around internal courtyards being separated by corridors and colonnades. The schools were monumental in scale and their fortress outlook is reminiscent of the British military buildings of the time. The classrooms were usually of spacious proportions with high ceilings and thick dividing walls.

Notwithstanding the construction of new schools during the first half of this century, public awareness of the value of primary education was still not well developed. In 1923, the 'Compulsory Education Bill' was enacted with a view to improving school attendance.²⁰ This was later changed to the 'Compulsory Education Act' of 1946, whereby both primary and secondary education were made compulsory. With the outbreak of the World War II, the construction of new schools came to an abrupt halt. Several schools in the Grand Harbour area sustained some form of physical damage. Other schools were requisitioned by the military and civil authorities and temporarily converted into headquarters, hospitals and emergency housing.

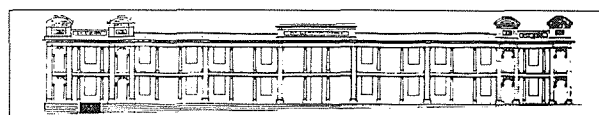
Sliema: Mixed School & Kindergarten



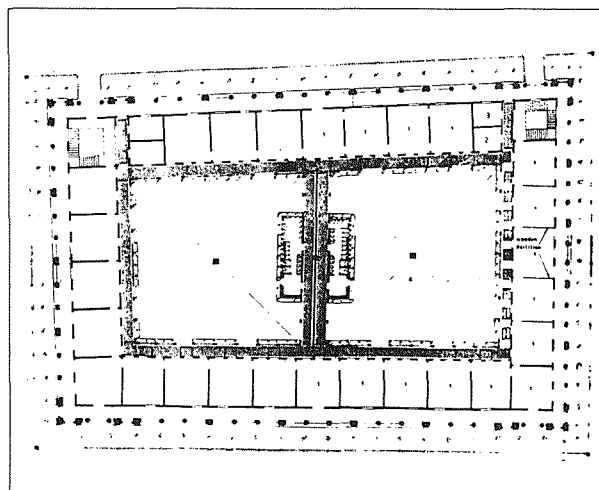
Sliema Primary School, (1915), facade



Sliema Primary School, detail of facade



South Elevation



Ground Floor Plan

With the end of hostilities, attention focused on the extent of the war damage and the urgent need for reconstruction. The immediate post-war baby boom emphasised even further the need to embark on an intensive school building programme. A grant of £ 30 million was provided for War Damage Reconstruction.²¹ Out of this sum allocated for reconstruction, the government diverted some of the funds for the construction of six new primary schools by 1948, in the towns of Kirkop, Mtaħleb, Naxxar, Qormi, Siġġiewi and Żabbar. These schools assumed the same monumental forms as those built during the early twentieth century. The architectural design of many of these schools were retardaire and out-dated. For example, the facade of the Siġġiewi primary school was fashioned after the Italian *stile littorio* and was specially influenced by Marcello Piacentini's Senate building in the new University of Rome (*La Sapienza*) campus in Rome, built in 1932 during the Fascist period.²² Other primary schools in Żurrieq, Sliema, B'Kara and Żejtun were repaired and in some cases additional floors were added to the existing buildings.

The 'Compulsory Education Act' of 1946 and an ever increasing public awareness of the benefits of education resulted in sharp increases in school attendance. Great Britain had also promised to continue to provide the Maltese with the financial support to assist the social and economic development of the island. A *National Development Plan* for the years 1959-1964, was published and implemented.²³ Education was included in the plan not only in the form of a general education programme but also as an integral element of the island's infrastructure. This resulted in an intensive school building boom in the 1950's which lasted until Malta's independence from Britain in 1964.

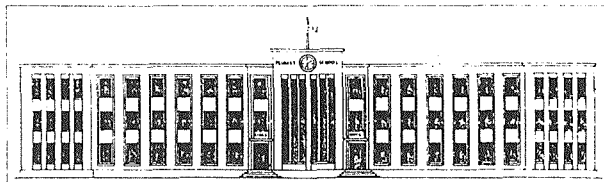
The Advent of International Style Modern Schools

With the increasing growth in population and a corresponding rate of urbanisation, more new schools were urgently required. In the late 1950's and early 60's, new primary schools were built in several localities including Qrendi, Safi, Floriana, Valletta, Pietà, St. Julians, Marsascala and B'Bugia. Special emphasis was placed on the construction of schools in the outlying smaller towns and villages which had until then inadequate educational facilities.

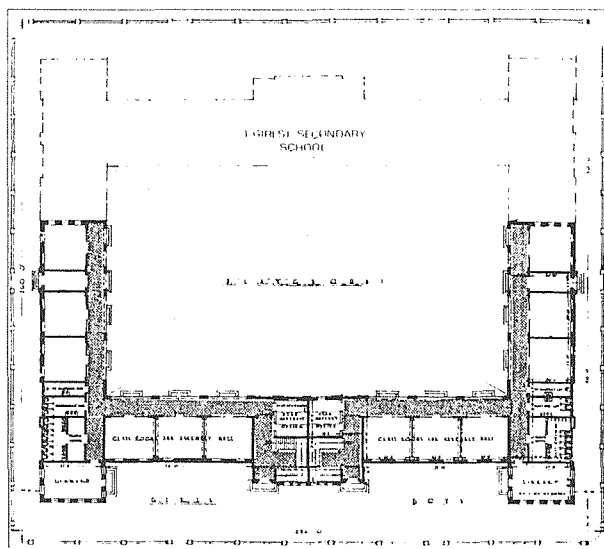
The new schools were built along totally different design principles from those dating to the pre-War period. A team of young architects employed by the Works Department with the specific task of designing these new schools were well in tune with the flourishing of the International Style Modern movement in Europe and North America. The more prominent architects involved in this intensive school building boom were Joseph Borg Grech, Joseph Huntingford, Joseph Consiglio and Renato La Ferla.²⁴ They were all deeply influenced by the major exponents of the International Modern movement, especially the architecture of Oscar Niemeyer in Brasilia, the new capital city of Brazil, Le Corbusier's buildings in Chandigarh and Ahmedabad, India and the designs of Gropius in the United States.

The new schools of the 1950's broke away from the traditional insular block form of classrooms enclosing internal courtyards. Instead the form of the school buildings became more flexible and informal in their arrangement and occasionally they were even fragmented into separate blocks. Special provision was made for extensive open playground spaces in between and around the building and the use of covered walkways to connect the different parts of the school complex became a characteristic architectural feature.

Siġġiewi: Mixed School and Kindergarten



Front Elevation



Ground Floor Plan

Some of the more avant-garde International Style primary schools were built in Gozo, by the late architect and town planner, Joseph Huntingford. The new schools are to be found in the localities of Victoria, Xewkija, San Lawrenz, Sannat, and Ghajnsielem. They are in most cases constructed on vast open sites, the classrooms are well-lit by natural light and special attention was paid to the relationship between the external and internal circulation spaces by integrating open colonnades and covered walkways. These schools were not only innovative on the basis of their design but they also incorporated the use of reinforced concrete which was still a relatively alien building material on the local architectural scene.

At times, some of the more innovative design concepts were poorly understood and not appreciated by old-fashioned civil servants. A case in point, was Renato La Ferla's design for the primary school at Floriana opposite the Sarria church, which underwent several unhappy modifications, the most notorious of which was that of encasing the base of the slender concrete columns or *pilotis* that supported the upper floor in huge blocks of concrete. The justification for this aesthetically disruptive intrusion was that some reckless driver could knock down the *pilotis*, with disastrous consequences.

Also, during this period a number of secondary schools and technical institutes were built on the informal block system; Maria Assumpta, Maria Regina secondary schools, Żejtun (Guze' Diacono) Girls secondary school and the Naxxar and the Corradino Technical Institutes. The major deficiency in the design of these schools was the introduction of vast expanses of window areas which although introducing more natural light to the school interiors also made the classrooms highly uncomfortable on the hot summer months. The designers of these schools had blindly abided to the building codes for schools in the United Kingdom without taking into account the local climatic conditions. Some architects became conscious of this problem and integrated a *brise-soleil* or sun-shading screen device within the façade as utilised in the Marsascalea primary school designed by Joseph Borg Grech.

The 1960's also witnessed the foundation of the new University of Malta campus at tal-Qroqq. A master plan was prepared in 1961 by the British architectural firm, Norman & Dawbarn.²⁵ The plan was based on the North American university campus model with separate blocks for administration, assembly hall, library, and the faculties of science, arts and architecture. The construction followed traditional stone load-bearing walls although in its design philosophy

there is no continuity with local architecture. The physical form of the university campus remained relatively intact during the 1970's and early 80's, with a total student population not exceeding 2,000 students. However, during the first half of the 1990's, student registrations at the university attained record figures, with the student population being currently around nine thousand students. This exponential increase in the number of university students was matched by an equally intense physical expansion of the campus. Several architectural projects including an extension to the library, the new faculty of architecture and civil engineering building and various landscaping schemes were implemented to designs by the architect, Richard England. The new faculty of engineering building constructed to the design of the architect, Jo Tonna is a fine building which is equally dynamic and at the same time contextual with the older buildings. Unfortunately, a few of the new interventions were mediocre in design quality such as the extensions to two existing farmhouses and the oppressively austere new I.M.O. block.

Schools - The Present and Future

The 'Temporary Provisions Planning' schemes (1988) and the Structure Plan, outlined more stringent land-use planning policies. As a consequence, virgin land is no longer readily available for the construction of new schools. In recent years, the educational authorities have concentrated their efforts on the renovation and rehabilitation of existing schools, some of which are in a physically dilapidated state. Still, there are a few exceptions to this general trend; recently, planning permission was granted for a private school to be constructed in the open countryside in the Imselliet area, limits of Mgarr and the Works Department has prepared designs for a new primary school in Santa Lucia. Another trend has been that of accommodating kindergarten and facilities within converted residential units.

The present government policy is more geared towards proper maintenance and alteration works to the existing schools. Another opportunity area lies in the conversion of former British military buildings into educational facilities. With land being such a finite resource, the construction of new school buildings with their extensive open spaces has serious environmental implications. A more sustainable approach would be to ensure the optimal utilisation of the existing stock of school buildings and re-use and conversion of ex-British services buildings. The era of the school building boom is definitely a closed chapter in the history of school architecture in Malta.

Footnotes

- ¹ The only existing in-depth study on school architecture in Malta is the unpublished B.E. & A. (Hons), University of Malta dissertation by Vincent Saydon, entitled *Government Primary Schools in Malta: the way ahead*, (1987). Although a seminal work in its own right, the study also has its limitations; for example, it does not make reference to any of the Gozo primary schools which are representative of the finest International Modern style architectural works. There is still ample scope for further academic research, especially on the intensive post-World War II school building programme of the 1950's and 60's. The adoption of International Style Modernism as a mode of architectural representation in the socio-political context of the Independence era is worthy of further study. This would be an intriguing research topic for a dissertation by some enterprising student in the Faculty of Education or the Faculty of Architecture and Civil Engineering.
- ² J. Zammit Mangion, (1992). *Education in Malta*, 12-13.
- ³ Q. Hughes, (1956). *The Building of Malta*, 156-157.
- ⁴ For an exposition on the architectural works of Francesco Buonamici refer to C. Thake, "Francesco Buonamici (1596-1677): A pioneer of Baroque Architecture in Malta and Siracusa", in *Annali del Barocco in Sicilia / 2. Studi sul Seicento e il Settecento in Sicilia e a Malta*, Roma: Gangemi (in print).
- ⁵ J. Zammit Mangion, (1992), 13
- ⁶ *Ibid*, 12-13
- ⁷ A.V. La Ferla, (1963). *British Malta*, vol. 1, 94-95, cited in J. Zammit Mangion, (1992), 16-17.
- ⁸ J. Zammit Mangion, (1992), 17.
- ⁹ Sir G. Cornwall Lewis and J. Austin, (1839), *An Inquiry into the State of Affairs of the Island of Malta*, (1839).
- ¹⁰ *Ibid*.
- ¹¹ Sir P. Keenan, (1880). *Report upon the Educational System in Malta*, (Command paper 2685).
- ¹² *Ibid*, part iv, p. 1.
- ¹³ *Ibid*, chap. 6, part iii, p.5.
- ¹⁴ For a detailed biography of Canon Paolo Pullicino and his educational works refer to J. Camilleri, *Canon Paolo Pullicino*, unpublished dissertation for the M.A. degree in the Faculty of Arts, University of Malta, 1969.
- ¹⁵ J. Zammit Mangion, (1992), 20-21.
- ¹⁶ S. Savona, (1883), *Report on the Educational Institutions*, section 5, p.1.
- ¹⁷ Figures cited are from the annual report of the Director of Education for the year 1896-7. Refer to V. Saydon, (1987), *Government Primary Schools in Malta: the way ahead*, unpublished B.E. & A. (Hons.) dissertation.
- ¹⁸ E. Sammut, (1954), *Notes for a History of Art in Malta*.
- ¹⁹ J. Zammit Mangion, (1992), provides us with a concise outline sketch of the building of schools in the twentieth century. Refer to *ibid*, 270-272.
- ²⁰ J. Zammit Mangion, (1992), 57-58.
- ²¹ V. Saydon, (1987), 11.
- ²² K. Frampton, (1985), *Modern Architecture: A critical history*, 204-205
- ²³ Government of Malta, (1959). *Development Plan of the Maltese islands for the years 1959-64*, Malta: Government Printing Press.
- ²⁴ C. Thake, (1995), "Schools of Thought" in the *First Sunday* magazine of *The Malta Independent*, (5 February 1995), no. 16, 17-18.
- ²⁵ *Architectural Review*, (1969), Special issue on 'Malta-Past, Present and Future', no. 869, vol. cxlvi.

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Floriana Primary School: One of the First Purpose-built Schools in Malta

Joseph FENECH



Canon P.P. Pullincino (1815-1890)

As in so many other countries in Europe, the elementary education of the masses was introduced in Malta in the middle of the nineteenth century. Locally, as a result of both internal and external pressures, more often than not in the form of recommendations and exhortations rather than more forceful manifestations, the Government assumed responsibility for this.

One of the major problems which, given local conditions, such an ambitious undertaking faced was to provide places where the children of the poor could be taught. Financial allocation to education was too meagre to allow for the building of purpose-built institutions, and, for many decades, private houses were rented to serve as elementary schools. The schools at Floriana and Rabat (Gozo) were the earliest exceptions to this policy.

Pullicino, as Chief Director of Elementary Schools, had, on various occasions throughout his long tenure, recommended the building of schools in every locality but the government was never enthusiastic to make budgetary allocation for this purpose. This explains, at least partly, Pullicino's elation evident in the part of the fifth Report presented to Governor Sir John Gaspard Le Marchant in November 1858 we reproduce in the following page.

Besides the glaring evidence of Pullicino's elation, however, two things are implicit in this part of his report : first, that, in the socio-economic climate of the time, it was extremely difficult to convince the authorities about the necessity of building schools for the education of the masses; and, secondly, that Pullicino had a very clear notion of the architectural requirements for the implementation of the principles of school organization and management current at the time. These can be briefly summarized as follows:

1. Order and discipline were the most important requisites of successful school administration;
2. Simultaneous instruction and the classroom system, both inventions of the nineteenth century (Hamilton, 1989), were the mechanisms to bring this about efficiently;
3. The idiosyncratic divisions of rented houses did not make the implementation of the new pedagogy possible as they prevented the schoolmaster from supervising all the classes simultaneously, which was one of accepted principles of school management at the time;
4. The playground was an important architectural feature of the school because it provided an opportunity for both physical education and the moral training of the children (Stow, 1840).

