

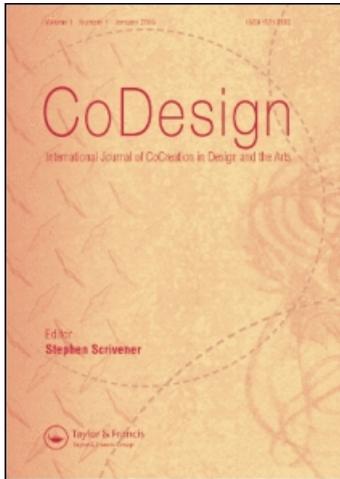
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Interconnecting: museum visiting and exhibition design

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This article seeks to provide a review of research on museum visiting which has particular relevance for exhibition design. It focuses on empirical studies carried out in a range of social and cultural disciplines. The article begins with an overview of some of the main directions that have been reported in museum visitor study, in particular a shift towards considering visitors as ‘active’ and to looking at affective and embodied dimensions of the visitor experience as well as at the cognitive and ideational. It then looks in more detail at findings and attempts to build a conceptual vocabulary in three related areas of museum visitor research: media, sociality and space. In addition to assessing the state-of-play so far, the article seeks to outline areas for future research.

Keywords: Exhibition design; Visitor studies; Museum; Media; Sociality; Space

1. Introduction

The aim of this article is to provide a selective review of some of the concepts and approaches that have been employed in, and findings from, social and cultural research on museum visiting that might be of use in exhibition design. The field of museum visitor research is not well coordinated, largely because it spans so many disciplines. In terms of empirical research, the main disciplines that have made a contribution are social psychology, sociology, architectural studies and anthropology. A number of other fields also have much to contribute in terms of concepts and analytical approaches, especially art history, cultural, media and literary studies, linguistics and STS (Science and Technology Studies). To review all of these areas is well beyond the scope of this article. Instead, I select a number of themes that much theoretical and empirical research has highlighted as being of particular importance to understanding museum reception. Within each of these I present some of the research findings, analytical and conceptual tools that seem to me to be particularly interesting or worth investigating in future

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research. Rather than addressing methodologies separately or at length, I briefly outline them alongside explaining particular research findings or concepts.

In selecting themes around which to structure this review, I have also been mindful of themes that might be of particular relevance to the research project *My exhibition: designing for affective communication, personalization and social experience* funded under the AHRC's Design for the 21st Century research programme. Directed by Chris Rust at Sheffield Hallam University, this is a multidisciplinary project linked to an exhibition of mediaeval manuscripts about the Hundred Years' War at the Royal Armouries Museum, Leeds. The project involves designing personalised, interactive electronic exhibition guides and modes of visitor information retrieval, as well as study of visitors to the exhibition. As the visitor experience will involve exposure to a range of media, including electronic representations and original manuscripts, questions of how visitors relate to different media, such as the connotations and 'affordances' of particular genres, and perceptions of authenticity and authority, are likely to arise. As exhibitions are social events—other people are usually present even if they are not part of the same visitor group—there are important questions about how this relates to the personalised technologies that this research will trial. For this reason, I look also at some of the existing research on the social dimensions of museum visiting. The third area that I consider is that of space. Museum exhibitions are three-dimensional and visitors physically move through them. How this relates to the use of an interactive guide and its representations is, therefore, another interesting area for investigation raised by *My exhibition*.

Before turning to each of these three broad interconnecting areas—media, sociality and space—I provide a brief introductory background to some of the directions in museum visitor research that have been reported.

2. Directions in museum visitor research

In a recent discussion of the development of museum visitor studies, Eilean Hooper-Greenhill notes that there has been a broad shift from 'thinking about visitors as an undifferentiated mass public to beginning to accept visitors as active interpreters and performers of meaning-making practices within complex cultural sites' (2006, p. 362). She also notes that there have been shifts away from models based in behaviourist psychology and 'expert-to-novice... communication' (ibid.) and, especially over the last ten years, towards what she calls an 'interpretative paradigm' (ibid.). Thus, she reports, many of the earlier studies were oriented to questions of whether the public had managed to grasp the expert information provided to them in the exhibition or not. The visitor was conceptualised as a more or less absorbent sponge encountering the expert knowledge provided by the museum; and in museums of science and natural history in particular, exhibitions were often evaluated on the basis of how effective they were in transmitting factual knowledge to those who visited (see Lawrence 1991 for a robust critique). Within such a model, design was seen as important for 'packaging messages' and so helping to 'get them across' the expert–visitor divide. Within a more 'interpretative paradigm', however, design is recognised more fully as an integral part of the visitor experience, with potentially more far-reaching implications for structuring the very nature of that experience rather than simply providing a more or less attractive medium for presenting content.

