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**DESIGNS FOR
LEARNING #2/09**

Designs for learning in museum contexts

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This article presents a new theoretical and methodological way of studying museum visitors' involvement and meaning-making at a museum exhibition. Our approach draws predominantly on a design-theoretic and multimodal analysis of learning and communication. This approach is mainly concerned with a) the design aspects of learning resources; b) the learners' engagement and communication; c) their way of transforming given signs to produce (redesign) their own representations in relation to d) personal engagement as well as a specific areas of knowledge. Multimodality pays special attention to the interplay between different modes in communication. In the article, we use a design-theoretic, multimodal approach to analyse visitors' engagement. This is done by filming the visitors in pairs to see how they walk through the exhibition, where they stop, what they talk about and how their conversation develops. They are also given cameras so they can take photos of those parts of the exhibition they find especially interesting, Afterwards, the visitors are asked to draw a map of the exhibition and they are also interviewed. We also present a model of how to categorize forms of engagement.

INTRODUCTION

One of the key terms today is *learning* in formal and informal contexts. Museums, too, are redefining their mission; instead of a focus on collecting and classifying, the emphasis is now on exhibition design and the museum as a place for communication and learning. The museum has thus become, perhaps more clearly than ever before, a place for education and learning, dialogue and debate (Hein 1998; Hooper-Greenhill 1994; Roberts 1997). Today, visitors are also given opportunities to take part in many of the museums' activities; for example, they can take part in archaeological excavations, navigate through web sites and use new digital devices to scrutinize or add new information to objects. Representations of their visit, such as their own photographs or souvenirs from the museum shop, may be regarded as signs of their interest in the exhibition. In this sense, learning is understood not only as the learning of new facts or skills but also as identity formation and representation of the self.

In this article, we will discuss visitors' engagement in a museum exhibition in terms of meaning-making, sign-making, transformation and the making of new representations in order to describe, analyse and understand learning as a process of design. Drawing on two illustrative examples, we present two main analytical tools: *Learning Design Sequences* as an analytical model to follow meaning making activities and *categories of engagement* as a way of describing museum visitors' engagement as being expressive, narrative and meta-reflective.

The present study is part of an international project called *The museum, the exhibition and the visitor. Meaning-making in a new arena for learning and communication.*[1] The study focuses on visitors' meaning-making in exhibitions, seen in relation to the conditions for learning in the specific settings. In our visitor study, we investigate mixed methods of research design informed by a design-oriented (Selander 2008 a,b,c,d; Selander 2009) and multimodal approach to learning (Kress & van Leeuwen 2001, Kress 2010). This design-oriented perspective as such focuses on both the design *of classificatory systems and exhibitions and the individual design of learning processes* (c.f. Rostvall & Selander 2008).

Our data consists of video documentation of visitors' engagement in exhibitions as well as their own representations in interviews, photographs and maps. Visitors were invited in pairs to participate in the study: retired persons, adults working or studying and children. They were filmed by video camera while walking through the exhibition. They were also asked to take pictures of the objects they found most interesting. After the visit, the participants were asked to draw maps of the exhibition. Their photos and maps were then used as a starting point for interviews. All in all, our data consists of video recordings of nine visits, the visitors' own digital photos and their maps of the exhibition and our interviews with them. The production of data was guided by established ethical considerations in research. Participation in the study was voluntary and the participants' real identity has been protected.

The analysis presents a close description of the participants' actions and speech. The video recorded visits have been transcribed with reference to movement/gestures, speech and focus of attention. Owing to limited space, the paper concentrates on the visitors' speech and the representations they have produced: photographs and maps. The example below is constructed around the data from two visiting pairs. One pair consists of a couple in their 30s: Ingrid, who has a special interest in pottery and music, and Ian, who is an archaeologist. The other pair consists of Janet, around 40 years old, and her ten-year-old son Justin. Janet works as a hairdresser.

THEORETICAL APPROACH AND ANALYTICAL TOOLS

A design-oriented and multimodal approach to learning stresses the institutional framing and is interested in settings with different degrees of formality: non-formal situations and semi-formal and formal settings (Rostvall & Selander 2008, Selander 2008 a,b,c,d, Selander 2009). Since our interest here is learning in museum contexts, we will focus on semi-formal settings.