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Quantunque il passato biennio non si distingua per molto numero di nuove scuole al pubblico aperte, mi sia lecito però di notare, non essere circostanza di poco momento la installazione della scuola della Floriana nel nuovo edificio per essa fabbricato, in luogo centrale e cospicuo, fra la chiesa di San Publio e l'altra rotonda detta di Sarria, in uno spazio altre volte appellato Giardino Botanico, perché in esso molti anni addietro grande raccolta era di piante, inserviente alla istruzioni de' giovani studenti; ai quali poscia simile comodo venne prestato nel Giardino Argotti: si che il primo spazio rimasto disoccupato si trovo' molto proprio a essere in iscuola convertito.

Io diceva essere cosa da notarsi il nuovo edificio dato alla scuola della Floriana per essere stata questa la primaria del Governo fabbricata di pianta in Malta, dopo di avere innalzata l'altra fatta egualmente edificare nel Rabato del Gozo. L'aver una scuola distribuita appositamente a uso delle classi, che in essa devonsi collocare, e cosa che influisce non poco sulla regolarità dello insegnamento, sopra tutto nelle scuole elementari. Al buon ordinamento delle nostre scuole oppongono ancora molta difficoltà le partizioni irregolarissime di molte delle case, prese in affitto per farle servire a uso di scuole. Spesso avviene, che le classi lontane troppo le une dalle altre, non possano essere messe sotto la immediata sorveglianza del maestro. Questo allontanamento rallenta l'ordine, e la mancanza di ordine nuoce alla istruzione.

La scuola nuova della Floriana, divisa in tre differenti compartimenti, separati da due cortili, offre i comodi che si desiderano ai tre ordini di scuole che in essa sono. Nel mezzo sta la scuola infantile, comune a maschi ed a femmine. A destra sta la scuola primaria femminile, ed a sinistra sta quella de' maschi. De' due cortili, l'uno destinato per esercizi ginnastici, serve a' maschi de' la primaria; e l'altro, da essere convertito in piccolo giardino di fiori, tiensi aperto alle femmine ed agli infanti. Unico e' l'ingresso a queste tre scuole; però le porte sono tante, e talmente distribuite, da dare passaggio facile a tutti, senza lasciar campo ad alcun disordine o confusione.

Eras creduto, da alcuni, che molto spazio si fosse occupato per innalzare queste scuole. Però l'esito fa vedere tutto l'opposto. In tutte le tre scuole concorrono niente meno di 500 fanciulli. Le stanze di tutti tre i comportamenti sono occupate. Quando dicesi occupate non vuolsi dire accumulati gli individui insieme in guisa di non lasciare luogo a respiro. In iscuole ove molto numero di persone devono raccogliere, e stare insieme per molte ore della giornata, e' cosa di somma importanza l'averesi totalmente ampio, da impedire, per quanto possibile, molta corruzione dell'atmosfera. Questo desiderasi massimamente in iscuole, ove raccogliersi si deono fanciulli, i quali si vogliono in istato di buona salute allevare. E se mai lo spazio dato a' cortili fosse purso talvolta a pochi superfluo; questo non doutra' ad alcuno parer tale, quando a questi due recinti saranno concessi tutti i comodi che si desiderano per l'esercizio corporale de' la gioventu'.

La scuola elementare senza un cortile bene corredato di oggetti inservienti all'esercizio del corpo e' sempre difettosa, perché mancante di un elemento essenzialissimo alla prima educazione dei fanciulli e delle ragazze, quale e' l'elemento della educazione fisica. Nella scuola della Floriana aveasi voluto dare un modello, per quanto possibile, perfetto di tutto quello che riguarda una scuola elementare. E questo credo che in qualche maniera si stia facendo coll'impiego di piccolo spazio di terreno, che non puo' dirsi giammai perduto, quando e' impiegato in oggetto di così grande entità.

D'altronde il danaro speso dal Governo per la fabbrica di tale scuola non fu totalmente infruttuoso. Dal piano inferiore, o sotterraneo, di tali scuole si ebbe il vantaggio di cavare fuori quattro botteghe: le quali affittansi oggigiorno a £33 10 l'anno; lasciando un profitto, che calcolato al 3% e; piu' del frutto della meta' del capitale di circa £2000 spese per la erezione tutt'intera di dette scuole.

Pullicino, P.:

**Fifth Report on the Primary Schools (November 1858)
Translated from the original Italian by Dott. J. Eynand**

Although the opening of more new schools to the public is not a distinguishing feature of the past two years, I would like to point out that the installation of the Floriana school in a new building erected for the purpose on a central and conspicuous site, behind Saint Publius Church and the Rotunda Church known as Sarria, is an event of no small moment. This site is known also as the Botanic Gardens since many years ago it hosted a plant collection that served as a means of instruction to young students; for this reason the first site remained unused and therefore it was very appropriate to turn it into a school.

I sustained that it was a thing worthy of note that this new building was to serve as the Floriana school. Moreover it is the first primary school built by the government in Malta after the other built in Rabat, Gozo. Having a school used solely for classes is of great influence on discipline, the smooth procedure of teaching, especially in primary schools. The fact that many houses are rented to serve as schools and the way these houses are partitioned into classes is not a good sign to the running and administration of our schools. It happens often, that the classes are distant from each other and therefore the teacher cannot supervise them all at the same time. This slows down order and lack of order hinders instruction.

The new Floriana school, divided into three different compartments, separated by two courtyards, offers the comodities necessary to three sections of schools that the building hosts. The infants school is in the middle, both for girls and boys. On the right there is the girls primary school and on the left the boys' primary school. One of the courtyards is used for gymnastic exercises and is used by the boys of the primary school; the other courtyard will be converted into a small flower garden open for the girls and the infants. The entrance to these three schools is one; however many are the doors that are well distributed and give easy access to everyone, avoiding therefore disorder and confusion.

It was believed by some that to build these schools a lot of space would be occupied. However the outcome proved otherwise. The three schools can host 500 children. The rooms of all the three compartments are occupied. When it is said "occupied" this does not mean that the children are packed in such a manner that there is no breathing space. In packed schools where many persons are gathered and stay together for many hours of the day, it is of the utmost importance to have a big site, to prevent, as far as possible, bad ventilation. This is highly desirable in schools where children are gathered, who must be brought up in good health. And if the space allotted to the courtyards seems to some to be superfluous this should not be the case since the said courtyards will have all the necessary comodities for the corporal exercise of the youngsters.

A primary school without a well equipped courtyard for the body's exercise is always faulty, because it lacks a very essential element to the first education of children, boys and girls, that is physical education. The Floriana school was built to give as much as possible the perfect model of what constitutes a primary school. This, I believe, is what in a way is being done when utilizing small plots of land, that cannot be ever called wasted when they are intended to be used to achieve this extremely important purpose.

Besides, the money spent by the government in building this school has not been completely fruitless. The basement of these schools has been used for four shops: these are today let for £33.10 a year, leaving therefore a profit, that calculated at 3% is more than half the capital of about £2000 spent for the building of all the said schools.

The Typology of the School Building: its Importance in Educational Policies and Practices

Joe FALZON

The typology of the school has never been easy to define. All kinds of buildings have at one time or another been used as educational establishments, and so many different parameters have been used to define the effectiveness or otherwise of these institutions, that the role of the school building itself has either been ignored or considered of secondary importance when compared to more direct concerns such as curriculum development, mass education, etc.,. However, there are very clear indications that the building is of primary importance when it comes to assessing the effectiveness of a school, a fact recognised as early as the nineteenth century by an English Victorian headmaster when he wrote:

Whatever men may say or think, the Almighty Wall is, after all, the supreme and final arbiter of schools. I mean no living power in the world can overcome the dead, unfeeling, everlasting pressure of the permanent structures, of the permanent conditions under which work has to be done... Never rest till you have got the Almighty Wall on your side, and not against you. Never rest till you have got all the fixed machinery for work, the best possible. The waste in a teacher's workshop is the lives of men.¹

The spatial and functional requirements of teaching are so complex that their identification has always posed serious problems; schools have been located in buildings intended originally for all kinds of functions totally unrelated to education and moreover the typology of school design has never been properly defined in a way as, for example, the design of dwellings. The rapid changes in educational theory and practice in recent years has been reflected in similar changes in what can be considered an acceptable school building and in general briefs for the design of new school buildings are either extremely vague of the type: *a stimulating learning environment, high quality facilities, spaces capable of flexible use, running cost minimisation,*² requiring a determined design team to sort out the client's requirements, or alternatively a rigid generic plan which the architect is simply expected to convert to an architectural solution. The latter has resulted in more successful school buildings as can be

demonstrated by the effect on school design of the publications of the Architects and Building Branch of the Department for Education of the United Kingdom³ and a series of similar publications by the Scottish Education Department which provide an excellent analysis of school requirements, although within a very precise educational framework.⁴

The school environment itself is an educational experience.

In education, people respond to the character of an environment designed for its particular learning function; it can promote or even hinder the process. Even in very old buildings, some spaces adapted to new teaching methods by ingenious, sensitive teachers are models, not only of smooth working efficiency, but also in subtlety of their exposure of the children to varying light, colour and textures, and to many 'things' which excite curiosity and promote thought. Through all these, the teacher is able to speak to the children far more clearly than by any exposition she can offer.⁵

It has to be realised that in many cases non-educational factors were given priority in school design. Schools are expensive to build; the individual school costs as much as any other building, but the number of schools required means that no authority anywhere can afford the building which does not satisfy its requirements. The design of the school reflects the priorities of the authority. Where economic and political factors dominate and the school has an important role in transmitting the political ideology of the state and turn out a well-educated workforce able to play a leading role in economic development, a clearly defined school typology developed as in the Franco-German model adopted in most European countries. It is much more difficult to define, and may actually be non-existent. In those situations where education is a spontaneous choice of the people in a specific period of their history. However, even in this situation, the financial burden of education and social pressures tend eventually to create a model, or at least a series of models for school design which gain acceptance and tend to be considered as the only form of correct school

building. A case in point is the American situation where despite the fact that education has always been considered to be of local concern with locally elected Boards of Education being responsible for educational provision in their locality there has been remarkable uniformity in the type of education and even school design. The liberal view of education as a means of personal development did not conflict with the utilitarian view of education as a means of political and economic well-being; in many cases the latter in fact dominated the former to the extent of creating a very uniform system of education with the demand to have *equal opportunities for all*, whatever that meant. A brief look at the Anglo-American model indicating the common sources for school building models and where social economic, and political pressures forced the systems to diverge provide a very useful insight into the development of school buildings, which to a certain extent was reflected elsewhere.

The development of the school building

Until the mid-nineteenth century education had been a slow expensive process carried out on an individual basis or in very small groups. Joseph Lancaster in the United Kingdom⁶ was among the first to develop an educational system based on the principle of group instruction at low cost and to make people accept the idea of education for the many rather than the few which eventually paved the way for the free, public, tax-supported schools such as we have today. Several Lancastrian schools were built both in the United Kingdom and the United States. With the large number of children attending school, the ultimate organisational step came naturally - the sorting out and grouping of children by age and attainment and a system of promotion from one class to the next with a corresponding progression of subject matter. The course of instruction slowly expanded and new subjects were continuously being added to the curriculum, textbooks were being published, the school year became longer, and a new school design was needed. The Lancastrian school was manifestly inadequate; the grade school had replaced it.

We cannot however ignore the effect of the Franco-German model on English school design. E.R. Robson (1835 - 1917) architect to the London School Board⁷ since 1870 had visited several European schools especially in Germany, and despite his insistence that his buildings reflect a genuine British tradition of education, the influence of the continental system was all too evident. The continental system of education owes its origins to Napoleon and under his political system the plan layout of schools was very clearly laid out. Despite some early attempts to plan buildings based

on the educational principles of Rousseau and Pestalozzi, the model eventually accepted was that based on the plan layout of religious institutions particularly convents and similar public building where some form of teaching had been carried out. The typology of the school was based on the corridor or an arched passageway which lead to a series of identical spaces - the classrooms. There is no doubt that the school made up of a series of classrooms placed on one side of a long corridor, and a large common space for assembling the whole school on special occasions and preferably with a monumental appearance in the tradition of the municipal buildings of the period, satisfied the need of governments in the nineteenth century. Moreover this model of the school building provided the necessary educational requisites: classrooms all of identical size able to accommodate a predetermined number of children, a very orderly arrangement of desks, ease with which educational programmes could be carried out with regular testing and selection of children as they moved up from one class to the next. This model was therefore readily accepted by most countries including Britain and North America.

One of the earliest schools of this type was Quincy Grammer School, in Boston⁸, (although it should be stated that the pattern had to some extent been already adopted in Germany) built in 1848 which eventually set the pattern for school design in the USA and elsewhere. The building, designed for 660 students, was built on four floors and a basement. The basic plan consisted of four classrooms each measuring 9.5m by 7.9m to accommodate 55 students opening onto a common corridor. Each room was furnished with fixed individual desks for students in rows of eight. The top floor of the building contained an assembly hall for the whole school. The design response proved so successful that it is by far the most common arrangement today.

The plan was somewhat modified in the English model set up by the well-known Board schools of the late nineteenth century. Robson, following his visits to the United States and Germany came up with a model of a school where the hall was the primary feature "*the whole pivot of the whole work*" around which the classrooms were grouped. The overall design was, however, influenced more by social and economic demands than educational theory. "*The four-decker elementary schools with high walls and high windows and inward-looking classrooms supervised from a central point on each floor are sometimes marginally reminiscent of prisons in which children could be instructed, watched and punished.*"⁹ In the aftermath of the first world war, the need was felt for schools which

not only reflected the political changes but the school had to make up for the deficiencies of the child's home background especially in terms of hygiene. The central hall surrounded by classrooms was abandoned in favour of the pavilion school with classrooms single-banked along corridors to allow for cross-ventilation and choice of orientation.

The modern movement in architecture failed to dedicate more than a tiny fraction of its energy to school buildings - all the new ideas seemed to be directed towards such topics as housing and the production of buildings. However, inevitably the ideas which proved so effective in changing the appearance of other buildings did filter down to school design. "*The century-old alliance between a few progressive architects and educationists came into full bloom.*"¹⁰ In addition to the overall appearance which abolished once and for all the eclectic designs so popular with the nineteenth century school architects, functional considerations became paramount in school design ranging from the need to integrate internal and external spaces, more adequate forms of lighting, in particular daylighting, and greater freedom in the overall layout of internal and external spaces. There were even those who hoped that the modern architecture would by itself be able to create an environment which would permit an educational system able to develop the whole personality of the child and vindicate the educational theories of all the great modern educators from Rousseau to Dewey. They were disappointed.

