



Designing schools for quality: An international, case study-based review



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ABSTRACT

Universal access to primary schools is a key millennium development goal, still proving difficult to deliver in low-income countries. Schools designed for the poorest remain inadequate for the numbers enrolled, and for the basic needs and functions of today's classrooms. The key issue is overcrowding; classrooms designed for forty regularly accommodate more than sixty due to the use of outdated international classroom design standards. These schools also have poor access to infrastructure; electricity, drinking water, sanitation, and ICT/library spaces. This paper highlights these issues and suggests strategies for improved school design through the evaluation the EdQual research project school case studies, the author was involved with, and also recent international examples. It is argued that schools designed considering these issues, can become 'hubs' for development; providing local assets that can be shared by their communities.

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1. Introduction

Historically, the physical presence of the schoolhouse has been the symbol of the success of grassroots delivery of national education policy worldwide. In this chapter it is argued that historic international school design planning standards and guidelines have remained overly influential in shaping school design in low-income countries today. The ability of contemporary school design to respond to wider functions of schools within the context of expanding feeding programmes, increasing availability of ICTs and changing community development needs is examined.

Drawing from literature and research carried out as part of the EdQual-funded standalone research project, "Designing Learning Hubs for Education", the potential for classroom design and school infrastructure to improve education quality and support community development is examined. International examples of good school design practice are considered, and a design infrastructure analysis of selected case study schools is undertaken. Future trends in classroom design in relation to student experience and community outreach are discussed. The chapter concludes with recommendations for school design guidelines to become more tailored to local pupil and community needs.

2. The historical dominance of international classroom design

In pre-1994 South Africa, school buildings were often the sites of conflict as their existence was perceived as being a direct link to nationalist "Bantu" education policy in place in segregated schools for black South Africans, from the 1960s up until the 1980s, Kallaway (2002). Internationally today schools, and particularly classroom buildings, retain their symbolic connection with top-level policy agendas as education ministries, international aid and finance organisations have supported the expansion of national school building programmes in order to meet the Millennium Development Goal of universal primary school access for all children, UN (2000); UNDP (2005).

For most low-income countries, school planning and design standards currently in use originate directly from the recommendations of planning reports from international bodies such as the United Nations Education, Science and Culture Organisation, UNESCO. Prior to 1996, UNESCO's school planning division, produced a number of influential building notes and reports that have formed the basis for international school design standards across low and middle income countries, including the following: Vickery (1966); Asian Regional Institute for School Building Research (1972); De Spiegleer and UNESCO (1985); Almeida (1988).

The School Building Research Institutes, whose architects produced these reports, had divisional headquarters in Bangkok, and Dakar. The research institutes focused on producing a number of these school design guides, which were adopted by National

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Governments and building consultants involved in the construction and expansion of schools from the mid-1960s to the early 1980s; for example De Spiegeleer (1986) in Bhutan, and UNESCO (1976) for Somalia.

These universal standards continue to provide generic design advice for schools globally. In middle-income countries, there is also a level of involvement from the national level. For example, in South Africa, school planning and design is guided by National School Building 'Norms and Standards', South African Government (2008), that were historically developed by researchers and departments such as the building division of the Council for Scientific and Industrial Research (CSIR), Calderwood and Van Straaten (1966). These guidelines are devolved to provincial level planning departments for use in school planning and construction projects. Such design guidelines however are unable to give location- or context-specific advice to educational planning officials, but instead offer standardised international space standards and generic planning layouts.

Effectively, the planning and design of most schools in low-income countries, involves limited design input or planning at local level. This situation is in direct contrast to other areas in which educational planning and delivery are being enhanced, such as the development of national school curricula, where local and national involvement in educational change and delivery are central to project success.

There are some distinctive features of the generic "UNESCO-standard" classroom. Classrooms sizes are generally between 35 m² and 40 m², the optimal space requirement for a maximum class of circa 35 students. Most are designed as individual rooms, with few having flexible back- or side-walls to allow for double-sized or semi-outdoor classroom areas respectively.

