The Building Schools for the Future (BSF) programme represents the biggest single UK government investment in school buildings for over 50 years. The programme has been established to ensure that pupils learn in 21st-century facilities. A key goal for BSF is to ensure that schools are designed or redesigned to allow for educational transformation. This represents a major challenge to those involved in the design of educational buildings. The paper explores understandings of design quality within the programme based on the analysis of 40 reports on design quality by government organisations and on 14 semi-structured interviews with experienced professionals that represent key actors in the provision of schools. It describes the means by which design quality becomes defined and given importance within the programme through official documents and by articulating the multiple understandings of design quality that stakeholders have in practice. The preliminary findings suggest that a well designed school building is important to educational transformation; and that judgements of the quality of its design need to be made in the context of this wider context.

KEYWORDS: design quality; schools; educational transformation; innovation

INTRODUCTION

Design quality is central to a number of recent debates about the built environment (Gann and Whyte 2003; Thomson et al. 2003; Keniger 2004; Macmillan 2004). A high quality built environment provides a goal for the construction industry. In the context of education there is at present a growing recognition that the public sector must be provided with environments that provide children with good places to learn. These should be designed to the highest quality and the government has given the issue considerable attention (HM Government 2006). However, for those responsible for the delivery of such buildings the question still remains, what does design quality actually mean.

The recent initiative, Building Schools for the Future (BSF) programme, represents the biggest single government investment in improving school buildings for over 50 years. The BSF programme – worth £2.2 billion in its first year (2005-6) – has been established to ensure that pupils learn in 21st-century facilities (The Education and Skills Committee 2007). The aim of the programme is to drive reform in the organisation of schooling, teaching and learning, and in the procurement of school buildings. This is to be achieved by rebuilding or refurbishing every secondary school in England in the next 10-15 years (DfES 2004). The design of 21st century school buildings in the BSF programme aims to account for current and future developments in education and technology as well as the local and global environment. Ultimately, the programme’s target is to achieve educational buildings that inspire new ways of learning and to provide ‘excellent’ facilities that benefit the whole community.
This initiative comes on the back of an increasingly widely held belief that older schools, as well as those more recently built or refurbished, are inadequate in their ability to cope with anticipated changes such as shifting pedagogy, curriculum and learning expectations (Audit Commission 2003). A key objective to the BSF programme has been the push to achieve ‘design quality’ in schools. Thus, the programme is a good context for studying the meaning of the term ‘design quality’ and the different ways in which this is being interpreted.

The paper explores understandings of the term ‘design quality’ in the educational context, in particular within the BSF programme. In the next section, the academic literatures and debates on design quality are considered. This is followed by the method section, where the data collection methods used in this research are described. The following section describes preliminary findings based on the analysis of reports and policy documents and 14 semi-structured interviews. The section illustrates some challenges associated with the understanding of the term design quality in the BSF context. Finally, the paper concludes that judgement of design needs to be contextualised and describes areas for future research.

LITERATURE ON DESIGN QUALITY

Over the past few decades, both academics and practitioners have devoted much effort to design quality research and there are a number of attempts to define the term ‘design quality’ in relation to the built environment (e.g. Macmillan 2004; Gann and Whyte 2003).

One dimension of research describes design quality as made up of, and divisible into, different aspects. This multifaceted nature of design has been recognised, at least, since late Antiquity, when Vitruvius (1999) described design as a tripartite division of firmitas, utilitas and venustas, terms translated by Wotton in 1624 as commodity, firmness and delight. Perhaps, one of the more clear applications of the tripartite concept is the conceptual framing of the Design Quality Indicators (DQIs), a tool developed to assess the design quality of a building. They are: function, build quality and impact (Gann et al. 2003). Function includes concepts such as the building use, access and space; build quality relates to the building performance and construction; and impact encompasses aspects of the building form and materials, internal and external environment and identity. This tripartite approach still seems appropriate to break down the design quality concept within the BSF context (CABE 2005).