There were a number of notable experimental school buildings which should be mentioned in this respect. The first school worth mentioning is the reformed school at Bornheimer Hang in Frankfurt, Germany by Ernst May¹¹, a pavilion type school with classrooms grouped together in sections and communal areas one side which were also meant to serve the local community. Another school worth mentioning is the open air school by J. Duiker in Amsterdam, Netherlands which can virtually be described as the first open plan school

These ideas eventually found their way to the United Kingdom. Once the system of training of architects in schools rather than by apprenticeship to established architects was accepted, which to some extent coincided with the influx of talented architects from Germany into the United Kingdom, a radical change in the design of school buildings was inevitable. The result was a number of seminal works including the village college at Cambridge by Gropius and Fry¹² and the winning designs of the *News Chronicle* competition¹³ which were clearly in the tradition of similar schools on the continent. Similar effects could

similar schools on the continent. Similar effects could be seen in the United States culminating in the design and construction of Crow Island Elementary School in Winnetka, Illinois where a design which "*offered a residential scale and an informal (but carefully considered) plan that divided classrooms into separate wings, each its own identity*"¹⁴

The typology of the school

By the middle of the present century, the typology of the school had been fixed at a fairly small number of variants all based on the two original models: on one side the British schoolroom tradition and on the other the continental corridor and classrooms type. We can therefore classify school buildings on the basis of plan layout as follows:

1. Corridor and classroom type: consisting of a series of identical classrooms grouped along a corridor. Up to 1950 it was generally the only type of school building prevailing anywhere and several other types are actually derived from it.
2. The pavilion type: consisting of a series of pavilions each housing specific educational activities. Its origins are derived from the need to provide technical education and its plan layout follow that of industrial buildings, extending it to other activities. The individual pavilions can have various plan layouts as indicated in this list.
3. The finger plan: consisting of a series of spaces each consisting of a corridor and classrooms. The whole layout can therefore be considered as a combination of Types 1 and 2 above.
4. The school street type: consisting of a main circulation space (*the school street*) from which branch off secondary circulation areas which lead to the various teaching areas. In reality it is a modification of the previous type.¹⁵
5. The loft plan consisting of a modular space which is subdivided by movable partitions, the whole space being rooflit and airconditioned. It can be considered as a derivation of the pavilion type and finger plan combined and is generally used for secondary schools.
6. Schools without walls (or open plan schools) which are a derivation of the loft plan principle where the partitions have been replaced by screens and furniture. This system was extensively promoted by the Educational Facilities Laboratory of New York and extensively

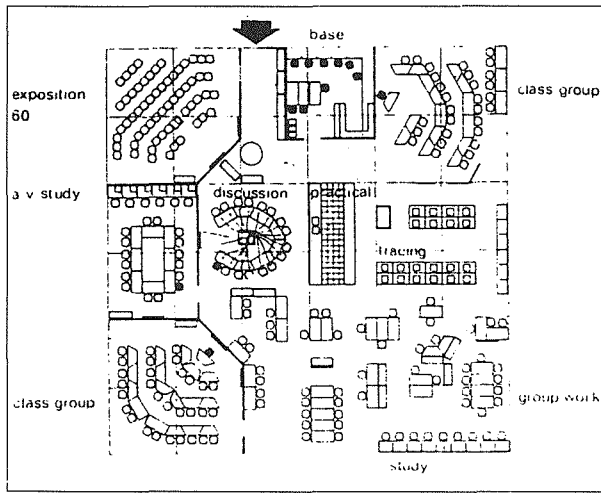


Figure 1:

A plan for the teaching of social sciences (history, geography, etc) in a secondary school based on the assumption that teaching will be carried out in an open teaching area shared by several teachers. A number of closed teaching spaces for exposition type of lessons are included. the open plain area includes storage for teaching resources.

Source: *SED Academic Subjects in Secondary Schools*

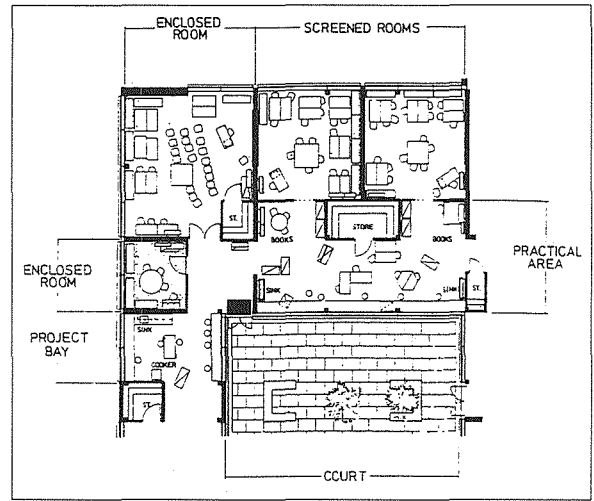


Figure 3:

Details from a middle school for 420 children aged 9 to 13 built in the late sixties in the United Kingdom. The centre is designed to provide general teaching space for a year group of 105 children and include two fully enclosed rooms and an open teaching area with facilities for practical work.

Source: *DES: Delf Hill Middle School: An appraisal*

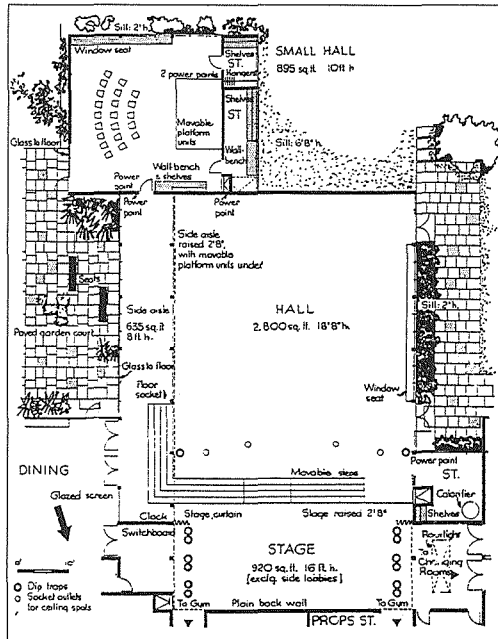


Figure 2:

The details of a school hall for a prototype secondary school built by the Architects' and Building Branch of the Ministry of Education of the United Kingdom in the early fifties. The designs were given publicity to assist designers of other schools.

Source: *Godfrey and Castle Cleary: School Design and Construction*

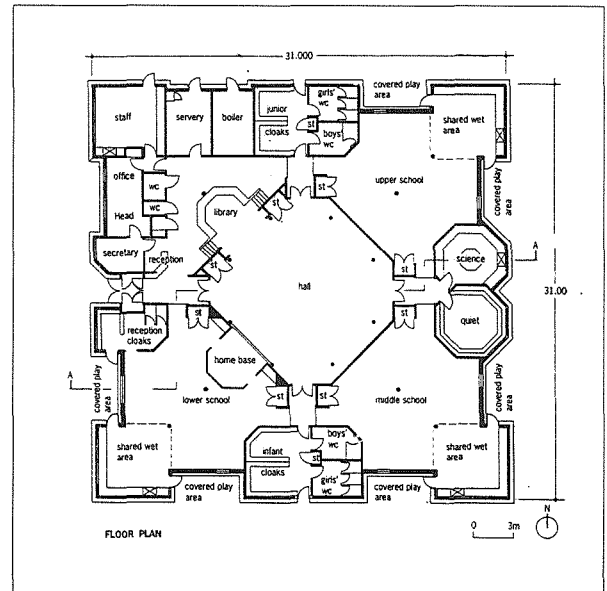


Figure 4:

Plan of a small primary school for a rural area built recently. The plan layout is very simple: three similar teaching areas each having a separate entrance from outside and including an open plan general teaching area, a practica area and an enclosed room with ancillary facilities.

Source: *The Architects' Journal*, 6 October 1994

adopted by schools in the United States in the sixties. It was never really accepted in Europe.¹⁶

7. Schools consisting of a variety of interconnected work areas which developed from the open plan schools where a certain measure of enclosure was required. These type of schools tended to suffer from the same problems as the open plan schools and frequently proved equally unpopular with teachers.¹⁷

Once the typology of the school had to a certain extent been defined, there remained the need to ensure that the resulting internal spaces satisfied the educational needs of the teachers and students. Designers and administrators had to answer several questions to render the buildings effective as educational establishments. Where to locate schools? What is the optimum size of a school building? What should be the relation of the school to the community it serves? What are you going to do with a large stock of existing buildings in need of refurbishing?

The location of schools

Although in theory the location of school building should be straightforward - *"new schools, including private schools, will be located in areas where demographic projections indicate that such a facility is required and on sites which are adequate for the provision of a full range of educational and sports facilities, and providing good accessibility and a safe environment"*¹⁸ - several factors have prevented a neat, systematic plan to locate schools according to these principles. These factors range from the need to allow parents a choice of school, the cost (and hence availability) of land, lack of mobility in housing with the result that town centres end up being occupied by an aging population without children, etc. Several attempts have been made to assess the ideal location of a school building¹⁹ on the basis of the quality of the physical environment its integration within a community plan, the availability of a site of adequate size safe and easy access by children and adults, the general site characteristics including such factors as proximity of utility services, characteristics usable for educational advantage, possibility of preferred orientation for teaching spaces and games areas, etc - and all within a clearly defined cost limitation.

The size of schools - school population

In assessing the optimum size of a school building, the criteria most commonly used is trying to find the best compromise between the conflicting requirements of the need to provide specialist facilities

at a reasonable cost and the needs of adequate school management. In other words, a solution to the conflict between economic realities with limited budgets for school building, and the need to create a human environment for the children. Specialist facilities including laboratories, gymnasia, swimming pools and so on are not economical to provide unless they are capable of being used to a reasonable maximum extent, usually set at around 75% of the maximum possible. As children get older, the more demanding will be the need for provision of specialised areas, and hence secondary schools tend to get larger to allow for more provision of these facilities. Primary schools, on the other hand, can be much smaller as the demand for specialised facilities does not exist. On the other hand, the need to have establishments on a human scale, where each and every child can receive individual attention, and the need to make schools pleasant places for both students and teachers has mitigated the economic pressures to have larger schools, and governments have come to accept that heavier expenditure on school buildings can be justified on these terms.

On the whole, teachers, children and their parents all tend to prefer the small school whether for educational or logistic reasons.²⁰ The community tends to feel a sense of belonging to the school as it is easy to integrate the school within the community, and hence the school can adapt its curriculum to the needs of the locality. The community can reciprocate by taking an active part in the life of the school, and contribute to improving the quality of the education provided. Small schools have small catchment areas, allowing most children to walk to school with minimum supervision. In turn this leads to the possibility of flexible hours and very close contact with the child's home environment. Small schools have been found to motivate teachers and students alike more than a larger establishment as it is impossible to hide behind the ceremonial of a large school. However, small schools may be less credible for some people than larger schools, as they tend to lack specialised spaces and equipment, the number of teachers specialising in specific areas of the curriculum is severely curtailed and the level of success in activities where talent is important might appear to be excessively low.

As a result, in most countries the size of schools in terms of student population has become fixed either by statute or by what is considered acceptable in general. Hence, Italy²¹ using the first method fixes the minimum and maximum numbers for a primary school (*scuola elementare*) at 75 pupils and 625 pupils respectively. The equivalent values for a secondary school (*scuola secondaria superiore*) are 250 places (10

classes) minimum and 1500 places (20 classes) maximum. The British regulations do not set any size limits on schools but a combination of social forces ranging from what is considered acceptable educational practice to pressure from parents has prevented any attempt to allow schools to be excessively large. Primary schools are in general considered a form of community facility and are in general kept as small as possible. The practice of splitting them into Infants' and Junior schools has also helped to keep schools small. Secondary schools are obviously larger, but even so, most of them tend to have a school population of less than 1000 students. American practice, following the tradition of equating size with excellence, tends to accept much larger schools, and high schools with a population of up to 5000 students are considered viable. However, the serious management problems involved in running these establishments has resulted in a tendency for small schools in recent years.

The size of schools - physical size

In addition to the school population, the actual physical size of the school needs careful consideration. The actual size of a school building involves three main considerations: (1) the actual site area, (2) the extent of this area actually covered by buildings, and (3) the number of floors to be erected. Education authorities have tended to look at this problem in two ways: either by actually requiring a certain minimum site area for a particular school taking into account the age of the children and the number of children, or by specifying in detail the requirements of the school in terms of accommodation and facilities to be provided for each specific activity. The latter method is used in the British School Building Regulations²² which, while they do not specify any minimum area for the school site, go into detail in specifying minimum teaching areas for each aspect of the curriculum as well as areas required for non-teaching activities.

The extent of outdoor areas depends on two main factors. There is a contextual problem: the insertion of a relatively large institutional building in an environment which in many cases is purely residential. Attention to architectural coherence and attention to context is of primary importance even for a small establishment serving a local community. A building insensitive to the architectural heritage around it may seem alien to its users and this attitude may be reflected in their behaviour towards the building. On more practical terms the deleterious effects of a large child community within a particular neighbourhood with respect to such inconveniences as noise and traffic generation cannot be ignored and any school development is to be such as to reduce the overall

impact of its presence as much as possible. This problem can be attenuated by the careful planning of the site, locating adequate parking on site together with coach loading bays, if necessary, and sufficient landscape areas to enhance the overall aesthetic quality of the locality. In this respect, for example, Italian regulations stipulate that not more than a third of a site for a school can be built and the rest be landscaped to provide ancillary educational facilities but also to provide greenery round the school.

The second aspect to consider are the educational input which outdoor spaces can provide for a school. The most obvious use is the need for adequate play space, whether for informal play during breaks in the teaching periods or organised games as part of a physical education curriculum. Incidentally this is one of main causes why the location of schools in very urbanised localities tends to be resisted by the residents - the so-called *bad neighbourliness* as described by planners. Regulations frequently specify the minimum play area requirements taking into account the age and number of children in the school. As an example, British regulations²² specify 9m² per child of outdoor play space for the first 600 children and 4.5m² for each subsequent child. In addition the same regulations stipulate minimum areas for organised games for all schools with children over the age of eight. Obviously the type of facilities of this nature would have to be related to the sports programme offered by the institution.

In addition outdoor areas can help to provide additional teaching areas such as facilities for biology teaching and similar activities. In good weather, other educational activities normally held indoors can easily be held out of doors.

The overall indoor area of a school can basically be divided into two parts: the actual teaching areas and the service areas. The latter do not provide any teaching space but are essential if the former can function properly, or if at all. The former have to satisfy very demanding requirements: *"The variety of provision, the variety of opportunity, the range of challenges that the school has to offer kills stone dead the notion of ranks of repeated rooms and circulation that still forms the popular image of a school."*²³

Service area would include such spaces as offices, kitchens, sanitary facilities, corridors, storage space, staff rooms, etc. Ideally these areas should be kept to a minimum, but even under optimum conditions they never account for less than about 40% of the overall floor area of the school, and frequently much more than that. Indeed, in some situations

architects tried to reduce the amount of circulation space (the most "wasteful" of all service areas) by designing them to accommodate some form of teaching activity. In many open plan and similar schools such a design decision is very frequent - although not necessarily popular with teachers.

The extent of teaching areas is frequently controlled by regulations either by actually stipulating the minimum area for each specific activity²⁴ or, more often, by giving the minimum size of classrooms, gymnasia, laboratories, etc. Sometimes teaching areas are subdivided into general teaching areas where the predominant activities are reading, writing and similar activities and specialized teaching areas, that is those spaces meant for a specific activity such as laboratories or gymnasia. The minimum teaching area can then be given either as the overall area of the particular space or by indicating the area required per child for each specific activity. The latter allows greater flexibility in the design of the school and as such is popular in those situations where education is the responsibility of the local authorities and where considerable autonomy is allowed to different schools in the way they carry out their teaching programmes. Centralised systems where not only the curriculum but also teaching methods are generally indicated by central government usually prefer the first method as it is easier to prepare design briefs.

The actual number of floors which the school can occupy depends to a great extent on the problem associated with vertical circulation, which for a long time simply meant staircases in sufficient numbers to allow easy circulation without creating congestion at peak demand and taking into consideration the need for the rapid evacuation of the building in case of emergencies especially fire. However, the use of stairs has three major problems associated with it. First of all there is a practical limit on the overall number of steps you can expect an ordinary person to climb under normal circumstances and this sets a practical limit on the height of school buildings to three floors and maybe, occasionally, four floors. Secondly, stairs are designed on the ergonomic requirements of the average adult and they can be difficult or even dangerous for young children to climb. Finally stairs constitute an insurmountable barrier to any person with even the slightest mobility problem even if it is of a temporary nature, and that includes the need to carry heavy items from one part of the building to another. As such there has been a tendency to design school on one floor only and, maybe two floors, if to be used by young children and three floors otherwise. Lifts were introduced eventually to solve the problem of persons with disability and in other exceptional circumstances, but

in general the rule in many schools is still that the lift may only be used by authorised persons only. A number of multistorey schools have been constructed in exceptional circumstances such as in heavily urbanised areas where land was not available and where utilities were reliable making use of lifts with large capacities able to transport a large number of students from one floor to another in a short period of time.