The classroom blocks tend to be low, single-storey structures, although there are variations to this in urban areas (Fig. 1). These classroom blocks are built as part of a series of three to four connected rooms, with an outdoor corridor to one side that runs the length of the classroom block. The corridor is where the doors are placed, for access to each classroom. Window openings are also

placed on the classroom walls facing the corridor and on the long walls on the opposite side of the classroom.

In rural areas windows are left as bare openings in classrooms, whilst in most schools windows are made of wooden shutters. Only in urban areas and schools for the more affluent, are glazed windows incorporated. Windows are placed that they are able to ensure that daylighting comes in at the correct desk level for older, middle to upper school children. However this is not ideal for younger pre-school children and those in early years of primary school, particularly when child-sized classroom furniture has been introduced (Fig. 2).

Most classroom walls are made from locally made cement blocks, and occasionally clay or mud brick. In rural and poorer neighbourhoods, school walls have no rendered or paint finish, whilst schools in higher income neighbourhoods have rendered and painted walls. Similarly basic flooring involving a finish of cement screed is typical in most rural schools, and in poor to middle income urban neighbourhoods. However in some medium-income countries, such as South Africa and Malaysia, schools might have PVC or linoleum floor finishes, and occasionally partial carpeting in pre- and early-primary classrooms (Fig. 3).

Classroom roofing and ceilings also show little variation. Most school classroom blocks in rural and low income urban areas have corrugated iron roofing sheets, often with no ceiling materials, making classrooms hot, due to direct heat radiation, and noise due to the poor acoustic qualities of the roofing sheets. In emerging countries and upper to middle class neighbourhoods, other roofing materials such as longspan aluminium and sometimes clay tiling are more likely to be used. Also these classrooms roofs will have ceilings, usually made of fibreboard material. Occasionally acoustic ceiling tiles, are used, which helps to improve classroom acoustics and deaden the sound effect of tropical rainfall.

In most schools sanitation facilities, for hygiene reasons, are usually built as a separate, standalone building, some distance from the classroom. In rural areas and poorer neighbourhood, WC's are dry pit latrine, usually of the ventilated improved pit (VIP)

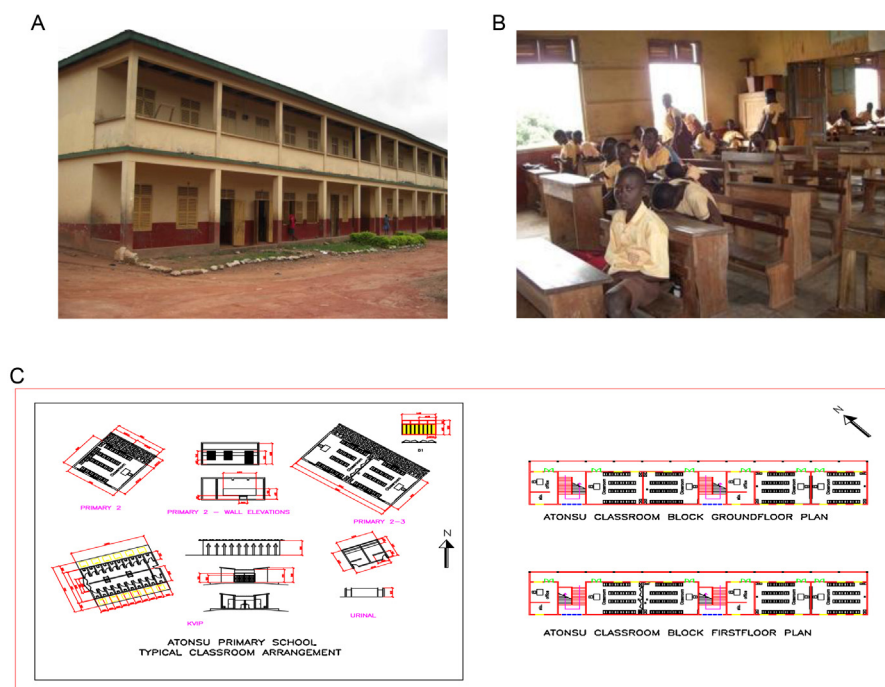


Fig. 1. A typical UNESCO-guidelines school classroom Atonsus Primary School, Ghana built. c1955/60. Author's photograph 2007.

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