The model (Figure 1) envisages how institutional norms, resources (modes and media), the "setting of the scene" and affordances (action possibilities) as seen by the visitors in relation to their interests and social interaction

with others as well as with different kinds of artefacts have consequences for meaning-making and learning. It also implies that the way resources are shaped may affect the possibilities of engagement (Insulander 2009). The process of transforming signs and the forming of new signs by ways of modes and media (re-contextualization and re-configuration as new representations), sees the process of learning as meaning-making ("the primary transformation unit"). It directs the researcher's attention to the arrangement of the setting and further to the visitor's engagement with an ensemble of resources. In the project presented here, museum visitors' representations are made in response to the researchers' questions and intents. Visitors are asked to take photos and make maps and they are also interviewed. Of course, these are not the normal products of visiting a museum. But even if it is the case that we intervene as researchers, we believe that we are enhancing the individual formation of representations rather than actually shaping them. In the second phase ("the secondary transformation unit") the learners reflect at a meta-level on their representations.
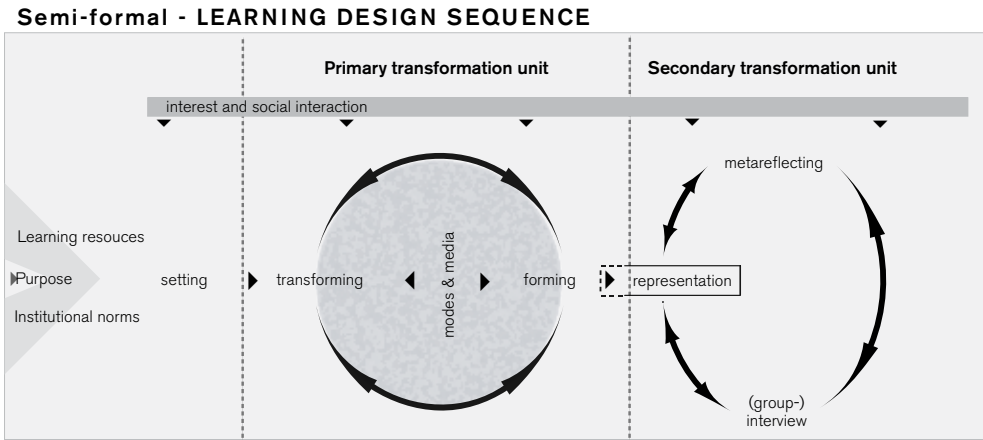
Semi-formal - LEARNING DESIGN SEQUENCE

Figure 1. Model of Learning Design Sequence.

THE EXHIBITION

A detailed analysis of the exhibition as a text has been carried out for the purposes of the study, but in this article we will only give a brief account of the exhibition. Prehistories 1is at the Museum of National Antiquities in Stockholm. It opened in November 2005, as the first of two connected exhibitions dealing with Scandinavian pre-history. The exhibition is chronologically structured, with rooms in a sequence running from 7000 BC to 600 AD. A rather limited selection of objects has been arranged in such a way as to suggest that all the artefacts are attributable to eight individual lives, which appear in specific life-worlds presented as "frozen" moments in time. Different semiotic resources

contribute to the design of a dark and intimate "prehistoric" setting. The written texts present information about objects or about the historical period in rather informal language. By means of open questions, visitors are invited to reflect on – and contribute to – the interpretation of the archaeological material. Throughout the exhibition there are specific features connecting the different parts. An introduction in several steps and a linear "reading path" make the exhibition coherent. Colours are used to create cohesion: green for the Stone Age, yellow for the Bronze Age and red for the Iron Age. Thus, the entire exhibition appears to be coherent. The exhibition in general does not merely rely on classified objects but on local identity and social history as well.

PRIMARY TRANSFORMATION UNIT — THE COURSE OF THE VISITS AND THE READING PATHS

The primary transformation unit is the phase where we focus on the learners' engagement with representations (objects, written texts, pictures etc.) of historical phenomena, situations or living conditions. In the study, the video recordings were multi-modally transcribed; not only verbal utterances but also gestures were captured. Digital cameras enabled the visitors to produce their own representations.

The, reading of the exhibition by the first couple, Ian and Ingrid, can be described as "thorough", as they spent more than an hour there, compared with the reading by Janet and Justin, who stayed only 10 minutes, which may be described as "superficial". Ian and Ingrid were both very involved during their visit, Ian acting as the "guide/teacher" and Ingrid being the interested "student". She frequently asked questions and did not always agree with Ian as he was critical of the way prehistory was represented in the exhibition. They took several photos each.

Ian's reading seemed to be constantly on a *meta-level*, as he reflected on the different ways of interpreting and representing history (or archaeology) in the exhibition. He was very observant of details in the *exhibition design* and took pictures and commented upon the modes and media made specifically for the exhibition: written texts, images or ensembles of different resources. As an example we can consider the photo of a floor which looked like grass (a). In the exhibition, Ian encouraged Ingrid to pay attention to the floor. He also made comments on the *historical interpretations* in the exhibition and described to Ingrid how such large, polished axes were produced (b). He was critical of the explanation of an Iron Age settlement, with different buildings and a pagan temple (c), and claimed that to his knowledge, such a site, with that particular combination of the different buildings, had never been excavated. In his opinion, there ought to have been a written text in which different theories about the different buildings could have been presented.