Even within educationally focused studies, a similar change of direction has been reported (Hein 2006). This is usually discussed in terms of a shift from 'behaviourist'

approaches (in which the visitor responds, more or less well, to the museum's stimulus) to 'constructivist', 'which emphasize the input of the learner in the meaning-making process' (Macdonald 2006, p. 321; Hein 2006). John Falk *et al.*, from the Institute for Learning Innovation, discuss the implications of this recognition for the kinds of learning that the museum tries to promote, emphasising what they call 'free-choice learning' (2006). To investigate such learning, they argue, requires different approaches from those devised on the basis of a transmission model, in order to capture the more situated, contextualised and diffuse forms of learning that may be involved. For this reason, they have devised an approach that they call 'personal meaning mapping', which attempts to evaluate the breadth and depth of visitors' learning rather than just its quantity (see Falk *et al.* 2006).

Alongside this broadly education research, there have also been two other predominant strands of visitor research. One, the most common form of museum visitor research, is survey work, usually carried out by museums themselves, possibly also using market research companies. Hooper-Greenhill calls this 'counting and mapping' (2006, p. 368). It typically provides basic socio-demographic data on visiting, usually also coupled with information about which particular exhibitions or galleries are visited, repeat visits and sometimes also other leisure activities; and sometimes 'satisfaction ratings', usually based on simple questions of what was liked, perhaps employing preference scores (e.g. Likert scales). Only rarely is this used in an analytical way to try to probe more deeply into questions of differences between audience segments in their responses to exhibitions, or to explore what might be entailed in the expression of a particular preference. The most famous such study, as Hooper-Greenhill notes, is that of the sociologist Pierre Bourdieu whose comparative findings across four European countries suggest important differences of 'taste' in art (and by association in different museological approaches) held by different class fractions (Bourdieu and Darbel 1991; and see also Bourdieu's larger work on class and taste, *Distinction* 1984). In this research we see how expressed preferences are both located within a broader social context and, as theorised through Bourdieu's notions of 'cultural' and other forms of 'capital', help to reproduce social differentiations. Although carried out in the 1960s, these studies remain among very few that have addressed questions of social class and exhibition reception (see Fyfe 2006 for an overview), although some studies have, for example, correlated educational levels with content-related findings. Likewise, other social differentiations such as gender, age and ethnicity have received some, though still fairly limited, attention in individual studies (Fyfe 2006).

It might be noted, however, that sociological arguments about individualisation (e.g. Beck and Beck-Gernsheim 2001) suggest that socio-economic patterns of the sort that are discussed in Bourdieu's research are likely to be increasingly difficult to identify. This is recognised in the way in which advertising and market research attempt to find ever finer categories into which to classify population segments (and see Addis and Holbrook 2001). What is interesting here too is that rather than beginning with social classifications and then seeing how they are reflected in consumption patterns (e.g. modes of museum visiting), the consumption patterns typically provide the starting point from which social types—or perhaps, more loosely, cultural formations—are identified. Examples of museum visitor studies that work in this way include Veron and Lévassieur (1983) and Macdonald (1992, 2002), both discussed below; though neither links them to wider socio-demographic characteristics.