The local situation²⁵

Locally the first attempt to organise education on systematic lines took place during the French occupation (1798). Napoleon had taken the decision to set up fifteen primary schools and an *école centrale* on the French model. In view of the political upheavals of the period this attempt never materialised. During the early British period, in 1819, Governor Sir Thomas Maitland again attempted to do something for the education of the lower classes, but with the same result.²⁶ An important landmark in local educational history was the Royal Commission of 1838²⁷ set up to inquire into the situation of education in Malta. The commission found a serious lack of school buildings - there were only three elementary schools which received Government support. The Commission sustained that the education could not improve unless new schools were built and it recommended at least ten new schools. By 1880 the Keenan report²⁸ found that there were seventy nine Government schools in the whole island with an attendance of 7746 children. But most of these schools were located in privately owned residential buildings rented to the Government for the purpose. Most of these buildings were overcrowded, badly ventilated and with only rudimentary sanitary facilities with the result that

it would be difficult to imagine any arrangement more repugnant to good taste, or more injurious to health, than those to which I refer. Frequently the odours from these closets were simply sickening; indeed in some cases more than sickening, intolerable such as for example at Cospicua and Senglea²⁹

Only one school (at Floriana) had some form of playground although some schools were found to be exceptionally good. Canon P. Pullicino, then Director of Primary Schools, and who was well versed with educational practices abroad, insisted on the need for new schools to the extent that he even drew up design proposals for them³⁰. But the construction of new schools was hampered by the unavailability of funds, and a general lack of interest by the general public in education. However, by the turn of the century the first purpose-built schools were constructed. After the introduction of self-government in 1921 and the

enactment of the Compulsory Attendance Act (1923), many new schools were constructed. The plan layout adopted was similar to that of schools in the United Kingdom of the period although the architectural style tended to be more monumental. A series of identical classrooms adjacent to an open corridor and grouped round one or more courtyards which served as play areas.

In the post-war period two factors generated the need for a large number of school buildings: the increased number of children due to the increase in population and the introduction of compulsory education. The Ellis report (1943)³¹ had already made recommendations to the effect and the availability of funds for war damage reconstruction meant that work on new schools could start. About twenty new primary schools together with the first purpose-built secondary schools were built. Although the corridor and classroom type of layout was retained there was a marked change in the overall design characterised by the norms of the modern movement in architecture. The monumental entrances, vertical windows with cornices, etc of the pre-war schools were gone. Instead a more open layout based on the finger plan with extensive fenestration (which frequently led to gross overheating due to lack of protection from the intense sunlight) became popular. In the case of secondary schools, the pavilion type of layout was also tried out.

The next major educational development, however, failed to have any real effect of school buildings. In 1970, senior classes in primary schools were abolished and all children were transferred to secondary education at the age of eleven. However no new school buildings were erected. A number of primary schools were converted, at least in part, to secondary schools. The Government having now at its disposal a number of buildings vacated by the British armed forces including some which had been used as schools (although not really built for the purpose) decided to use this vacant accommodation instead. Unfortunately, in many cases the conversion of the building simply consisted in placing some school furniture inside and renaming the building.

A number of developments, may in the future prove to be significant in the field of school construction. The Education Act 1988 authorised the Minister of Education to set minimum requirements for school building. In fact in 1990 a legal notice³² stipulated minimum requirements for school buildings. These regulations when compared to similar ones elsewhere are far from satisfactory, but at least for the first time, the need for minimum standards in schools has received official recognition.

In the same year, and for the first time, a Structure Plan for the Maltese islands was published. The Structure Plan, approved by Parliament and thus having the force of law, requires the Ministry of Education to "*prepare a 20 year development plan based on the Structure Plan... to ensure the optimal siting of new facilities and will safeguard sites for new schools and expansions.*"³³ In 1988 the Education Department³⁴ had already indicated in a planning paper that 18 new primary schools will be required and although no secondary schools have been indicated, recent decisions indicate that at least three new secondaries are to be constructed in the near future. The structure plan also requires policies "*aimed at optimal use of existing sites and buildings in relation to forecast demographic characteristics, and in realising higher standards of provision on new sites of classroom and specialist uses, playing fields, and servicing / parking.*"³⁵ Other policies encourage the use of school facilities for community use and the requirement that schools be built on "*sites which are adequate for the provision of a full range of educational and sports facilities, and of providing good accessibility and a safe environment.*"³⁶

The Explanatory Memorandum³⁷ (considered for statutory purposes a part of the Structure Plan provisions) indicated land requirement standards for schools which compare favourably with national standards elsewhere. This requirement is also the first attempt to fix minimum standards on site requirements for schools.

Moreover, the Planning Authority, set up by the Environmental Planning Act, 1992 and with a responsibility to ensure that the Structure Plan provisions are in fact carried out has published two documents related to school buildings. These two documents, published as a result of the demand for private education, are primarily aimed at making planning provisions for these types of buildings but indirectly have a major impact on the type of educational provision. The first one deals with minimum requirements for kindergartens³⁸. Following attempts by various individuals to set up private kindergartens in all sorts of buildings, the Planning Authority has fixed minimum provision including area of site, maximum number of children, the need for outdoor play space and the need for adequate facilities. The second document which deals with the provision of sites for private schools³⁹ has possibly its most important provision in Annex 6 of the document which gives a list of information required in order to "*formulate a comprehensive policy approach encompassing both educational and land use planning aspects*" and moreover insists on a survey of private

schools to indicate not only the educational and planning parameters, but also includes socio-economic aspects. Since this document was prepared following a cabinet decision and was formally endorsed by cabinet, it indicates that government policies in the future will be directed at a systematic approach to the problems of educational provision.

Therefore the needs for the future can be summarised as follows:

- (a) An urgent need for implementing the policy SOC 10 of the Structure plan which requires an Education Development Plan for the next twenty years.
- (b) A need to update the minimum requirements for school buildings to ensure that new schools and the refurbishment of the existing stock of building will be according to established standards both as far as educational provision is concerned but also in terms of hygiene requirements and the comfort and safety of the users.
- (c) A systematic programme of new school building and refurbishment of existing schools to be implemented to ensure, within a reasonable time, compliance with minimum requirements.

Do schools have a future?

The demise of school buildings has been predicted several times during the recent decades. Anyhow schools are, at least for the majority of children, a very recent innovation in history and even if they had been considered desirable on educational grounds, the prevalence of infectious diseases would have made them impossible. Grouping a large number of children in very restricted enclosed spaces would have meant a death sentence for most of them before the developments of modern medicine in particular mass immunisation. To this day the level of absenteeism at primary level due to illness is still excessively high to the extent that there has been suggestions, sometimes actually carried out, of designing primary school classrooms as *clean rooms*, that is, the fully airconditioned classrooms would be equipped with high quality filters to exclude all particulate matter of diameters as low as 1 micron. The educational problems associated with the traditional pattern of schooling are too well-known to be repeated: children develop at different rates and come from different socio-economic backgrounds, etc. Yet schools group them according to chronological age and abilities measured by standardised tests. The development of information technology and mass communication has made it possible to tailor educational programmes for

each individual child, without the need to build and run expensive structures where hundreds of children have to attend daily with all the logistic problems that it involves.

Yet schools have never been held in higher esteem than now. There is almost universal recognition on the need of formal education and schools are being increasingly seen as a major community asset in educational provision not just for children but for the whole community.⁴⁰ The school is

*no longer an institution isolated from the rest of society and open only six hours a day, nine months a year. Today some schools are open 14 hours a day - offering adult education classes in the evening, library and meeting facilities for the entire community, and recreational activities year-round.*⁴¹

*Every educational building has to be considered as part of an educational continuum, inserted in a social and urbanisatic context, and not as an autonomous entity.*⁴²

However, certain basic assumptions may have to change as technology will inevitably affect school design. We may easily revert to a situation where schools with large population (to allow for investment in expensive facilities and equipment) would cease to be essential for economic reasons. Individualised learning programmes may solve the problems associated with the grade system and its off-shoots such as mixed ability teaching, selective examinations, etc, which would bring about a revaluation of the spaces required within school buildings. The design of the building will have to respond to these changes and the school of the future might in fact be just a part of an extensive educational set-up to provide those facilities needed for the personal development of the whole community and not just its juvenile section.

It would, however, not be difficult to predict an emerging trend which can lead to an important development in educational facilities. It has been observed for a long time that people tend to identify themselves with schools more than with any other type of building, except, maybe, their own dwelling. A community is unique, not only in its social set-up but its historical and geographical location and this diversity has to be reflected in the architecture of schools. The school

has to be conceived as a homogeneous architectural organism and not as a simple series of spatial elements, thereby contributing to the sensitivity of the pupil and thus becoming

itself a means of communication and of learning for those who use it.⁴³

The mass produced building located anywhere irrespective of the social needs of the community and with complete disregard to geographical location rarely, if ever, leads to satisfactory educational facilities. It is too anonymous for people to identify with it and does not satisfy their aspirations. "Culture climate, geography, and traditions differ greatly from town to town and state to state. The best school design celebrates these differences"⁴⁴

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18. Planning Services Division *The Structure Plan for the Maltese Islands* Ministry for the Development of Infrastrucure, Malta, 1990, Policy SOC 15, p. 38.

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21. Quotations from the Italian school building regulations are taken from: Decreto Ministeriale 18 dicembre 1975 "Norme tecniche aggiornate relative all'edilizia scolastica, ivi compresi gli indici minimi di funzionalità didattica, edilizia ed urbanistica, da osservarsi nell'esecuzione di edilizia scolastica", *Gazzetta Ufficiale* n. 29, 2 febbraio 1976.
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40. See Department of Education and Science *Building Buletin 59: Victoria Centre, Crewe: School and Community Provision in Urban Renemal*, HMSO, London, 1981, and OECD Programme in *Educational Building for School and Community. Part I: Policies and Strategies* OECD, Paris, 1978.
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42. "Ogni edificio scolastico va considerato parte di un continuum educativo, inserito in un contesto urbanistico e sociale, e non come entità autonoma" Leschiutta FE *Linee Evolutive dell'Edilizia Scolastica, Vicende - Norme - Tipi*, 1949 - 1985, Bulzoni Editori, Roma, 1985, p.10.
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An Interview with Colin Stansfield-Smith.

Joseph FALZON and Ronald SULTANA

Karl Otto wrote in 1996 that '*schools are not only institutions of instruction, but at the same time visible symbols of educational conceptions of their time*'. How far has school design in Britain in recent years reflected this principle?

In spite of all educational and architectural concern to remove any hint of fashionable intent in school design in the mid 20th Century, it is perhaps surprising to find how much school building reveals its origin, nature and time. Each building invariably tells the story of its own aspirations from the civic pride of board schools at or before the turn of the Century, 'the beaux art' conservatism of the between war period, the utopian ideals of post 2nd war system building, the institutionalised vernacular of the 70s and 80s. But perhaps the most telling statement about school buildings of the 20th Century would be 'the temporary', from the H.O.R.S.A, (a wartime legacy), to a whole range of diversified squalid cheap accomodation. Which child since the war has not spent part, if not a substantial part, or his/her education in one of these? The excuse for these is always the dynamic and flexible need of education but what an indictment of civilised society! This is symbolic of the post war story that tells of impoverishment both in thinking and investment, as well as progressive enlightened thinking in education. It is a story not about architecture but about management of resources.

Most of our state secondary schools established in the 30s are like mutations exposing an evolution over several generations, each addition and adjustment an indicator of a national trend or educational edict. There are, for instance, the R.O.S.L.A. buildings (Raising of the School Leaving Age), the need for increasing specialisms. laboratories, sports halls, youth clubs, etc., but each site expresses the same recurring sequence.

Now with falling rolls and diminishing numbers in some sectors, re-organisation and rationalisation come into play offering mouth-watering oppotunities of creative demolition and environmental improvement, but these are seldom taken; such planning strategies are difficult in a climate of competing market forces.

In the United Kingdom, the school building programme was dominated for a long time by system building. Can you make an assessment on the overall effect of this type of construction on school architecture and, maybe on the quality of architecture produced.

'Comprehensive' is the word that comes to mind for education in the mid 20th Century. It seemed synonymous with the universal forms of social modernism. Its ideas and its buildings were generalised and ubiquitous; education was a shared collective experience and each new educational theory was recognisably national or international in its physical manifestation of building typologies. Systems were a national consequence of these theories.

One understood the social cause in system building; its neutrality, its uniformity, its standardisation were seen as a positively advantageous, almost a moral statement to the left wing social mentality of the post war period. The pragmatic arguments for system building were also powerful; kit of parts and dry rather than wet building techniques and industrialised components were kind to the on site operative but even more convincing were the procurement benefits of bulk purchase. A consortia of like minded authorities organised to achieve potentially far reaching and collective progressive thinking was to many a rewarding experience.

The 50s and 60s were a time of post war utopian ideals, of universal homogenised and coherent pragmatism; aphorisms like 'form is function', 'less is more' minimalism sustained two decades of public sector programmed Miesian elegance was at one with an architectural theory that was objective, measured, scientific and calculated with technology taking the lead; it denied self expression and rejoiced in collective teamwork and multi disciplinary working.

In retrospect we now acknowledge these aspirations were a chimera, a social fallacy. The physical reality on the ground was universalised mediocrity and institutionalised modernism. Cheapness became an end in itself, a world exploited

by the speculator and cheap politician. What we were left with was an alienated public estate and a loss of confidence in public service.

But the ideas inherent in system building remain seductive and will no doubt be revisited but, we hope with more understanding, conviction and commitment to the wider issues. For instance, one factor that was ignored was the maintenance liability of the existing estate. This represented over 50% of most authorities building turnover and all of it demanded traditional trades. The process of system building had little empathy for sustaining these. The buildings of the 50s and 60s now consume nearly 60% to 70% of all authorities' maintenance budgets. Capital is converted to revenue to compensate for heavy shortfalls and a whole generation of new and future building has been pre-empted.

Surely here are powerful arguments to build better in the first instance. As a constant reminder in Winchester we have an ancient and high status public school. It has represented an enduring educational presence for hundreds of years and beautiful architectural ideas that has served many privileged generations.

In the design of schools, in general, the educational functions of the school, within very stringent financial constraints, take precedence over considerations of aesthetics. Yet your school buildings have been praised for their architectural value. How did you manage to achieve this remarkable fact?

Setting up a culture of good design in the Hampshire Office was dependant on political support. In the early 70s the climate was already favourable. By the mid 70s the many users of the late 1950s and 60s buildings were expressing disaffection. The honeymoon period of cheap building management had finished and the repair bills and incidence of failure were growing at a rapid rate. All these reasons helped to obtain the enthusiastic responses for a change in design intention and building procurement. Our endeavours at first were cautious- the celebration of pitched rather than flat roofs (a continuing theme in the office philosophy) was a reversal of a primary tenet of modernism. Our buildings were popular and we earned credibility. We were able to abandon a flawed system of building, the Second Consortia of Local Authorities was doomed by this decision, Hampshire having once been the largest user of S.C.O.L.A. I spell out the title to indicate the indifference to competition. Who in these days would ever want to be associated with anything that called itself "the second consortia"?