Another dimension argues that design quality consists of both objective and subjective components. While the objective components, are easily quantifiable, and therefore assessed, other components result in ‘intangible assets’ depending in part on the subjective views, experiences and preferences of the people asked (Cooper et al. 2003; Gann and Whyte 2003). It is easy to calculate and minimise physical heat loss from a building, but the target of minimising a loss of potential learning through good design is considerably more intangible. Different schools, children, cultures and context at different times will create a variety of conditions for potential learning. Therefore, intangible assets within the built environment are viewed as benefits to clients and other stakeholders that are very difficult to quantify (Abdul-Samad and Macmillan 2004). Though it is difficult to achieve explicit links, studies have produced some evidence linking the physical school environment with teaching and learning (Price WaterhouseCooper 2003; Higgins et al. 2005). Within the school environment, elements of intangible benefits associated with well-designed built environment include effective delivery of learning outcomes, improved educational attainment and calm schooling environment.
These very different views of design have an impact on formal descriptions of design quality in programmes such as BSF and on informal discourses of the participants of such programmes.

**METHOD**

The research reported here is based on the context analysis of published reports and of exploratory semi-structured interviews with experienced professionals representing key actors in the provision of schools.

The secondary data included 40 government and non-government policy reports on design quality, including studies on design quality in buildings; design quality in schools; and, a small sample of international reports. For each report key definitions and perspectives on design were identified. Particular focus was given to the actions suggested to be taken in the BSF programme to facilitate the achievement of design quality in educational facilities in the context of wider approaches.

The interviews included 14 key stakeholders to the BSF process. Each interview was semi-structured lasting one to two and a half hours. The interviewees belonged to the following organisations: Partnership for Schools (PfS), the government agency charged with the delivery of BSF programme; 4ps, the local government's project delivery specialist; Department for Children, Schools and Families (DCSF); Construction Industry Council (CIC) involved in the development of the DQIs; Commission for Architecture and the Built Environment (CABE); Building Research Establishment (BRE); architects and; a contractor involved in the BSF process; and, an architect not involved in the BSF process. The interviewees were asked about organisation career histories, their experiences in schools design and perception of the BSF programme regarding the handling of design quality. The specific purpose of the interview was to learn as much as possible about the concerns, perceptions, reactions, observations and thoughts in connections with the BSF programme. All interviews were tape-recorded and transcribed *in verbatim* so that the raw data could be systematically analysed.

The findings presented in this paper are from a preliminary analysis of this data-set as part of an ongoing qualitative research project. At present a number of open codes and a relatively descriptive analysis of the case have been developed. This is presented below.

**SETTING: BSF PROGRAMME**

In 2003/2004 the Building Schools for the Future (BSF) programme was launched as a coordinated national strategy driven by the, then, Department of Education and Skills (DfES). In 2005/06 the government’s investment in school buildings reached £5.5 billion. This included £2.1 billion for the Building Schools for the Future programme which become a key part of the current strategic and targeted capital programme (The Education and Skills Committee 2007).

The BSF target is to rebuild or refurbish every secondary school in England by 2020 with an extended government capital investment of £45 billion. The aim is to provide schools that: include a diverse curriculum for students aged 14 to 19; acknowledge new ways of teaching
and learning taking into consideration the impact of ICT; are open to the community; include students with special educational needs into mainstream schools; use the building as a tool for teaching and learning (e.g. sustainability), and; accomplish the pertinent ventilation requirements. Furthermore, the design of new school buildings within the BSF programme aims to account for current and future developments in education and technology as well as the local and global environment. The programme’s target is to achieve educational buildings that inspire new ways of learning and to provide ‘excellent’ facilities that benefit the whole community. Ultimately, all these various changes will have an impact on the form of the building.