The other strand of museum visitor research might be called directed behavioural studies. These investigate specific aspects of visitor behaviour in exhibitions, often, although not always, from a social psychological perspective. Examples of such studies have included looking at the length of time spent reading labels, time spent before

'visitor fatigue' sets in, spatial movements—such as the tendency to turn right upon entering an exhibition, and social interaction such as amounts of time spent talking with other visitors (see Dean 1994 and Falk and Dierking 2000 for coverage of the various relevant studies) or more comprehensive analyses of action and talk (see section 3 below). Although usually based on specific exhibitions and fairly small studies, much of this kind of research has sought generalisable findings, although there is also evidence in the more recent work in particular of an increasing tendency to try to differentiate between different types of exhibitions and, or populations. Research on particular museum technologies—for example, labels or hand-sets—is a significant, and growing, dimension of this kind of research (see section 2 and *passim* below). Like other visitor research, it varies in its sensitivity to wider dimensions of context and social relations, and in the extent that it manages to suggest features and patterns that might be of relevance to other contexts. Although this research typically focuses on what people do in exhibitions to a greater extent than what they say about it, it is not necessarily undertaken from a behaviourist standpoint. Rather, in line with the shift outlined, its emphasis may be, and increasingly is, on the variable ways in which exhibitions are approached by visitors and, how, for example, certain technologies are 'integrated into existing practices' (Grinter *et al.* 2002) or, as anthropologists often express it, how technologies or exhibition content are 'appropriated' by visitors (e.g. Miller and Slater 2000).

The main direction in visitor research, then, is towards approaching visiting as a situated, differentiated and relatively complex process. This does not mean that exhibition content and design become irrelevant: on the contrary, the challenge is to try to understand how particular exhibition forms or 'prompts' are, usually variously, taken up or appropriated, and perhaps to try to locate this in other aspects of visitors' practices or lifestyles. Although Hooper-Greenhill characterises the shift as one towards considering visitors as 'active meaning-makers' (2006), it is important to note that what is envisaged as involved here is not necessarily conscious or self-reported, or 'private ideational' (Stevens and Toro-Martell n.d., p. 5). The studies that she singles out as indicative of the newer direction (Katriel 1997, Macdonald 2002) employ mixed methodologies including a fairly substantial ethnographic contribution, including both direct observation and semi-structured open-ended interviews (usually with visitors in the groups in which they visited). They also undertake interpretive analysis of visitor accounts, for example, paying attention to narrative structure or the employment of particular kinds of vocabulary. It should also be noted here that both of these studies are concerned to try to identify patterns in ways in which visitors relate to the exhibits; and my own work contains critique of the tendency to celebrate individual variety in cultural studies analyses rather than to contextualise and analyse this (Macdonald 2002). In a study of visitors to heritage sites, Gaynor Bagnall (2003) likewise shows that while there is variety among visitors, their responses are nevertheless 'structured' and in ways that relate to the particular heritage representation. Bagnall's work also indicates another significant and as yet relatively underdeveloped direction of visitor research, namely attention to visitors' emotional response that goes beyond statements of preference. She highlights, for example, differences among visitors in the extent to which they want to keep an emotional distance from the topic displayed or to affectively engage and 'experience' it. As she recognises, and discusses also with reference to an exhibition in Germany about the immediate post-war period (Riegel 1996), this is something that is likely to vary depending upon the particular topic and visitors' relationships to it, though particular visitors may have relatively stable dispositions in the degree of emotional engagement that they seek or desire.

Many aspects of the shifts in museum visitor research noted above can also be seen in changes in museums' own rhetoric and practice. They are evident in changes in modes of display, such as attempts to move away from relatively didactic presentation and towards more interactive ones. The trend towards trying to recognise differentiation among visitors in research has its counterpart in museums' own considerations of personalisation in exhibitions—although as yet this is relatively underdeveloped. And explicit attempts to create visitor 'experiences' have been underway for some time (Dicks 2004).

These directions in museum visiting research and exhibition design can also be seen in many other areas, including design research and media research; as well as the growth of research on consumption which spans a wide range of disciplines. The shift from 'effects' to 'affect' is another way of characterising the shift; although, as with the possible misconception involved in referring to 'meaning-making' noted above, there is a risk that 'affect' is understood too narrowly to refer to an unconscious stimulus-response that is unmediated by social and cultural differentiation. Rather than separating out 'affective communication', then, this might—and perhaps should—be seen as an integral and unavoidable aspect of communication tout court; a position that is suggested by Ruth Finnegan's arguments for a broad approach to communication that is not restricted to the cognitive or linguistic but also includes the embodied and emotional (Finnegan 2002). Communication, however, entails the *transmission* of some kind of meaning between different parties, and therefore perhaps does not fully capture study of the structure of visitor knowledge and experience, although Finnegan's notion of 'interconnecting' seems to allow this too. In other words, it seems to capture something of the notion of 'ways of knowing' that has been used in anthropology and the history of science and medicine (e.g. Pickstone 2000), although without over-emphasising the cognitive. Interconnecting is concerned more broadly with 'ways of relating', which nicely incorporates attention to ways in which visitors 'assemble' impressions and ideas, and considering how these interconnect with the exhibition design and other aspects of their lives. This characterisation also has potential to recognise that the experience of an exhibition is not necessarily temporally confined to the time that a visitor is actually in an exhibition but extends beyond this, especially into its relating afterwards (Falk *et al.* 2006).