The real answer to how we won lies in the leadership and vision of one politician who took an over-riding interest in what we were attempting to achieve, Freddie Emery -Wallis, who was the leader of the County Council from 1975 to 1991. The culture we created was deliberately pluralistic and studio orientated. The notion of house style was anathema and each project would be played on its merits. What also helped was the reduction in the scale of building programmes; each project now could be indulged individually and the aspirations and ambitions of a talented team of designers celebrated.

Of course, attracting such a team was part of the challenge but the important fact remains that we represent a team culture and there is a pride in identifying with such a culture inspite of it being a public sector. We would want to reverse the stigma of public practice and reassert a pride in public service.

British Primary Schools of the post-war period received considerable attention in the international press whether for their education methods or the quality of the buildings. Do you feel that your buildings reflect this tradition?

Post-war school buildings in the United Kingdom were universally revered during the 50s and 60s. Many architects were totally committed to the social modernism that they represented. It was essentially a European experience and, as I have suggested was international influence. Its social philosophies were to a large extent all pervading.

But strong reservations were already being expressed in international forums on architecture. Giancarlo De Carlo, was particularly questioning the validity and relevance of many of its implications in Italy. So frequently school building was the product of a set of policies, procedures and formulas that became so prescriptive and universally applied that the whole system felt like stale chocolate. The user of the buildings had little place in this structure, because in the complex nature of briefing architects, it was the politician and the administrator who held sway. User participation became an important event in the 70s. This was because a substantial part of capital programmes dealt with existing buildings and school communities rather than with new emerging ones as had been the case in the 60s.

Modernism in architecture had changed its emphasis - the tenets and beliefs so strongly held in the 50s and 60s were seen as too single minded, simplistic and superficial, but one could still remain committed to its social aspirations even though one abandoned some

of its physical symbols (like the flat roof).

The mood of the time was that the particular was becoming more interesting than the general. As I have said uniformity and consistency had become mindless. Nurturing the identity of an individual authority would have been anathema in the 60s because at the time local government was seen as a generalised phenomenon. But in the 70s, with the emergence of a Thatcher climate of individualism, almost a natural consequence of this political change would be individual competing authorities or competing schools.

To try and single out Hampshire to demonstrate its merits and uniqueness had a concurrency with our wish to focus on individual artefact. The maxims in the office were "its the product not the process" or "the project not the programme" that matters. Fair shares for all, or being concerned about 'a level playing field' were ideals of a discredited past. But to abandon such a sincerely held morality does have its problems. Producing a beautiful school can upset its neighbours who feel disadvantaged by the way it can attract more pupils. Quality can destabilise when it creates such exaggerated differences. But that is hardly an argument against the notion of quality as an end in itself.

The 50s and 60s were a time of innovation and experimentation, both in architecture and education. In some senses the 'post modern' culture of the 70s and 80s seem regressive in comparison - attitudes seem conservative and backward looking when philosophies on 'team teaching' are expounded or when architecture reveals an overriding homage to the past. I have often thought that our designers have represented a return to tradition, in the broadest sense, but they still incorporate a modernist ambition which is essentially about ideas, relevant technology and a new searching interest in a sense of place.

Technology itself cannot legitimise architecture or make it authentic but our sort of 'passive technology' applied with intelligence can create an empathy with the client user.

Architects working for the government, whether at national or local level, have a tendency to compromise their design work because of political realities and frequently end up doing managerial duties and hardly any architecture. How far would you say that this statement applied to you when County Architect?

It would be silly to pretend that one spends all one's time designing. All professions have two functions to cope with - the professional function, which

in the case of the architect is the design function and the management function - one facilitates the other, I suppose it would be universally accepted that good professional judgements are easier to manage than rotten ones, although it might be argued that all professionals are in the risk business if they are at all ambitious, and risk-taking requires its own form of management. With the increasing demands of a complex society, architecture, it must be admitted, demands an excessive amount of management and I have relied on specialist support in this area. Provided this is sensitive, intelligent and understanding of the issues involved it must be the most sensible way to practice, because I cannot pretend to have been trained or wish to spend a disproportionate amount of time on administration. My time and skill is better spent on the architectural focus and in this sense I see myself as critic, catalyst, enabler, patron, entrepreneur as well as designer.

I would also like to feel that the difference between public and private practice are exaggerated - it is too easy to generalise; each practice whether private or public is different and in this competitive world some of this uniqueness is jealously guarded. There are no reasons why public practice should be anymore management or administration orientated than private. The partners of a large private practice have to market their endeavours in a way the public practice, until recently, has not. The more celebrated firms are large business enterprises which demand very sensitive and inspired management to adjust to the vagaries of an erratic market. However, I must confess that there will always be a tendency in government to reward good communication skills in preference to design ones because of the visual bankruptcy in our society.

Hampshire as a public practice has won several commissions in the private field or outside its own area of jurisdiction. We enjoy the privilege of joint enterprise projects with some private practices. I am a Professor at a University and am commissioned to build a new School of Architecture.

Which, in your opinion, is your best school design? Is this opinion shared by your critics?

Most of our schools have been designed and developed as part of a theme. Hatch Warren, Tadley and Bishopstoke are part of a big volume energy theme, Eastleigh and Farnborough are part of an arcade theme. (also with an energy slant); Gosport Bridgemary exploited a security challenge; Alton College converted a drainage problem into a water garden. Exploiting these ideas has always offered rich design potential. So

I would find it difficult to choose between Tadley, Bishopstoke, Hatch Warren, Elson and Borden but I suppose the school that gave me most personal pleasure is Cowplain because of its simplicity and its elegance. It converted a headmaster, John Clouting from a position of scepticism to overwhelming enthusiasm. It was his commitment that won for us The Building of the Year Award in 1987.

And what about a school designed by somebody else?

Velmead, by Micheal and Patty Hopkins. Without this as a precursor we would not have developed Cowplain.

Can you describe what you consider to be the qualities of a good school building?

What is interesting about this question is that it would be impossible for me to answer it without explaining that nearly all our primary schools are the result of one standard brief. The dialogue between the design team, its personal chemistry, the uniqueness of context all contribute to a startling range of solutions, each expressing a difference of emphasis. Perhaps the elements that they have in common are an empathy and understanding of the purpose, the user, the site and its context and an integrity that comes from commitment, but primarily that it works as an educational environment.

In a recent book on school buildings (B.E. Graves 'School Ways' New York, 1993) one of the contributors claim that an important emerging trend in school design is that 'schools will be held in high esteem' because 'in the educational age, expect educational facilities to attract the best talent in planning and design, and earn important design awards'. You have won awards for your schools and your work has received considerable attention - would you say this is a confirmation of the emerging trend?

The fact that we have won the B.B.C. Design Award twice out of the three occasions, it has been run over 10 years, seems to support this view.

However, it does reflect an emotional and, if I am honest, a distorted response of the public who perhaps are less interested in the architectural than in the social intent. The notion of 'school' seemed more inviting than some of the 'mega' building entries, (like Stanstead Airport), and this seems to suggest an emerging consciousness of a new social responsibility.

Over the last two decades social architecture attracted very few committed and interested talents. Schools of Architecture did not see a 'school' as an interesting design vehicle because it was too confined in its intention and dominated by too much prescription. This was a pity because challenging the policies, rules and regulations and what was and is contained in Educational Bulletins would have been a rewarding experience.

Can you predict how schools of the future would look and what facilities are they likely to provide?

How Information Technology will influence the design of schools is difficult to predict but could easily be exaggerated. Education always seems to be in a state of crisis. Interesting facts like an infant school being occupied for only 9% of its whole life or Hampshire having some 25,000 empty school places in a school population of 300,000 and yet sustaining several hundred temporary buildings (huts), seems to reveal that market forces and free choice do not always deliver the most cost effective system. The waste in the current structure is reflected in cheap building fabric and environments. As an architect, as an educationalist, I would be hoping to see a radical improvement in the quality of environments in which children have to live and learn.

Schools and colleges will increasingly become social in emphasis as managed home learning, through video and information technology, is developed. England has tended to vary from the continent in this respect with its family dependance on both parents working. But this is a huge social question which is quite beyond the forecasting skills of an architect.

Planning in Education: Local School Buildings

A paper by Dr. Edwin Mintoff edited from a study by Alexander Borg, Christopher Borg and Victor Sladden. This study formed part of a thesis project presented in 1993/1994 in partial fulfillment of the degree leading to B.E & A (Hons.) in the Urban Design Stream which Dr. Mintoff co-ordinates.

Buildings, Space And Territory

The physical aspects of schools are often neglected in educational discussions. Buildings and their uses are cultural products embodying ideas and messages which affect social activities taking place within. This is not to suggest that they provide a clear, unambiguous structure but that they set some of the parameters for teaching and learning.

School buildings help to set aside schooling from every day life and perhaps, unintentionally suggest that schools are exclusively about academic learning. Schools are demarcated by boundaries within which different rules apply. They are territories where the general public, often even parents, are kept out and teachers kept in.

Nearly all schools contain classrooms which are based on assumptions about the size of the learning groups and the space required for learning activities. Specialist rooms reflect assumptions about the importance and role of particular subjects and their needs. This implies that education becomes defined as that which can be fitted into the schools and not the other way round. Separate classrooms also suggest or impose a level of privacy to the act of teaching; an autonomy for the teacher. In many schools, especially primary ones, classrooms become the sovereign territory of particular teachers who display proprietorial attitudes to room and class. The layout of the classroom demonstrates the educational assumptions in the use of school space. The traditional typical secondary school classroom with the teacher's desk in the front of the room, at right angles to the door, near the blackboard, indicates who is in control of learning. Communication, interaction and especially spontaneous knowledge sharing may well be inhibited by such a layout.

Fragile furnishings and furniture and the need to protect them induce what might be seen as petty teacher concern with aspects of pupil behavior such as rocking of chairs, leaning against walls and so on. Similarly the poor design and construction of many schools in comparison with other public buildings often calls for

heightened discipline in respect to factors such as safety, noise and interference. Insufficient toilets, lack of unsuitability of accommodation for meals, assemblies and wet break times all produce potential trouble spots and anticipatory action by teachers.

Educational ideas and practice change much more rapidly than school buildings. In fact school buildings have a durability unknown to other buildings; old schools remain in use despite educational changes. However regardless of the architecture people can impose quite a lot of themselves on their surroundings.

Uses and School Buildings in the Community

The majority of state schools in Malta were built in the early nineteen hundreds. Many primary schools were built during this period and include those of B'Kara, Floriana, Gharghur, Ghaxaq, Hamrun, Mqabba, Paola, Qormi, Sliema and Zurrieq. A few others were also built in the period between the two world wars, with the Sliema school having a rectangular shape enclosing a sizable internal yard, used as the prototype.

In the years following the Second World War the Education Department embarked on an intensive rebuilding and extension programme. New primary schools were built in Gżira, Hamrun, Mellieħa, Marsa, Qormi, Qrendi, Rabat, St. Julians, St. Pauls Bay, Valletta, Victoria and Żejtun.

In the late 1950's and the 1960's a number of secondary schools were built on the separate block system; Maria Assumpta, Santa Theresa and Żejtun are such examples. Whilst the new system was an improvement over the rectangular block type, these schools had large glazed areas leading to over heating in summer and cold in the winter. In 1961 the Upper Lyceum at Msida was built to house the Malta College of Arts, Science and Technology. The San Ġużepp Haddiem Junior Lyceum and the trade schools at Corradino were originally built as technical schools.

In the seventies and eighties many military buildings vacated by the British Services were transformed into schools buildings. Amongst these are Sandhurst, Mtarfa, Bighi Trade School, Verdala and Tal-Handaq. The first three were ex-naval hospitals whilst the last two being schools used by the British for the children of stationed military personnel.

Another tradition was to have schools in old buildings. Examples are the Art and Design Centre and School of Art, and the Johann Strauss School of Music, all in Valletta. The Rabat Primary School A (for year 1 to year 3) is a nineteenth century building, although it has been extended and renovated a couple of times.

Originally the majority of primary schools were intended to cater for children of all ages. It was therefore possible to house pupils following secondary education within the primary school precinct. However following school reforms in 1970-1972 primary schools with a relatively large student population were sub divided into two parts: "A" (year 1-3) and "B" (year 4-6) each having a separate headmaster. At Hamrun for example the local school comprises a kindergarten, a primary school "A" and a primary school "B" as well as a girls' opportunity centre.

Schools now have various groupings and these vary between different schools. In state schools these range from kindergarten, primary such as the traditional village primary schools to a combination of kindergarten, primary and secondary or opportunity centres, such as those at B'Kara, Hamrun and Msida (with an opportunity centres) and those at G'zira, St. Venera and Żurrieq (with secondary schools). Qrendi, Sliema and Tarxien schools comprise primary and secondary sectors.

By the 1970's schools were beginning to be recognised not as finite arrangements of buildings but as local resources potentially available for all. The question was posed whether schools should be open for a small part of society which only includes students and teachers for about seven hours a day and for two hundred days a year; or whether they should be accessible to the total community in many different groupings with different purposes for far longer hours and throughout the whole year. What is important is that schools must be the tools by which the community can benefit from education and vice versa. Very often schools have primary, second, and even sixth forms in the case of private schools, sharing the same facilities and resources which are not often shared by

the surrounding communities.

Some schools do serve as a public utility, the few shared resources include libraries, playing fields, halls, and gymnasias. Examples are Floriana Primary and Maria Regina at Blata l-Bajda, which are used as centres for evening classes. Many schools are also used as examination centres such as Maria Assumpta Girl's Secondary at Hamrun and Victoria Boys Junior Lyceum. While few primary schools have gymnasias, many secondary schools are equipped with these as well as extensive sports grounds which are used by local sports bodies after school hours. Maria Regira, Maria Assumpta and Santa Theresa girls' secondaries in fact share their gymnasias with various sports clubs, while Siġġiewi Primary, Verdala and Hamrun Junior Lyceums share their playgrounds with various other sports clubs.

On the other hand the Victoria Boys Junior Lyceum and Secondary School use the Gozo Sports complex. The Lija Primary, Żejtun Girls' Junior Lyceum, Mellieħa Primary and San Ġwann Primary use nearby football pitches. The Rabat Primary uses the Rabat Parish Hall. Resources are also shared between different schools such as the case of San Miguel Ferres Condero Special School at Pembroke which uses the home economics rooms of Bice Mizzi Vassallo Girls' Trade School.

It is a fact that in general school buildings remain in use longer than other types of buildings. Locally the situation is such that old buildings are predominant, as previously described, and so schools cannot keep up with changes in education and this seriously hinders the educational process. In spite of this, modifications can be made such as the Guċja Primary School where the school hall was partitioned and is now used as classrooms. It therefore depends on the individuals in charge of the schools to adapt themselves to changes in education.

The advantages of shared resources are that a closer bond is created between school and home, parent and teacher, teacher and taught, school and community. The school is provided with a wider range of human and physical resources if there is ready access to community centres. The express intention of making education premises more widely available to the community is a goal to be aimed for, particularly so when land and building resources are in a very short supply.

The following policies attempt to address the issues outlined above:

1. All new schools should ideally be designed to allow for extended use of facilities outside the school

hours for further education, local youth clubs and the community in general.

2. To encourage the dual use of both the community and the school facilities in order to secure the maximum benefit to both the school and the local community.

3. Dual use of new and improved school buildings will provide valuable opportunities to meet local needs (such as assemblies, recreation etc.), but the problems of achieving this policy in the case of older schools premises are recognized. Adequate school facilities which suit this purpose should be opened up for the community.

4. As schools would, through the multiple use of their facilities, become meeting places and focus for various community activities and events, they would contribute to the development of community feelings especially in new areas. The community use of school facilities may cause certain management problems, which, however, could be overcome if suitable arrangements are made between the school or the Education Department and the local community representative. Provision should be taken in this regard.