Despite its size the BSF programme comes on the back of significant investment in schools. Indeed, the last decade has already seen one of the largest school building programmes in UK history mainly through the Private Finance Initiative (PFI) procurement route. Between 2000 and 2005 PFI has been the main source of funding from the Department for Education and Skills (DfES) for new or replacement schools. The introduction of PFI projects into schools in the UK generated a great deal of debate and received mixed responses. The Audit Commission report ‘PFI in schools’ (2003) which assessed quality and cost in early PFI projects (up to 2002) showed that PFI schemes did not deliver high quality buildings. The study not only found that few schools came out well in terms of the buildings cost of ownership but that the PFI sample scored, statically speaking, significantly worse than the traditionally funded sample. The BSF attempts to respond to that criticism, with a programme of improvements. The main difference between the PFI initiative for schools and the BSF is that the latter is not merely a building or procurement programme. However, a recent study carried out by CABE (2006) shows that, though still in the early stages, many of the BSF schools on the drawing board are facing the same problems as previous programmes.

EMERGING FINDINGS

A key goal for the BSF programme is to ensure that schools are designed or redesigned to allow for educational transformation. Design quality is presented as very important to the achievement of good schools. This section describes preliminary findings based on the analysis of reports and policy documents and semi-structured interviews. It also illustrates some challenges associated with the understanding of the term design quality in the BSF context. As the work is still in process, it will not be possible to provide with strong evidence on the outcomes. However, several preliminary findings emerge.

Description of design quality in reports

The last decade has seen the publication of a host of reports addressing the need for good design in buildings, (RIBA 2001; CABE 2002; CABE 2004). The Government has highlighted the importance for good design in buildings through different initiatives and reports such as ‘Better Public Buildings Initiative’ (Department for Culture 2000). This report highlights that good design provides a host of benefits. Within the school context, the ones that have been best designed encourage children to learn. A number of government organisations, such as the Office for Government Commerce; the Commission for Architecture and the Built Environment (CABE); and the Department for Children, Schools and Families (DCSF), have increased their attention to the achievement of design quality in educational buildings. The findings and recommendations from some of the key reports from these 3 organisations are highlighted and discussed in this section.
Office of Government Commerce (OGC)

The OGC is an office of HM Treasury, responsible for improving ‘value for money’ by driving up standards and capability in procurement. In 2007, the OGC published ‘Achieving Excellence 9’ as part of a series of eleven guides providing guidelines on how to achieve excellence in construction. This specific guide deals with the achievement of good design. It explains the characteristics of a well designed building and indicates how design quality can be raised through the procurement process. It also specifies the importance of a design champion if design quality is to be achieved. Furthermore, the importance of having an integrated project team is highlighted.

Commission for Architecture and the Built Environment (CABE)

CABE is the government’s advisor on architecture, urban design and public space. It is one of the most dedicated organisations in the provision of advice to stakeholders in an attempt to ensure the achievement of high quality design in educational buildings. Amongst the many reports published by CABE the most relevant to defining design quality are:

• ‘Being involved in school design: a guide for school communities, local authorities, funders and construction teams’ (CABE, 2004): probably one of the most comprehensive reports regarding the provision of guidelines for stakeholders involved in the design of a school. The aim of this guide is to demonstrate the importance of carefully planned collaboration between funders, local authorities, school communities and design teams in order to achieve the best facility possible. In particular, the guide aims to be relevant to the Building Schools for the Future (BSF) programme. It includes ten case studies of schools across England that provides examples of effective involvement across a range of procurement routes. The report highlights the importance of clarity in the process of briefing and design development.

• ‘Assessing Secondary School Design Quality’ (CABE, 2006): a guide for school communities, local authorities and design and construction teams to enable good design in schools. The report assesses the design of a representative sample of 52 secondary schools completed between 2000 and 2005 using a variation on the design quality indicator (DQI) for schools. A key finding is that users argued that a good school is one that has a ‘sense of place’; a building that is inspiring and welcoming but that at the same time has to be functional in a way that encourages good behaviour and is easily managed. Flexibility was highlighted as another important aspect of the building. In particular, the ability to use different spaces for different purposes. Finally, it was found that the school should be ‘green’ and ‘sustainable’, taking into consideration alternative forms of energy and should be built using robust materials from sustainable resources.