Below, in relation to the areas suggested above—media, sociality and space—I present some of the findings, ideas and questions outlined in existing research. These come from quite a wide range of disciplines and of methodological approaches, although with more from the areas in which I work myself, namely qualitative social and cultural studies.

3. Media

By exhibition media I mean any of the display forms used in an exhibition. These may include, for example, cased objects, dioramas, display panels, television screens, interactive computer devices and so forth. As media research has increasingly come to argue, different media 'afford' different kinds of audience relations and may also carry particular connotations (see, for example, Silverstone 1994a). Some questions about exhibition media relate to sociality—for example, whether they can be used in cooperation with others or not. And some raise questions of space—for example, whether they remain static and have to be moved around or not. These I leave to the sections below. Here, I address the linked matters of properties of media such as genre, authority, attention-getting and authenticity.

The use of certain media may prompt ideas or assumptions in visitors about the kind—of genre—of exhibition that they are encountering. On the whole, questions of genre in

museums are not well understood and are much less developed than, for example, in relation to literature or film. This does not mean, however, that visitors do not make 'genre assumptions' or 'genre evaluations', although more research is needed to understand what these may be and how they operate. There is, however, some research that suggests that the media employed may act as a significant prompt. Of course, they do not do so alone but in conjunction with other matters such as the kind of museum that is being visited and other design features such as, say, colour or spatial layout. The following, however, are some examples of the relationship between media and genre that arose in visitor research in the Science Museum, London, which I carried out with others (see especially Macdonald 1992, Macdonald 2002, chapter 8).

One finding of the research was that the presence of interactive 'hands-on' exhibits was a main prompt to an exhibition being defined as 'for children' by respondents (adult and child). Perhaps more interesting and unexpected, however, was a finding that visitors tended to conceptually link exhibits of similar media in their accounts of what they believed the exhibition's narratives to be. Thus, in relation to an exhibition about food, many visitors said that it was about changes over time, and in doing so they talked about the various 'sets' or 'reconstructions' (e.g. of a shop or a kitchen) in the exhibition. Other visitors, however, told a story of the exhibition as being about 'good foods and bad foods', referring to the various hands-on exhibits (e.g. exercise bikes or exhibits about how additives—such as emulsifiers—work) to illustrate this. What was fascinating was that these exhibits had not been linked together by the curators or designers, and they were not linked in the exhibition space. Moreover, by linking them, visitors created accounts that were not always those that had been intended by the curators. For example, the section of the exhibition about food additives had been intended as a neutral 'scientific' explanation of how these work rather than about them being 'bad', but once conceptually associated with exhibits such as exercise bikes they became conceived as part of a 'health education' narrative, itself intertextually shaped by the genre of health education exhibits. The 'changes over time' narrative likewise was surely prompted in part by the existence of a familiar genre of historical exhibitions that predominantly use reconstructed sets.

These findings also had some interesting implications for questions of media and 'authority'—that is, the extent to which audiences perceive what they are being told as 'true' or 'trustworthy', and to the linked matters of which media seem to command most attention or be imbued with greatest 'authenticity'. As various research has shown, museums in general are generally and widely perceived as authoritative institutions or media genres (e.g. Usherwood *et al.* 2004). In the Science Museum research, visitors tended to regard the Museum as presenting them with neutral, value-free facts, even when they were critical of what they called the 'bias' in other media.