5. In all school development, public or private, the following could be satisfied:

- (a) Community needs.
- (b) Accessibility to the Community they will serve.
- (c) Good and safe vehicular access and adequate on site parking with particular attention paid to the safety of pupils
- (d) the need to avoid detrimental effects on nearby properties or amenities.
- (e) High standards of design and layout.

School Areas

A study was carried out on several local state schools to determine schools areas and student populations. These parameters were compared to Italian standards. The need to compare the local situation with foreign ones was felt to be important in helping to evaluate the local situation.

The Italian codes were chosen for comparative purposes as they prove to be the nearest to the local situation. This way comparisons were not made with idealistic states but with those that are not difficult to achieve. It is worth noting that even many of the Italian schools do not attain the levels set out in these standards. The latter are more intended for schools yet to be built rather than those existing.

The main objective of the comparison of the local schools to Italian standards was to ascertain whether the present school premises footprint area holds enough potential to contain the present school population, if exploited to the maximum permitted by modern standards. The schools considered in this exercise are listed in tables 1, 2 and 3 namely: - enough potential to contain the present school 26 primary schools; 4 primary and secondary schools, and 17 secondary schools respectively. Results reveal the schools' footprint area, the number of students as in 1991 and where possible the number permissible by Italian standards as well as the ratio of the actual student population to this benchmark.

Considering primary schools (table 1) the two schools with the highest population are those of Mosta and Fgura. However while in Mosta they are packed in a mere 1,750m², in Fgura they are hosted in a 10,200m² premises. The densest school population however was that of Cospicua with 0.86 students per m² of school, followed by Mosta with 0.71m². The sparsest school populations were registered in Qala and Xghajra. The median of the density of the sample was 0.09/.0.10 as seen at San Ġwann, Sliema, Luqa, Siġġiewi and Floriana.

The minimum permitted area for a school in Italy is 2,295m² which would hold 125 students. Five of the considered primary schools have a smaller area than this permitted value. The smallest, the Cospicua primary school with a footprint area of 925m² and a population of 797 students should by Italian ratios host only fifty students considering this particular site. In fact from the sample of schools investigated, the Cospicua Primary School was the worst off housing 1594% of the numbers allowable by Italian Standards. The discrepancy is reflected by such major shortcomings in the school such as lack of any recreation grounds for school B (grades 4-6). Most of the schools having less than the minimum area by Italian Standards have a high ratio of existing to permitted student populations.

On the other hand a number of schools investigated are underpopulated. The most prominent example is the Xghajra Primary with only 29% of the allowable population and the Qala School with 43%. The Xghajra school is only one storey high and the ceiling does not permit additional stories whilst the Qala school has substantial open spaces and a marked scarcity of use.

In certain cases finding a solution for, or integrating the present adverse conditions can be rather

straightforward whilst in others it is not so simple. In cases of a heavily urbanised context it is lack of space can be outdone by more imaginative design such as using the roof of a school for recreational purposes, once rendered safe.

The general tendency is for schools to be overcrowded, with areas which are totally inadequate to house their student population by these standards. Even if these schools were to be demolished and rebuilt the footprint area they take is insufficient to house all the locality's student population by standards which are modern but not out of reach.

Indeed the standards for primary schools as set in the Explanatory Memorandum of the local structure plan give similar standards of key. The medium level for primary schools require 0.70 hectares for 360 pupils i.e. 2 classes per year for years 1 - 6 whilst the Italian standards ask for 0.77 hectares for 540 pupils i.e. 3 classes per year for years 1 - 6, both the local medium level and the Italian standards specify 1:10 hectares. 550 pupils in Italy would have to be provided with 1.12 hectares whilst locally the requirement is per 2.20 - 2.50 hectares if the high level is contemplated.

The secondary schools were more difficult to evaluate by Italian standards due to the Italian Educational Structure. Following the Scuola Elementare, equivalent to the local primary level, are the Scuola Media (approximately Forms 1 - 3) and then the Licei and the Istituti Tecnici, (forms 4 to 6). The Italian Standards give separate figures for these two levels of school. The Scuola Media are only considered viable for at least six classes i.e. two per year, whilst for the higher levels of education the schooling establishment must be larger to justify additional costs incurred for the more extensive equipment necessary for this level of schooling. Evaluation in Italian standard terms was not straight forward and where possible comparison was made with the Scuola Media figures as the latter stages of the Licei are more demanding than the local forms 1 - 5.

The scuola Media/Licei figures could not be combined and averaged as that would have implied a degree of duplication of facilities that are common to both. Likewise local schools which host both primary and secondary classes could not be evaluated.

Moreover of the thirteen strictly secondary schools in table 3 only four had areas which fall within the limits as set by the Italian standards. The Zebbug

secondary school with 2,275m² falls below the 4,050m² minimum area. This minimum should cater for 150 students for six classes: 2 per year for forms 1 - 3. This is justifiable for Italy which might have communities living in remote localities which would still have to be offered a secondary school albeit a small one. However two classes per year at secondary level is beyond justification locally where traveling is much less of a problem than availability of resources. Most of the local secondary school surveyed were much larger than the maximum Italian standard specified of 12,600m² with 600 students i.e. 8 classes per year for the equivalent of Forms 1 - 3. This figure was often excessively exceeded (eg. Verdala Junior Lyceum). In these cases the school density becomes less decisive than the type of facilities the maximum Italian standard specified of 12,600m² with 600 students i.e. 8 classes per year for the equivalent of Forms 1 - 3. This figure was often excessively exceeded (eg. Verdala Junior Lyceum). In these cases the school density becomes less decisive than the type of facilities being offered, and the distance traveled by the students. Amongst the larger secondary schools were British buildings originally built to serve different functions. The Verdala School was originally a group of navy barracks, Sandhurst had been a British hospital, and the Tal-Handaq Junior Lyceum an Anti-Aircraft headquarters before being turned into a school for naval children.

The average area for area secondary schools, omitting the combined Secondary Primary schools in table 2 and the Victoria school, was considered, (barring the Maria Assumpta Area Secondary, which has a formidable area of 48,050m²). The average area of the rest of the area secondaries was of 5850m². The mean area for the Junior Lycuems on the other hand was of 29,150m². It can be concluded from this that Junior Lyceums tend to be much larger than the Area Secondaries. The latter are intended to serve a specified catchment areas. These catchment areas are much smaller than those of the Junior Lyceums.

There are however much fewer Junior Lyceums but these have much higher student populations. However incurring large sums to procure more specialised equipment is feasible only for a larger number of users. The Area Secondaries, due to their smaller area, would probably be rather short of modern equipment for specialised or out of the ordinary subjects.

Table 1: Primary Schools

Name of School	SCHOOL Area in m ² (to nearest 25)	NO. OF STUDENTS	PERMITTED NO. OF STUDENTS BY ITALIAN STANDARDS	RATIOS OF COL. 3 TO COL. 4	SCHOOL DENSITY (Students per m ² of schools footprint area)
Cospicua	925	797	[50]*	15.94**	0.86
Mosta	1750	1249	[95]*	13.15**	0.71
Żabbar 'A'	2675	915	146	6.27	0.34
Senglea	1500	486	[82]*	5.92**	0.32
Victoria	2050	636	[112]*	5.67**	0.31
Żabbar 'B'	2300	617	125	4.94	0.27
Rabat 'A'	3675	602	200	3.01	0.16
Rabat 'B'	3450	433	188	2.30	0.13
Fgura	10200	1080	497	2.17	0.11
Gudja	2600	281	142	1.98	0.11
Sigġiewi	6750	688	309	2.22	0.10
Luqa	5225	518	243	2.13	0.10
Floriana	2325	227	127	1.79	0.10
Sliema	5850	518	260	1.99	0.09
San Ġwann	8125	731	384	1.90	0.09
Vittoriosa	3200	262	174	1.51	0.08
Msida	9075	607	436	1.39	0.07
Baħrija	2000	121	[109]*	1.11**	0.06
Lija	9130	484	439	1.10	0.05
Kalkara	5675	272	250	1.09	0.05
Mġarr	4075	203	222	.91	0.05
M'Scala	4900	215	238	.90	0.04
Mellieħa	10650	390	522	.75	0.04
M'Xlokk	7925	312	373	.84	0.04
Qala	6600	129	301	.43	0.02
Xgħajra	3400	54	185	.29	0.20

[]* i.e. No. of students worked out by simple proportion even if by Italian standards this area is insufficient to function as a school. Min. area by Italian standards = 2295m² with 125 students, (1 Class per Year).

** i.e. figure in [] was considered.

Note: Italian figures for *scuole elementare* were considered. Actually all school A's include a Kindergarten and these have specific standards in the Italian codes as for *scuole materne*. These standards are even more stringent than for the *scuole elementare*. Except for School B's, all schools comprises a kindergarten.

List of Secondary Schools Surveyed

Santa Venera	Vinçenzo Buġeja School
Tarxien	Maria Goretti School
Żurrieq	Mons. P.P. Saydon School
Gżira	Antonio Bosio School
Żebbuġ	Dun Karm Psaila School
Rabat	Kan. Pawl Pullicino School
Cospicua	Erin Serracino Inglott School
St. Andrew's	Luigi Preziosi School
Hamrun	Maria Assumpta
Victoria	Ninu Cremona Junior Lycuem
Blata l-Bajda	Maria Regina Junior Lycuem
Hamrun	Dun Guzepp Zammit (Brighella) Junior Lycuem
Mrieħel/Birkirkara	Santa Tereza Junior Lycuem
Żejtun	Carlo Diacono Junior Lycuem
Tal-Handaq, Qormi	Mikiel Anton Vassalli Junior Lycuem
St. Patrick's Pembroke	Sir Adrian Dingli (Sandhurst) Junior Lycuem
Verdala, Cospicua	Guzeppi Despott Junior Lycuem

Table 2: PRIMARY cum SECONDARY SCHOOLS

Name of School	SCHOOL AREA	STUDENTS			SCHOOL DENSITY (students per m ² of school footprint area)
		PRIMARY	SECONDARY	TOTAL	
Santa Venera	12800	641	413	1054	0.08
Tarxien	11525	641	465	1079	0.09
Żurrieq	7350	1076	227*	1303	0.18
Gżira	4725	470	360*	830	0.18

**Only Forms 1-3 at this school*

Table 3: Secondary Schools

Name of School	SCHOOL Area in m ² (to nearest 25)	No. OF STUDENTS	PERMITTED NO. OF STUDENTS BY ITALIAN STANDARDS	RATIOS OF COL. 3 TO COL 4	SCHOOL DENSITY (students per m ² of school footprint area)
Area Secondaries					
Žebbuġ	2275	463			0.20
Rabat	7475	725	335	2.16	0.10
Cospicua	5200	294	211	1.39	0.06
St.Andrews	8500	236	392	0.60	0.03
Maria Assumpta	48050	1224			0.03
Area Secondary + Junior Lycuem					
Victoria	7900	1047 (258 + 789)	354	2.96	0.13
Junior Lycuems					
Blata L-Bajda	23400	1367			0.06
Brigella	18225	1164			0.06
Mrieh el	21000	1083			0.05
Żejtun	17900	868			0.05
Tal-Handaq	34300	1182			0.03
Sandhurst	36400	1165			0.03
Verdala	52900	553			0.01
max. area = 12600 with 600 students.	min. area = 4050 with 150 students.				

School Maintenance

All buildings like most other artifacts begin to deteriorate as soon as they are completed. Even if they are never used or occupied, the climate alters chemical and physical properties and the decline, however gentle begins. Imagine then the maintenance required for a typical, heavily populated Maltese school.

School maintenance budgets should not be designed solely for keeping buildings clean, but also to keep buildings in a state of good repair. When the question of expenditure for education comes up there is always the cry for holding the line on maintenance costs even though the cost of maintaining our schools is very small compared to other forms of expenditure.

A school building may be redesigned to make it easier to clean. Windows may be eliminated because they get dirty and cost money to clean. There may be good reason to make these changes but ease of maintenance should not necessarily be one of them. Schools should not be built solely for this ease of maintenance or materials chosen solely because they are easy to clean. Schools should foremost meet our educational specifications and the cost of maintenance, though important, should be a secondary consideration. None the less lack of maintenance will lead to deterioration of the building and at a certain stage this will affect the educational processes held within such a building. Therefore a balance must be reached between educational costs and maintenance costs.

Maintenance however is not easily defined and described, its aim should be to keep buildings in a recognisable good state of repair. Maintenance work covers a range of approaches from the long term maintenance plans set out over the years to replace worn or defective materials to the everyday minor work required to keep a building or a service in use, affording security and certainty to the user.

When a large number of buildings are under one ownership and used for similar purposes there are many advantages to be gained in cost and services from an established partnership between the user, the owner, the designer and the maintainer. The user may state his requirements, the owner sets his levels of expenditure and general policy, the designer assesses previous building performance whilst the maintainer provides care of the fabric and service installations. Knowledge of a particular building type is invaluable for maintenance and this explains how service might be approached for schools.

By decentralising the maintenance organisation,

the local building user is brought into close contact with the local maintenance officers (who carry out normal maintenance and regular inspections) and becomes known and knowledgeable. In this way the scale of numbers and areas, instead of being just statistics, are transformed into informal and mutual trust.

Locally the maintenance system for school buildings is centralised where everything depends upon the head office. Every year the headmasters are asked to send their requirements in writing to the Education Department. These usually consist of maintenance and repair works, building extensions, furniture provision, stationery requirements, text books, teaching aids, equipment and other materials. The provision of materials and other perishable requisites is possible through an application form made for this purpose which enables the Assistant Director to give the heads of schools a capitation which is allocated to each student and school on the basis of average cost per head. The Assistant Director then passes these forms to the respective sections in the Education Department so that they can be included in the Estimates of Expenditure of the Department of Education. Small allowances are also allocated for each school to cater for its immediate needs concerning small items, minor maintenance works and provision of materials to keep laboratories running etc. A percentage of money from tuck shops on school premises is also used to augment the above mentioned small allowance in these schools. Some schools also organise their own fund raising by holding their own small lotteries etc.

Curiously enough the Education Department pays annual rates to the Lands Department, these being due to its schools and other premises owned by the Department. These amount to about Lm1,120,000 annually which is equivalent to about 20% of the total operational expenses of the Education Department.

At the time of research for the study there were two architects responsible for maintenance and construction of school buildings. One architect, in charge of the maintenance unit, is responsible for repairs, decorations, electrical installations, tiling and minor extensions of all the Departments premises. The role of this unit was previously undertaken by the Works Department which was much more equipped for these types of jobs. The second architect is responsible for designs, building specifications, construction of school buildings and extension projects as approved in the estimates of the Government Expenditure in the Education votes.

Many state schools exhibit a state of disrepair and general neglect. Although as stated previously it is difficult to define maintenance and even more difficult

to establish its costs, this is no excuse for the local situation. From surveys carried out it was noted that all state schools lack maintenance. In fact some of the schools constructed in the first forty years of this century are heavily deteriorating where parts of the building were falling apart besides problems with damp. This lack of maintenance and state of deterioration are hindering the educational process. This statement was further supported by answers given by students and teachers in a questionnaire presented to them. The surveys also showed that there is no idea of long term planned maintenance to prevent building material deterioration. Moreover short term maintenance to the minor every day works lacked co-ordination.

The surveys and interviews carried out also established that the maintenance unit within the Education Department knows clearly enough what is happening in all schools and this is supported by the fact that it has prepared a detailed business plan outlining the priorities to solve immediately.