• ‘Creating Excellent Secondary Schools. A Guide for Clients’ (CABE, 2007): presents 10 points that need to be achieved for a well-designed school. They can be grouped into the three categories: its functionality, the way the building is designed to be useful as a school; its built quality; its impact, on the users, the local community and the environment. The report states that a successful synthesis of these key points can lead to the achievement of good design. The case studies in the report address each of the main issues referred to above.
Department for Education and Skills (DfES - now DCSF)

DfES has shown a growing interest in the achievement of good design of school buildings through the publication of ‘Building Bulletins’ that provide guidance to designers planning building projects. Some of these bulletins have specifically targeted the BSF programme - cf. ‘Building Bulletin 98’ (DfES, 2004b). This bulletin provides a briefing framework for secondary school projects through the BSF programme. The latest report published by DfES, the ‘Better Buildings, Better Design, Better Education’ (DfES, 2007) shows the capital investment in education in the last ten years based on a survey of all the local authorities in England. The foreword of this report states that the investment in school buildings is an once-in-a-lifetime chance to create buildings that inspire learning and are a source of pride for local communities. Several case studies of good design in schools are included indicating the way in which the schools were designed to support new broader approaches to teaching and learning; such as school sport and healthy eating, personalised learning and provision for pupils with special needs.

Understandings of design quality

A number of stakeholders involved in the BSF programme, such as for example contractors, designers, policy makers and consultants have had a significant impact on the parameters for and appraisal of design quality. These stakeholders’ perceptions of what important attributes of good design are differ. Some of these attributes are quite subjective and are subject to the perception of the person being interviewed. Reaching a common definition of what design quality actually means to the different people has proven itself to be a challenge.

What follows is a presentation of the views of a cross section of stakeholders from the interview sample that concern the understanding of the term ‘design quality.’ This helps to illustrate the difficulties and challenges people phase during the daily process of designing a school. From the analysis of the interviews 3 different aspects of design quality are highlighted. Firstly, the role the school building has to play on the educational transformation. Secondly, the importance of a school building that has something unique about it, a ‘sense of place’. Thirdly, the acceptance that the design of a school building has a complex nature.

Role of the building on educational transformation

The role that the school building has to play in educational transformation is one of the main concerns amongst the interviewees. In particular, how to achieve a design of the educational facility that it is fit for purpose. However, the opinions of what exactly fitness for purpose is varied across the group. For example, the consultant engineer for the programme explains that design quality is about “making sure [that the school building] fulfils its function which is the learning aspect”. For him a school building that is fit for purpose is pivotal to the achievement of a good school. He also highlights that clients have shown concerns about spending the allocated money merely on a ‘landmark’ building they would rather spend it on good educational facilities. The concept of fitness for purpose was also prevalent amongst the architects. Yet, they portrayed the building as one component of the school environment. A senior architect argued that the school buildings have a limited role to play in whether or not a school achieves educational attainment. Whilst designers are continuously asked to deliver transformation within the BSF programme, he was of the opinion that he and his peers in their roles of professional designers are limited in the level of transformation they can
provide. The perception the users have of their new school building will also have an impact on their ability to learn.

The architects and the contractor highlighted their concerns about how the school would benefit from the design of ‘fancy’ buildings. Again, the idea that the architectural design of a building is only one aspect of the school was highlighted. A senior architect argued that many designers produce superficially attractive and glitzy buildings, lacking in the ability to relate the physical spaces needed to deliver the educational transformation required.

What is clear from the analysis is it that the building has a role to play in the route to achieving educational attainment. However, what is not clear is the individual responsibilities the different participants have in this journey.

Building a ‘sense of place’

The achievement of a ‘sense of place’ within the school environment is acknowledged as an important aspect of design quality. This is linked with the views of Markus (1993) where he describes buildings as ‘social objects’, there buildings cannot be seen as a separate entity, they are to be considered within the wider context. Different schools, children, cultures and context at different times will create a variety of conditions for potential learning. The creation of the ‘sense of place’ within the school is, therefore, not only a building matter; though designers have the potential to create spaces that can aspire to become special ones. One architect argued that design quality is about creating special spaces within the school building. In her view the most important aspect of designing a school building ‘… is about creating the heart of the school, which is the social aspect which is never written into the brief’. Another designer further indicated that one important feature of a good school ‘is the architectural space, particularly communal spaces’.