The particular media of an exhibition may play into, or be employed to try to work against, visitors' ideas about authority. As part of museums' attempts to engage visitors actively in the communication process, a range of now fairly familiar strategies is often employed, such as the use of questions on text panels, providing alternative levels of information or routes, and using various forms of interactivity. It is worth noting, however, that some of the near orthodoxies of 'visitor empowerment' are not fully born out by research. For example, the Science Museum research showed that the use of hands-on interactive exhibits made visitors more likely to expect to be receiving authoritative unquestionable science than to raise questions themselves (as the exhibition-makers had planned) (cf. Stevens and Toro-Martell n.d., p. 16). Not only did such exhibits conjure up the expectation of a didactic health-education exhibition, in which the

public would be instructed on good and bad foods, they were also perceived as scientific experiments, which (like all those experiments at school) one could get right or, so often, wrong. These were not seen as ‘negotiable’ media, however ‘interactive’.[†]

The idea that foods can be grouped into ‘good’ and ‘bad’ was explicitly stated as erroneous on one of the text panels in the exhibition that we studied—although in over 100 visitors interviewed it was never mentioned and the majority saw the exhibition as doing precisely what it criticised. While it would be wrong to imply from this that visitors do not read text panels at all—an argument that is often made but that some research has contradicted, arguing in part that people are much better at reading quickly on the move and from a distance than is often assumed (McManus 1989)—it was clear in our study that they tended to do so much more at the beginning of the exhibition and that overall the physical exhibits themselves commanded more attention and shaped visitors’ immediate post-exhibition narratives much more than did the text. Falk and Dierking’s observation that ‘Visitors tend to be very attentive to objects, and only occasionally attentive to labels’ (1992, p. 77) was born out. Just which kinds of physical exhibits elicit particular attention is, however, an area that requires more research. The Science Museum research found that while most time in the exhibition was spent at hands-on exhibits, traditional static exhibits—in this case, especially four reconstructed kitchens over the ages—elicited most discussion during the exhibition and in post-exhibition interviews. This seemed to be due to the fact that their juxtaposition itself invited comparison; and it was also because they easily acted as prompts for memory narratives (‘We used to have one of those!’).

Museum objects—the media most distinctive of museums—are also interesting with regard to questions of ‘negotiability’. On the one hand, a mass of theoretical argument and at least some empirical research argues that objects tend to make relatively incontrovertible—they have what we might call ‘facticity’. They give substance, authority and implied veracity to narratives. They are also often thought of by museum personnel as relatively ‘non-interactive’, not least because of the necessity to protect items that form part of the museum collection from damage by, say, handling. On the other hand, however, by comparison with text, objects might be seen as relatively open to alternative interpretation—as with the kitchen displays. One trend noted by some museum theorists and commentators is, indeed, a ‘return of the object as curiosity’ (Bann 2003). This is reflected in exhibitions in which objects form the centrepiece—in which they are the beginning point for multiple stories and accounts—rather than those in which objects basically illustrate a given narrative. In this invitation to allow visitors to approach objects from a variety of self-selected directions, exhibition technologies such as the handsets that *My Exhibition* will develop and trial, potentially have a very important role to play (see also Grinter *et al.* 2002). Just how this will interact with other media, and the degrees of authority or negotiability with which they will be invested, will be interesting to explore. One question that may prove to be relevant is that of ‘authenticity’.

That ‘authenticity’ is something that matters to museum visitors has been shown in a number of studies (e.g. Bagnall 2003, Macdonald 1997). These have, however, also shown that what is meant by ‘authenticity’ may vary and is not necessarily simply a matter of ‘the real’ versus ‘the virtual’ as some theoretical discussion tends to assume. In Bagnall’s study, for example, some visitors employ the notion of authentic to refer to an overall ‘feel’ of the site rather than to artefactual originality; and in my current work in

[†]The concept of ‘interactivity’ has been increasingly subject to question, particularly the idea that it can necessarily be equated with ‘hands-on’. See, for example, Barry 1998, Heath *et al.* 2005, Witcomb 2006.

Germany, visitors tend to use the term ‘authentisch’ to refer to a relatively unmediated form of exposition, though also to the use of certain materials and surfaces (e.g. bare bricks). This implies that the use of particular media, perhaps especially electronic media, might in some circumstances be seen as reducing ‘authenticity’, though further research is required to investigate this, and also how it might interact with other design features, such as the use of certain materials.