The maintenance problem is not with having all these schools to cater for but in having lack of finances allocated for their upkeep. The local maintenance system has further problems in that it is centralised and consequently subject to the whole bureaucratic process and all the disadvantages it brings with it, such as slow action and inefficiency.

Partial independence to individual schools in both finance and maintenance officers including staff provides immediate action to an immediate feedback. However there must still be continuous monitoring and assessment from the control maintenance unit hence the term partial independence. Locally there is an attempt to have such a framework but individual schools are provided with only a negligible sum of money and with no maintenance staff at all.

A forecast of the maintenance costs of each school building is very important, and through the use of computers a profile of the maintenance annual cost could be achieved. Such a system, if introduced locally could assess whether it is viable to continue spending money on maintenance or else to do away with the building and allocate money for a new building. This is also a method to formulate priorities regarding schools which badly need maintenance and restoration.

As previously mentioned twenty per cent of the total operational expenses of the Education Department are paid to the Lands Department for the premises it occupies and for all the schools. Another problem is that there are about 200 people allocated to the maintenance finances. This money spent on

wages could be curtailed in favour of materials. The maintenance unit also lacks sufficient professional staff.

A whole restructuring programme of the maintenance unit has now been undertaken and attempts are being made to have an efficient allocation of resources and workers. A business plan has been made setting out to co-ordinate works, putting emphasis on major long term problems while not ignoring requests for minor urgent works. In this way the small amount of finances allocated to maintenance could be used with greater efficiency.

General maintenance policies to consider

1. The Education Department should ensure that school premises are properly maintained, so as not to threaten in any way the health and safety of pupils and teachers.
2. Maintenance provision should be such as to keep the school environment inductive to optimum communication between teachers and students.
3. The maintenance sector is to become more efficient and effective, and the upkeep of schools should be constantly given attention. A yearly plan of action should be drawn up by this sector, naturally allowing for any contingencies which might arise.
4. A handyman could be employed in large schools (particularly secondary ones) to look after day-to-day requirements. In the case of smaller schools, a handyman could be detailed to take charge of a region.
5. As problems are being found to effectively maintain and clean schools, the Authorities may either employ full-time staff - this staff can be directly controlled, but would find difficulty to work during school-hours; or it may employ part-time staff - this entails less direct control and its supervision may be difficult, but it takes place after school-hours; or an external agency whose standards depend on the particular companies used.
6. Large maintenance projects can easily be conducted during vacation time.
7. The extent of the maintenance works required and its related costs should be established

before any new school is built. This process could be achieved more efficiently by using appropriate computer software which is currently being employed elsewhere.

The School's Physical Aspect And Location

Having discussed school buildings in the community, school 'footprint' areas and school maintenance, the physical aspect of schools as well as their location warrant consideration.

In an island where land and natural resources are in short supply it is very important to ensure that maximum advantage is obtained of the existing educational facilities, while taking into consideration levels and distribution of future population growth especially when considering the provision of additional new schools. The following policies attempt to address such issues and other factors which influence the location of schools and their physical aspects.

Policies regarding location of schools

1. In considering locations for education provision, regard will be paid to the likely levels and distribution of future population growth and to the other factors identified in the Structure Plan as influencing the future development of the communities concerned; the demographic mechanisms of the respective localities should be constantly monitored.
2. Local plans should take full account of education requirements as specified in the Education Development Plan which should be drawn up in accordance with Policy SOC 10 of the Structure Plan of the Maltese Islands. The Planning Authority should consult the Education Department regarding sites identified to ensure that schools designated in the Local Plan can satisfactorily accommodate anticipated changes in their catchment area. At the same time it is recognised that the Education Department may, during the Plan period, review its existing land requirements.

3. To provide additional new schools where there is a proven need which cannot be met by existing schools. This need will occur in areas of expanding population, resulting from new housing development on a significant scale. The Structure Plan for the Maltese Islands mentions Qormi, Gudja, Marsascala, Marsaxlokk, Mosta, St. Paul's Bay as areas of greatest population growth requiring new Primary Schools.
4. Additional new school provision will be necessary to replace redundant and obsolete premises where resources allow, but the main areas of need will be on the urban peripheries where the majority of new housing development is expected to take place. Both the Education Development Plan and the Local Plans should provide the necessary school facilities for these peripheries.
 - a) Whenever practicable to remodel and improve existing substandard school buildings in preference to providing new premises;
 - b) Whenever possible to safeguard vacant land adjoining existing school buildings in need of improvement, in order to allow for possible expansion of facilities, including recreation areas;
 - c) To provide the new facilities including those for further education and industrial training where there is a proven need which cannot be met by existing provision, or where existing buildings fall below the minimum requirements set out in the explanatory memorandum of the Structure Plan;
 - d) The joint use of educational facilities should be encouraged and should not be neglected in future provision of buildings and other facilities.
5. Policy SOC 10 of the Structure Plan recommends that school facilities should be confined within the existing Temporary Provision Schemes.

RECURRENT EXPENDITURE ON PROVISION OF EDUCATIONAL SERVICES: 1980 - 1990

(All in figures in Lm)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Personal Emoluments	1029999	11897836	13603892	1338336	1215218	13112656	13524438	14426736	15508184	17385185	18242350
Oper. & Maintenance *	1096769	1499738	2578649	2671920	2583406	2596590	2711814	2728808	2970495	3164552	3660863
Reccurent exp. on public educ.	1256099	14744649	17700771	1739600	1610133	17109231	17314252	18592544	20044679	25536308	24503213
Contribution to private schools.							262333	301667	600000	1010000	1704668
Total Reccurent exps. on educ.	1256099	14744649	17700771	1739600	1610133	17109231	17567585	18894211	20644679	23546308	26207881
Operational & maintenance exps: Utilities, maintenance & supplies											
Primary Schools	63870	91761	75751	81643	98167	82541	101408	99996	136731	100997	
Secondary Schools	122298	212303	167746	144154	189259	154679	151013	154390	220319	273741	
Repair & Upkeep	47445	72868	85201	90975	64127	56284	74394	95234	311321	136325	151131
Trade Schools	148579	173759	204862	173310	168788	218683	260939	276735	322554	346090	447140
Special Education	56914	57495	66888	74822	69145	84613	82902	87465	93580	105919	137105

* Excluding University

However, the Schemes are not catering for this policy, because:

- a) Land has already been subdivided as plots for housing;
- b) Land reserved for social and community facilities is not easily accessible from all parts of the village.

When possible, new school sites should be located within the Schemes. When this is not possible, school sites should be located just outside the Schemes.

- 6. In the consideration of proposals for housing development, account will be taken of existing and proposed primary and secondary school provision. Where the presence of a new housing development might enable a school to become viable, this should be taken into account. At a more detailed level, Local Plans will provide for new residential development to be sited within easy walking distance of an existing or new Primary School. Similarly, where new Primary Schools are to be built, every effort will be made to site them so as to give easy and safe access from the neighbourhood they serve.
- 7. It is important to take into account possible planning considerations which arise from variation in the size of school populations. Alteration, expansion or even change of use may arise due to population fluctuation. Thus expandability, convertibility, mobility and versatility factors must be present in the schools.
- 8. The emphasis of the development strategy for major urban areas will ensure that maximum advantage may be taken of existing stock of educational facilities. This is particularly important both in view of the shortage of public funds for new buildings and since over the medium term the proportion of the population of school age is likely to fall because of the declining birth rate.

Policies regarding the schools physical aspect

- 1. In considering planning application for the development of redundant educational building the following clauses may hold:
 - It would normally be required to house an alternative educational use rather than forming other types of development
 - Only permit a change of use of the existing buildings to residential or other appropriate use where:
 - a) The applicant has demonstrated the satisfaction of the Planning and educational authorities that an educational use is not practicable, and
 - b) The other policies of the Structure Plan and Local Plans (when completed) are complied with and, in particular,
 - c) The proposal will not have an adverse environmental impact on the surrounding area.
- 2. Some of the Island's schools and other educational buildings are no longer adequate for their purposes. This applies particularly to old buildings which are still in use, despite falling short of today's standards and requirements. Thus, while priority will continue to be given to building projects in growth settlements it would be necessary to maintain a programme of replacement of unsatisfactory older school buildings.
- 3. Education is constantly developing and will continue to do so. This development is multi-faceted, and its effects on school accommodation are various. Therefore school buildings may be:
 - a) Flexible; in the sense that as far as possible their various parts (communal areas as well as teaching rooms) should be capable of serving in day-to-day use more than one purpose.
 - b) Adaptable, in the sense that it should be possible to cater for internal alterations.

- c) Extendible, in the sense that, if and when additional accommodations are required, they can be extended in such a way that the extended buildings remain a reasonable coherent functional unit.
4. The general aim of the architect planning a school would be to provide a building which will:
- a) Fulfill its function of housing a sound education organisation, by offering suitable conditions for efficient work and by ensuring care and economy of movement about the school;
 - b) Provide good standards of physical comfort for both pupils and teachers;
 - c) No matter how subdivided for one purpose or another it should have an architectural unity in keeping with and contributing to the development of a closely knit community within the school.
 - d) Afford an aesthetically pleasing environment which will help to cultivate visual awareness and appreciation in the pupils and at the same time fit well in the surroundings and enhance the general appearance of the area.
5. School building should be safe and attractive in overall design and functional in layout; they should lend themselves to effective teaching, and to use for extra-curricular activities and, especially in rural areas, as a community centre; they should be constructed in accordance with established sanitary standards and with a view to durability, adaptability and easy, economic maintenance.
6. Schools should not be too large, as some local examples are (refer to analysis: School Areas), since this makes the fostering of a community spirit a difficult task. It is recommended that not more than 3-4 classes per Form/Year should be available. Secondary schools would generally tend to have a greater population than Primaries to make them feasible. Moreover, the total Primary School populations should ideally not exceed 600 students and the Secondary Schools, 1000 students. The medium levels as stipulated by the Explanatory Memorandum of the Structure Plan are appropriate and conform to international standards.
7. The possibility that the number of children in normal classes should not exceed 25 can be considered. The present norm of 30 children per class is a rather high figure to allow for personal attention to be given individually. The present National Minimum Regulations stipulate 30 students per class but these Regulations are outdated in many respects, and need thorough revision.
8. The schools' environment should be modernised. Class furniture needs to be modern and attractive, while obsolete or unserviceable items should be substituted so as to produce a pleasant environment. The size of the classrooms should be sufficient so as not to be overcrowded, and space should be allocated for activities beyond the desk area. Classrooms should be adequately acoustically insulated to eliminate interference in the educational process.
9. Planning should take into account the process of educational change. This may arise from new developments in teaching processes, as well as the introduction of new teaching techniques. The forecasting of future student populations must be continuous.

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Spirit of Experiment: The Proposed Santa Luċija Secondary School

Michael FALZON, Minister of Education and Human Resources

Government's commitment to build a new secondary school at Sta Lucija is an indication of its modern direction in the face of today's needs in the education sector in Malta and of the fact that, despite the media explosion and all recent developments in information technology, the school will certainly remain the focal venue for information exchange and student interaction.

In March, 1992, the Education Division of the Ministry of Education and Human Resources undertook a global audit of accommodation in state secondary schools. The secondary sector was divided into four areas: boys' junior lyceums, girls' junior lyceums, boys' general secondary schools and girls' general secondary schools. The most glaring revelation arising from this survey was the fact that whereas the average population in State-run junior lyceums for boys stood at around 800, in the case of girls' junior lyceums, the average student population was around 1,200. This anomaly was further compounded by the fact that private schools were serving to relieve the pressure from State schools in the boys' sector whereas in the girls' sector a reverse trend was observed, with girls from private schools at primary level moving on to state secondary schools.

Among the recommendations arising from the report was the need to address the equity between boys' and girls' secondary schools with the construction of a girls' secondary school in the area between Blata l-Bajda and Żejtun.

In the words of the report: "It may be desirable to build a girl's junior lyceum which is complementary to the Corradino Boys' Junior Lyceum. If such is the case, Sta Luċija might be worth considering as a suitable location."

Subsequently, a decision was taken to build a junior lycuem for girls that would reflect contemporary ideas in education and update similar facilities offered in a State secondary school.

Consultation with the Planning Directorate of the Planning Authority resulted in a shortlist of three sites

for the proposed development in Sta Luċija, Luqa and Gudja. Of these the one at Sta Luċija was eventually considered the most advantageous.

The site having been selected, it became obvious that an image had to be clearly defined for the design of the new school. To what extent should the design be a copy or and imported version of a school? Or should it simply be an amalgamation of existing successful typologies? If none of these options worked, would it be justified to build a school basing oneself on intuition, i.e., merely on experimental grounds?

The evolution of local school typology had traversed three distinct models. In the first instance the period ranging from 1912 to 1955 saw the predominance of the quadrangle. This represented the teaching mentality of the day, whereby the school was expected to function as an institution, and the model of the military parade ground conformed with the concept of discipline through strict supervision. The last example of this archetype was the Hamrun Lyceum.

In school design, the two notable experiments responsible for the last half century of school typology were the pavilion type school in Frankfurt designed by Ernst May, and the open-air school by J. Duiker in Amsterdam. These resulted in the two generator models: the British pavilion type on the one side and the continental corridor and classroom type on the other.

In line with examples being constructed in Europe, the next phase saw the use of finger development with the emphasis still on providing a monolithic solution, albeit with more fragmented external areas.

Among the salient charecteristics, one finds an impossible entrance area and in many cases a hall able to accomodate a fair portion of the school population. Space utilisation is normally very rational and flow patterns are described by nondescript utilitarian corridors. The Corradino Secondary Technical School,

officially opened by the Duches of Kent in 1958, was built on this model.

The final model, akin to the pavilion system, is the school composed of separate blocks, as represented by three main examples, the Pawla Technical Institute (1960), the Żejtun Girls' Junior Lyceum and the Blata l-Bajda Junior Lyceum - not to mention the University of Malta, depicted as a showpiece of education typology when the foundation stone was laid in 1964.

From a survey carried out by the Works Division in conjunction with the Department of Education, it was concluded that the block system had the most to offer by way of reference model. This system apparently functioned best because it created spaces which were more human, and thereby conformed with the current direction of making the school an extension of the home. A further advantage was that students could identify with their own area rather than forming part of a large number in an unmanageable community.

Among the drawbacks listed were that communication between units left much to be desired, especially since they lacked any form of protected walkways. Teachers' quarters were located in some central administration block, creating further complications where the units were developed on three storeys. Above all, the aesthetic aspects of the examples selected had no pretension to anything remotely attractive, being made up of uniform blocks lacking in identity.

On the basis of this survey, along with a visual analysis of a number of award winning schools in Europe, Ivan Coleiro, an architect with the Building & Civil Engineering Department of the Works Division, drew up plans that, it is felt, best represent the spirit of a modern local school.

From the outset it was determined that the structure should be that of a number of self-supporting clusters that are well connected by a covered and enclosed walkway. In the final plans these clusters were designed as a configuration of classroom around a landscaped courtyard.

Unlike the British system of education, occasionally referred to as 'suiting', whereby classroom distribution is resource based, the local system favours a more 'territorial' approach with students being assigned to a particular classroom for a year where

they would normally follow 80 per cent of their curriculum. Hence the clusters thus formed are related to various age groups rather than subject based.

In an attempt to decentralise administration and render each cluster semi-autonomous, an assistant head and teachers' room were located as the fulcrum of teaching nuclei. Sanitary facilities are no longer relegated to some infill space in the far end of a corridor but are distributed among the clusters.

The eventual student population to be catered for was expected to rise to a maximum of 900 with a distribution of 180 students per year. This worked out at a total of 36 normal 'chalk and talk' classrooms with a number of informal 'classrooms' for special subjects. These rooms would be supported by full laboratory facilities, and craft and music rooms.