The designers in the interview sample highlighted flexibility in the school building as an important feature. The design of school buildings spaces that are flexible enough to accommodate all the changes, including the changes in users and in curriculum was portrayed as a key challenge. Understanding the ongoing changes and the uncertainties in the educational sector and addressing this from the outset in designing the building is by no means a trivial task. Nonetheless, if flexibility is achieved it enables the introduction of a variety of spaces into the school design ‘to respond to the fact that schools are no longer just classrooms and corridors’. This matter was seen as very important to the achievement of design quality.

Complex nature of the school building

The views amongst the interviewees indicate the acceptance of the complex nature of designing a school building. Therefore, the views on what a good school should look like vary. As an example, a senior architect stated that a good school is:

‘One where the design of the building supports the learning and integrates the ICT technologies, it is healthy, naturally ventilated, well lighted, acoustically responsive and accessible’.

One of the developers of the Design Quality Indicators, a tool created to assess the design quality of a building, addressed the complexity involved in the design of schools when the future teaching and learning processes have to be acknowledged. He argued that:
‘One of the big challenges is that there has been a fairly determined pedagogy in school design for the last 20 to 30 years. What seems to be happening now is that because the pedagogy is breaking down, becoming more fluid, it is very difficult to visualise what that form might look like.’

From the point of view of the contractor there is a balance that needs to be achieved in order to have a good school. He argues that the school is a complex system that needs to address the importance of the teacher. Within the BSF programme, he thinks, the money allocated to each school is being spent in the building and the ICT. There is no money allocated to train the teachers. He argues that ‘the teacher makes the difference, and I think this is really lost in the BSF’.

Summary

It is clear that the academic literatures and debates on design quality are reflected in the formal descriptions of design quality found in the reports analysed. Interestingly these organisations have extended Vitruvius’ tripartite concept to build a criteria for well-designed buildings (cf. CABE 2003, 2006; OGC, 2007). In general terms these reports describe design quality as a combination of: excellence, value, meeting clients’ needs and meeting design requirements. Such ideas also resonate with the views of those involved in the actual realisation of the BSF projects. There seems to be an agreement on that ‘school’ buildings need to have quality in their design and therefore should not only be cost driven. Though, some of the attributes of design quality are quite subjective and different aspects of the quality are important to different users.

CONCLUSION

This paper explores the understandings of the term ‘design quality’ in the educational context, in particular within the BSF programme. From the analysis of the reports and the interviews conducted this preliminary work shows that design quality is very important to the people involved in the BSF process. However, from the many reports analysed it is not clear how to address the transformational education encouraged by the BSF. Several reports have prescribed the attributes that a building should demonstrate to be a well designed school. The tripartite approach to design has been seen as architecturally valid to assess the ‘building’ quality. This view is counteracted by the concern of stakeholders’ involved in the process. They face significant difficulties and challenges when designing schools and the understanding of the term ‘design quality’ in the BSF context. In general, they view design quality of a ‘school’ as more than just a building. It is experienced as intimately related to modes of learning. The BSF programme is about educational transformation. Buildings have a pivotal role to play in this journey. Therefore, judgements of the quality of its design need to be made in this wider context.

The research presented here forms a basis for continuing research in design quality in schools that draws on the rich case provided by the Building Schools for the Future programme. The following are suggested areas for future research. One direction for research involves more detailed empirical research on the design practices and processes that are involved in attempts to achieve design quality in the BSF programme. Another direction for future research includes the comparison of this process with past examples within the same sector and across other sectors nationally and internationally. Finally, an important area for further study is the inputs of various stakeholders in the supply-chain to the design quality of the school.
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