4. Sociality

That museum visiting is a social event—it is carried out in the presence of others, even if they are not part of the same visiting group—is at one level obvious but also, as Christian Heath and colleagues have argued in a set of papers (e.g. Heath and vom Lehn 2004; Heath *et al.* 2002, 2005; Hindmarsh *et al.* 2002, 2005), largely ignored by research. In fact, there is some work, such as that of Fyfe and Ross (1996) and Longhurst *et al.* (2004) that has sought to explore wider narratives in which museum visiting might occur, although this has not yet been thoroughly linked to what goes on in the museum; and there is also work that has argued that the social contexts of visiting (e.g. for a family ‘day out’) inflect upon the particular ‘readings’ of an exhibition (Macdonald 2002, chapter 8). But what is largely lacking, as Heath and colleagues maintain, is study of visitor interaction in galleries. Their own work seeks to address this by employing video technologies to observe and analyse interactions among visitors in specific—sometimes specially designed—exhibitions.

They show well how interactions with other people can be crucial to such matters as whether visitors even notice particular exhibits and they argue that ‘interaction does not so much permeate a set of pre-established dispositions or bodies of knowledge, but rather provides the material and interactional circumstances through which people come to see and understand exhibits in particular ways’ (Heath and vom Lehn 2004, p. 60). In making this argument, they also point out that by contrast with research on language and even gesture, there is very little terminology to describe interaction among people. Surprisingly, however, they themselves offer rather little in their articles and only occasionally make suggestions that might have relevance beyond the particular exhibits that they discuss. Some of these are, however, interesting in terms of media technologies. For example, developing their argument about the social nature of the museum experience they argue that ‘mutual or public visibility’ is an important feature of the museum experience. In other words, unlike the experience of, say, sitting at one’s own computer at home, in a museum people expect an experience in which, to some degree at least, the experience is shared or, as they put it, ‘collaborative’ (*ibid.*, p. 62). Some technologies, however, ‘undermine the mutual or public visibility of conduct’ (Heath *et al.* 2002, p. 29) by privatising it and preventing collaboration or even significant witnessing. Working with artist Jason Cleverly, they show how even relatively low-tech but artistically innovative exhibitionary strategies can encourage collaboration and meaningful interactivity (especially Hindmarsh *et al.* 2002 and 2005).[‡]

The latter is also the aim in the Situating Hybrid Assemblies in Public Environments (SHAPE) project, in which Heath was also involved. Here the emphasis was on ‘hybrid artifacts—installations that support visitors manipulating physical and digital material in

[‡]There are many other examples that might also be mentioned here. Staniszewski 1998 provides a fascinating history of attempts to reconceptualise the relationship between art work and visitor through innovative and interactive installation. A recent collection of examples and discussion is Macdonald and Basu 2007.

a visible and interesting manner for many museum visitors' (Bannon *et al.* 2005, p. 62). Examples here included installations at Nottingham Castle and the Hunt Museum in Limerick, both of which engaged visitors in activities of hunting and discovering, using RFID technology to trigger other exhibits and information (*ibid.*). Preliminary research on visitors to the Hunt Museum installation particularly emphasises the need to develop exhibits in such a way as to involve several visitors at once and also to create some kind of 'feedback' on visitor actions (Ciolfi and Bannon 2003). Neither of these examples used hand-held guides, although there have also been interesting and apparently successful attempts to develop these in ways that allow and even promote interaction among visitors while simultaneously allowing for personalisation of information. The *Sotto Voce* guidebooks produced by Grinter *et al.*, for example, allow (with permission) eavesdropping on what companions are listening to which, they argue 'facilitated awareness of companions', although which were variously used along lines of visitors' existing ways of co-visiting. For example, couples who usually do not talk much to each other as they visited were less likely to use the eavesdropping facility (Grinter *et al.* 2002). There have also been projects in Glasgow that have involved visitors linking via hand-held tablet computers with companions elsewhere, or visitors to virtual museums (e.g. Brown *et al.* 2003, 2005), a use that while it would seem to limit interaction with others 'on site' opens up other dimensions of sociality that tap into existing practices such as using mobile phones. More extensive analysis of how different technologies interact with different ways of relating people together is deserving of more research; and this might, for example, usefully draw on and develop the scheme of different 'dynamics' of internet use that Miller and Slater (2000) outline in their ethnographic study of internet use in Trinidad.