Moreover, a number of outdoor areas, such as the landscaped courtyards, can be used for teaching sessions. The location of a botanical garden in the vicinity should prove a further asset in the drive towards outdoor teaching sessions.

These requirements were eventually integrated into a configuration of three clusters over two floors. The presence of a large, centrally located reservoir on the site almost dictated the distribution of these forms as a 'ribbon'-like development along its perimeter. Another site constraint that influenced the final design in no small way was the main road running along the full length of the north side of the site.

This suggested retracting as far back into the available site as possible, while orienting the landscaped courtyards away from the main road.

In this plan the division between upper and lower forms is articulated by a circular library. This entity is intended to form the fulcrum of the proposed structure and is expected to operate on three interconnected levels, providing reading areas, lending areas and computer reference areas. The two extremities of the "strip" development are marked by two groups of laboratories for upper and lower forms respectively. The circulation space has been carefully studied as a visual experience combining short, straight stretches and articulation nodes, that may be used as exhibition space or informal gathering points.

These stretches alternate from single to double

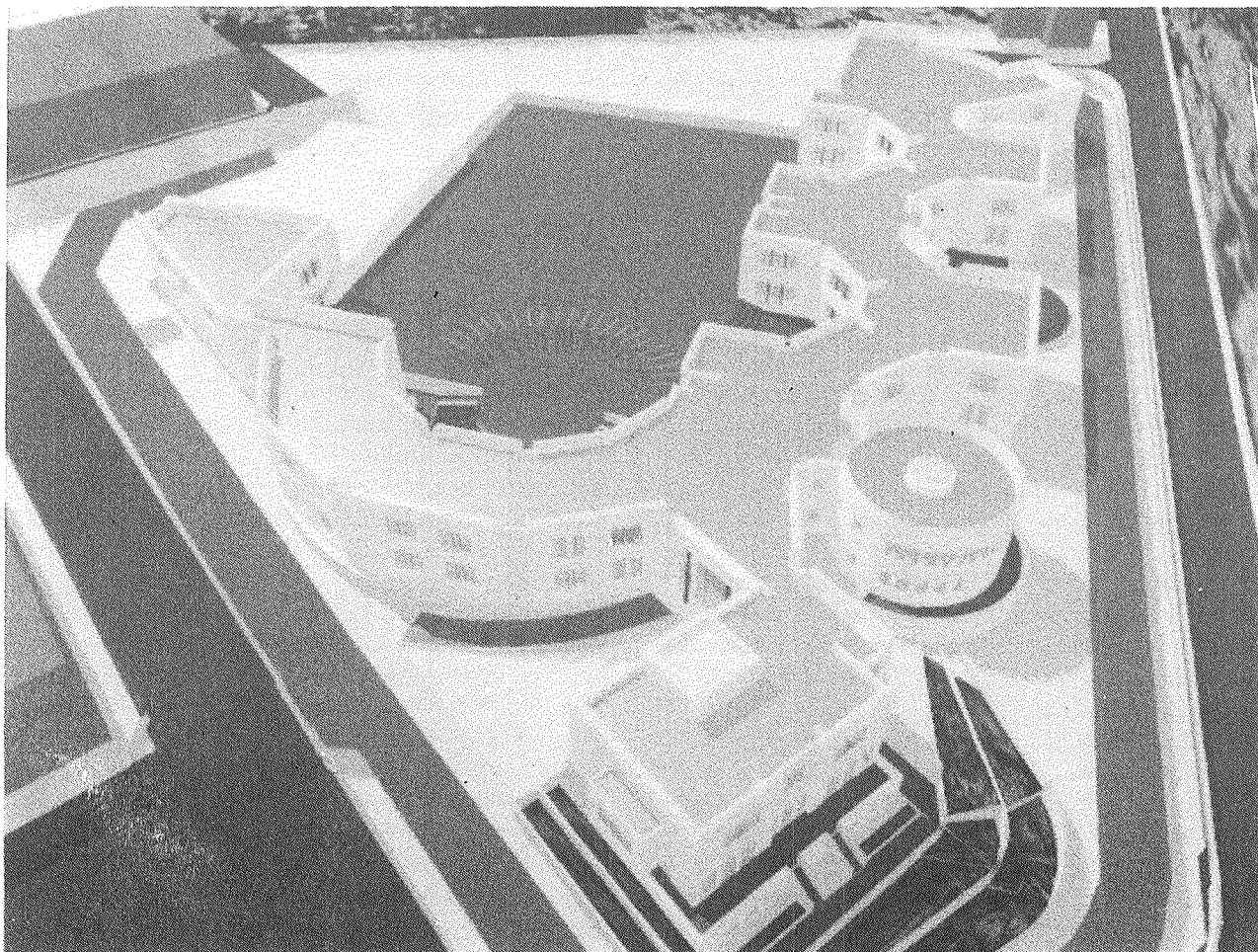
loaded bays as they follow the curved contours of the courtyard clusters. There is no ceremony attached to the entrance hall but merely the design of an ante before proceeding to the general circulation.

Recreation areas are designed as a series of small open spaces linked to a large central play area atop the reservoir. The gym which will form part of the sports complex is expected to be built to international standards.

School buildings are expensive propositions, even more so when the spaces created are used less

than half the time. To render the project more viable, a number of areas such as laboratories, libraries and the gymnasium have been designed to be accessed and operate independently from the school with the intention of allowing them to be shared by the community thereby extending their useful period beyond school hours.

Although reference to various standards has been made, it must be remembered that a school is not just an amalgam of concerns but depends on the gestation of spaces provided. The success of the design lies in the ability to interpret its various aspects creatively.



Notes on Contributions

Joseph Falzon teaches Building Technology in the Faculty of Architecture and Civil Engineering, University of Malta. He studied at the University of Malta and University College, University of London. His main areas of interest are the design of educational buildings and low-energy architecture. He is Deputy Chairman of the Planning Authority and Chairman of the Development Control Commission of the same Authority since 1992. Recently he has been appointed by the Ministry of Education and Human Resources to prepare design briefs for the rehabilitation of a number of existing schools and the construction of new schools.

Michael Falzon B.Arch., A. & C.E., MP. was born at Gzira on the 17th August, 1945. He studied at the Lyceum and the Malta University from where he graduated as an architect in 1969. For many years he was very active as a member of the Students' Representative Council, later becoming its President. After graduation, Mr Falzon started professional practice in the office of a private architect and then branched out on his own. In 1974 Mr Falzon was elected General Secretary of the Nationalist Party Youth Movement and a year later International Secretary of the same Movement. In May 1975 he was elected for the first time to the National Executive of the Nationalist Party and was later chosen to be Secretary of Information of the Party, responsible for relations between the Party and the media. In December 1975 he became the first editor of 'The Democrat', an English weekly newspaper. Mr Falzon contested the 1976 General Elections as a Nationalist candidate and was elected in a casual election in the tenth District. He was re-elected for the ninth district in the 1981 and 1987 elections and for the ninth and the eleventh districts in 1992. In 1976 - 1981 he was the opposition spokesman for information and broadcasting. In 1981 - 87 he was shadow Minister for Industry. Mr Falzon was appointed Minister for Development of Infrastructure in 1987 and Minister for the Environment in 1992. In March 1994 Mr Falzon was appointed Minister of Education and Human Resources.

Dr. Edwin Mintoff is a senior lecturer at the Faculty of Architecture and Civil Engineering at the University of Malta, and coordinator of the Urban Design Stream within the Department. Dr. Mintoff completed his Ph.D. studies at the Universities of Newcastle-upon-Tyne in 1986, becoming the first Maltese architect to have obtained a Doctorate degree in the field of urban design and architecture. His dissertation entitled "An Urban Renewal Study for the Historic City of Valletta" dealt with urban generation of local towns taking Valletta as a case-study. He is the author of an number of articles which have appeared in journals and presented papers at conferences both in Malta and abroad. He has acquired work experience in the U.K. and lectured at universities in Britain. In addition to his academic duties, Dr. Mintoff is involved in a number of projects particularly in his capacity as Town-planning advisor to several local councils.

Professor Sir Colin Stansfield Smith, CBE, MA, Dip Arch (Cantab), ARIBA studied Architecture at Cambridge University, and won the Edward S. Prior prize. Qualified with MA and Dip Arch in 1956 and gained full membership of the RIBA in 1960 whilst working for the School Division of the old London County Council. He then moved into private practice to the firm of Emberton Tardrew & Partners as a senior assistant, and then associate partner, becoming a full partner in 1965. He joined Cheshire County Council in 1971 as Deputy County Architect, and was appointed County Architect of Hampshire County Council in 1973. Since that time he has built up a very talented team. 60% of the work is educational, the remainder coming from the Police, Fire Brigade, Libraries, Museums, Recreation and Social Services. During his time as County Architect, his department has produced buildings of exceptional quality which have won many national awards, all having been published in the architectural press. He has served on several committees at the RIBA and from 1981-84 was a Vice President. He is visiting lecturer and has been external examiner at many universities throughout the country. He has been an assessor for a number of bodies, including the Civic

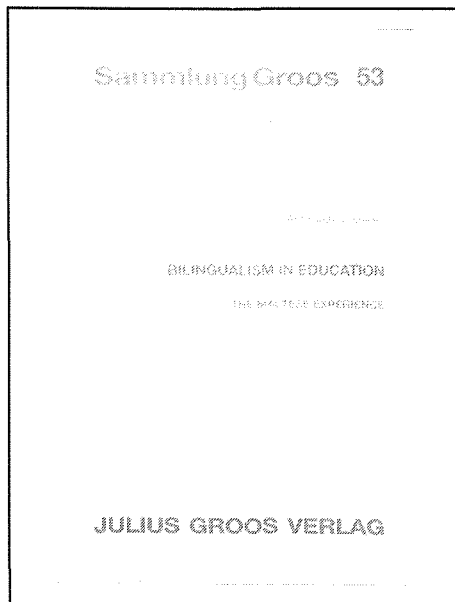
Trust, the National Portrait Gallery, the Compton Verney Opera Project, the Inland Revenue, the British Museum, and the Arts Council of Great Britain. He was awarded the CBE in 1988 and was the 1991 winner of the Royal Gold Medal for Architecture. In 1993 he was awarded a knighthood. He was appointed Professor of Architectural Design at the University of Portsmouth in April 1990 as a means of developing a closer relationship between the County Architect and his staff and the University; his main role being to provide leadership and a focus for design within the Portsmouth School of Architecture. From October 1992, he has undertaken a more full-time professional role at the University of Portsmouth, while continuing as consultant County Architect to head Hampshire's Architectural Design Unit. He is cricketer blue, and has played county cricket for Lancashire and represented Gentlemen-v-Players in 1957. His main recreational interest is painting.

Ronald G. Sultana is a senior lecturer in sociology of education in the Departments of foundations in Education and of Sociology at the University of Malta. He is the founder and co-ordinator of the University's *Comparative Education Programme*, and represents the Mediterranean region as a member

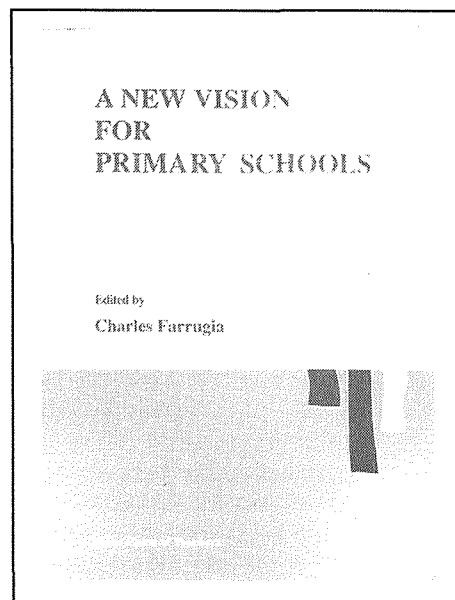
of the international board of editors of such journals *Qualitative Studies in Education*, *International Journal of Educational Development*, and *Teaching in Higher Education*. He is the author of over fifty scholarly articles published in Maltese and international books and journals and of a book entitled *Education and National Development* (1992). He has edited *Themes in Education: A Maltese Reader* (1991); *Parents and Teachers for a Better Education* (1994) and co-edited *Maltese Society: A Sociological Inquiry* (1994). He is currently directing the *Education in the Mediterranean Project*.

Conrad Thake is an architect in private practice and works on a part-time basis as an urban conservation planner with the Planning Authority. He graduated with a Bachelor's degree in Architecture & Civil Engineering, University of Malta (1988), a Master's degree in Urban & Regional Planning, University of Waterloo, Canada (1991) and is currently completing a Ph.D degree in Architecture History at the University of California, at Berkeley, U.S. His writing on architecture, architectural history and urban planning has been published in several international journals including *Spazio e Società*, *Demetra*, *Cities* and *The Journal for Traditional Dwellings and Settlements*.

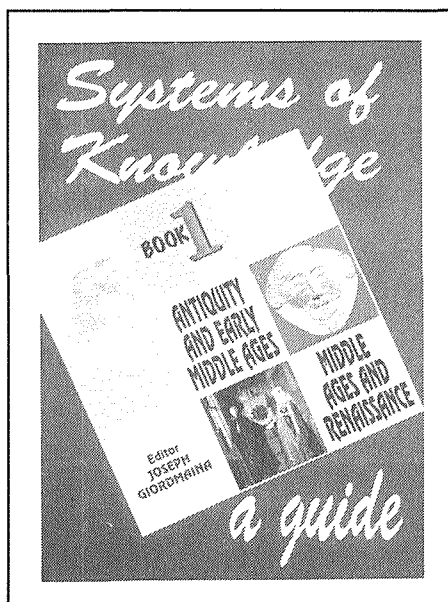
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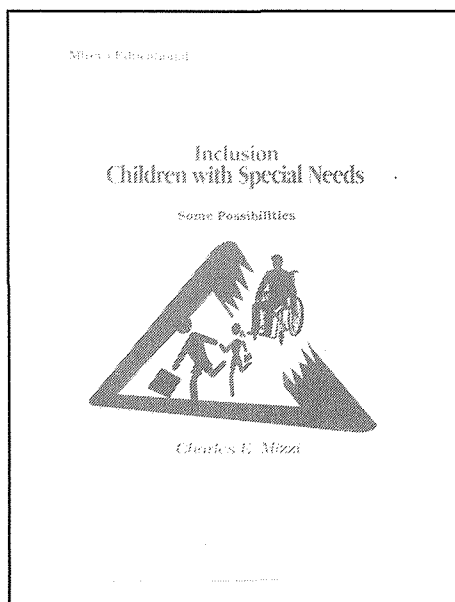
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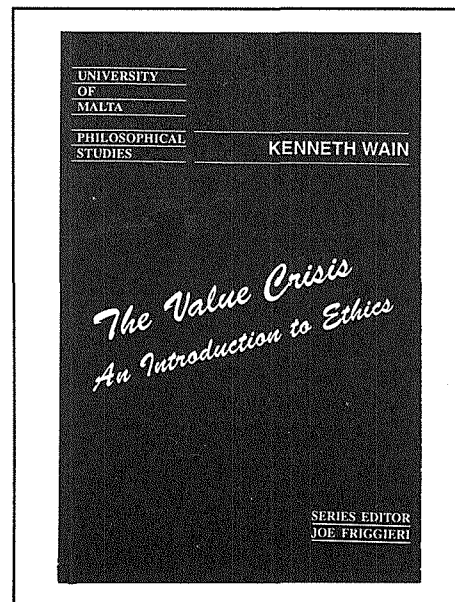
Charles Farrugia



Joseph Giordimania



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