5. Space

How people negotiate their way through museums and galleries can have considerable implications for how they relate to and interpret exhibition content. This is obvious at a banal level: if we go through quickly without paying attention to most parts of the exhibition then we will have probably have a very different understanding of it from if we attend to every exhibit sequentially. An important question for exhibition design, however, is how museum space can be organised so as to best elicit the kinds of responses that exhibition-makers intend.

This will, of course, always be in interaction with visitors' own styles of visiting and levels of interest; and visitors can refuse to pay attention even in relatively 'coercive' or 'closed' spatial arrangements in which they are channelled through a restrictive sequential display. One classic study of visitors in an art exhibition suggested four different types of visitors on the basis of styles of moving through gallery space: ants, fish, butterflies, and grasshoppers (Veron and Levasseur 1983). The Science Museum work noted above suggested that these should be regarded more as variable styles of movement, some visitors, for example, beginning as ants and then switching to being butterflies later on, and many varying styles frequently within the exhibition, partly in co-ordination with visiting companions; and more generally this research found it hard to distinguish styles as clearly as in the French study. Rather than regarding them as fixed dispositions of visitors, they are probably best investigated in relation to different exhibition styles.

In recent years a substantial and sophisticated body of theoretically informed empirical research on museum (and other) space has developed, known as space syntax. In a review of the work on museums and galleries, Bill Hillier and Kali Tzortzi observe that there has

been relatively little concerted attention to museum space, partly because of ‘the absence of a *language of space* in which to formulate clear distinctions between one kind of spatial layout and another’ (2006, p. 282). The lack of such language, they suggest (after Hillier 1996), is in part ‘because patterns of spatial relations are so basic to our existence that they form part of the apparatus we think *with*, rather than think *of*’ (Hillier and Tzortzi 2006, p. 283). The aim of space syntax is to provide such language. A start has been made with concepts such as ‘classification’ and ‘frame’ (derived from the work of Basil Bernstein),[§] ‘integrated’ and ‘segregated’ space (to refer basically to how divided up a space is), and axiality and spatial layering (Hillier and Tzortzi 2006), although a comprehensive and agreed-upon vocabulary has yet to be developed. An interesting aspect of this work is that many of its terms and insights are not derived from the analysis of disembodied space alone but from careful and analytical observation of movements in spaces. Some of these observations of movement have highlighted aspects of space that might not otherwise be immediately evident. For example, they found that some spaces produce an effect that they call ‘churning’ in which people re-encounter each other, something that they may scarcely register but that has implications for how they relate to such spaces, which ‘tend to be experienced as more socially exciting than those which preclude it by over-sequencing’ (Hillier and Tzortzi 2006, p. 292). More recent space syntax research has also tried to go beyond questions of layout to incorporate the positioning of objects and exhibits, including attention to what they refer to as the way in which the visitor’s perception is ‘staged’ (Hillier and Tzortzi 2006, p. 294). What space syntax work has not yet addressed to my knowledge, however, is how physical spatial layout—and perhaps matters such as the perceived boundaries of an exhibition or its sequencing—might be mediated by technologies such as interactive computer guide-books. This is another area that might be addressed in future research.

6. Discussion

In relation to all of the areas that I have discussed above—media, sociality and space—researchers have maintained that there has not yet developed a significant language in which to describe and analyse the phenomena on which they focus. As I have noted, there have been some significant steps in this direction, especially in relation to spatial layout, although this remains undeveloped and far from agreed upon. While there have been some interesting observations, it is probably not too unfair to say that in many cases a lot of detailed observation, charting and analysis seems to be undertaken in order to make fairly obvious observations. This may, however, be necessary at this stage in the development a more nuanced observational and analytical vocabulary; and perhaps future work will be able to draw on the insights of these studies without necessarily engaging in what is often very time-consuming methodology. This is one challenge for future research. A second is to try to produce observations and vocabulary that can be abstracted beyond the specific cases discussed but that are also of direct relevance to exhibition design. A third is to try to combine some of the areas of study, so that research is able to look at different aspects of design and of visiting context alongside each other.

When I began this article, my original aim was to try to make some progress towards developing what I called an ‘affective syntax’ of exhibitions. I have, however, become

[§]While the notion of ‘frame’ in this case is derived from Bernstein, others have also used the notion of ‘frame’ with different derivations; for example Macdonald 2002 develops a use based on Goffmann, 1971 and Bal 2006 outlines a sophisticated use of different notions of ‘framing’.

more wary of specifying the 'affective' as a distinctive realm, as explained above. Moreover, I have developed reservations about whether the idea of such a 'syntax' will ever be possible. Exhibitions are, perhaps, too complex, consisting of multiple elements, to be formalised into sets of common rules. Nevertheless, this does not mean that there should not be more attention given to trying to understand 'how exhibitions work'. Here I have looked especially at studies which are based on empirical research with visitors. As these are necessarily about specific exhibitions, alongside any more theoretical aims, they usually provide case material of varying degrees of richness. The value of such case material should not be underestimated. For example, the 'case-near' design observation that Ciolfi and Bannon (2003) make about a cabinet of curiosities needing to have some of its drawers left open to entice visitors to open others, should prompt designers of other exhibitions to think carefully about how visitors can be encouraged to interact with a particular exhibit. Building up a bigger 'bank' of visitor studies that is drawn on to really play back into exhibition design is vital here. Too often, once an exhibition is finished everybody wants to just move onto the next project and no in-depth visitor research is conducted. Such evaluative work as is done is more likely to be thought of in terms of judging and perhaps minor 'fixing' of that finished exhibition rather than as a tale for the future. Too often, exhibitions are created with very little awareness of such studies as there have been, many museums simply relying on observations from their own institution. Moreover, even where there is more systematic attempt to conduct visitor research, there is, I think, sometimes a fetishisation of methodology and evaluation *per se* rather than on building up sets of ideas and insights. So visitor studies units in museums or outside them are more likely to offer expertise in methods of evaluation—summative and formative—than to act as repositories of examples and ideas. The fact that these are generally institutionally disconnected from designers also means that there is often insufficient attention to the matters that could really influence design, and that the visual and other expertise of designers is rarely incorporated into the studies.

In 1961 the artist Herbert Bayer expressed great enthusiasm for what he called the new language of exhibition design:

Exhibition design has evolved as a new discipline, as an apex of all media and powers of communication and of collective efforts and effects. The combined means of visual communication constitutes a remarkable complexity: language as visible printing or as sound, pictures as symbols, paintings, and photographs, sculptural media, materials and surfaces, color, light, movement (of the display as well as the visitor), films, diagrams and charts. The total application of all plastic and psychological means (more than anything else) makes exhibition design an intensified and new language. (Herbert Bayer 'Aspects of Design of Exhibitions and Museums', 1961; quoted in Staniszewski 1998, p. 3)

Yet while he was surely right about the exciting potential of such a 'language', Mary Anne Staniszewski, who discusses Bayer's work, is surely also right to note that the 'innovative exhibition design [which] flourished in Europe and the United States from the 1920s through the 1960s' has been largely 'collectively forgotten' (Staniszewski 1998, p. 3). Moreover, there has been little attempt to try to understand the way that this 'language' of exhibition design might work.

This is not to say that there has been no relevant progress. In addition to visitor studies such as those discussed above, museums and exhibitions have come to be considered as significant and important sites in many disciplines in which to explore a great range of

questions (see Macdonald 2006 for an overview). Many of these offer sophisticated and insightful conceptual ideas for analysing exhibitions. To take just a couple that seem to me most promising: media theorist Roger Silverstone has drawn on literary theory to suggest an approach to analysing the rhetoric, poetics and politics of exhibitions (Silverstone 1994b). And cultural theorist and art historian Mieke Bal has developed a sophisticated set of concepts—drawn mainly from art and film analysis—for analysing multiple aspects of exhibitions in highly nuanced and compelling ways (Bal 1996, 2006, 2007). Ideas from these various works could be used to inform both exhibition design—as Bal has done in her own recent exhibitionary practice (Bal 2006)—and also visitor study.

One conclusion of this review is that any exhibition offers an exciting potential to explore the interconnections of design and visiting. The Hundred Years' War exhibition at the Royal Armouries—which promises some innovative design solutions as well as facing some difficult challenges—provides the *My exhibition* project an excellent opportunity to engage with some of these interconnections and to add to the growing body of case-material in hopefully insightful and provocative ways.

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