Figure 2. Ian's photos, a-c.

Ingrid's reading could be characterized as *narratively* guided and seemed to be very much related to *activities* that could be connected to her hobbies, since she took photos of several ceramic vessels and of a musical instrument. Regarding the vessel in photo (d), she talked to Ian about the techniques of making such a vessel, the decoration on it and her own limited experience of making such pottery. As for the musical instrument (e) and the drinking horn/ glass (f), she did not specifically mention or discuss them with her partner inside the exhibition (but commented on them during the interview).

Figure 3. Ingrid's photos, d-f.

Turning now to the second pair, their reading was *expressive* – as when they reacted spontaneously to objects – but sometimes also *narrative* in character, as when they made connections between what they saw and their own personal experience. While the ten-year-old Justin seemed to be attentive and interested in the things presented to him, his mother seemed mostly interested in ending the tour as soon as possible. She was constantly trying to move on, even though her son wanted to explore things more thoroughly. One possible explanation of this behaviour is the fact that the pair was not visiting the museum alone – they had people waiting for them somewhere else in the museum. Justin's mother had been hesitant about taking part in the study in the first place, but

since her son was really keen on participating, she accepted our proposal and decided that they could participate after all. They took only one photo each.

During their tour, Justin was very positive and expressed *value statements* when he encountered ancient objects. His statements were positive, like: "Wow! This must be old!". When they encountered a rune stone, of which he also took a photo, he said that is he was really fascinated by runes. When his mother asked "How come?" he told her that he thought runes were so strangely shaped and that he remembered that they had had exercises in mathematics, trying to decipher messages. "They are really, really old. And they've been fixed to that stone for hundreds of years!" All the way through the tour, Justin said he thought it was thrilling to be there. He asked his mother about the things they looked at, but he got very short answers. His mother started reading some of the labels, but didn't really make an effort to find explanations or discuss the objects on display with her son.

Figure 4. Justin's photo (to the left). Janet's photo (to the right).

Janet expressed negative value statements when she said she couldn't read the labels or panels and that she wanted to move on. "That's a shame", said Justin. "Yes, I'm boring", replied his mother. It seemed that Justin was more involved than his mother was, but Janet actually paid a lot of attention to the great variety of jewellery and other objects that can be related to beauty and fashion, like combs. During their short tour, she commented on several such objects, and at Justin's suggestion, took a photo of one of the exhibits. "Actually, I think it's the jewellery that is most interesting", she said. Justin asked if she thought those things were nice and she answered that she thought it was interesting that we still want to buy jewellery and gold, and that this is nothing new. She pointed at a comb made of bone: "Even in those days, people were very careful about their looks. Their hair couldn't be a mess. Can you imagine sitting there sawing all those teeth?" Her engagement can apparently be traced to *activities* connected to her specific interest in fashion and beauty and to the fact that she is a hairdresser.
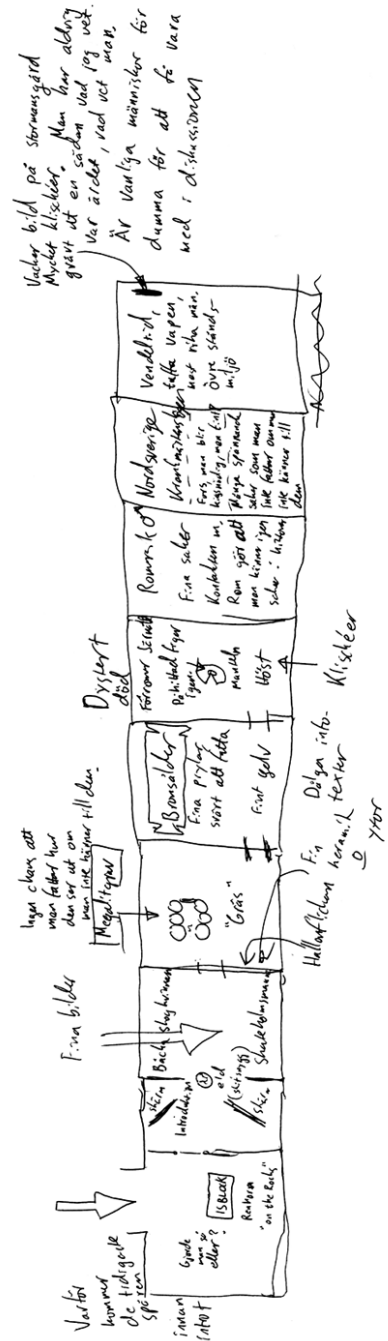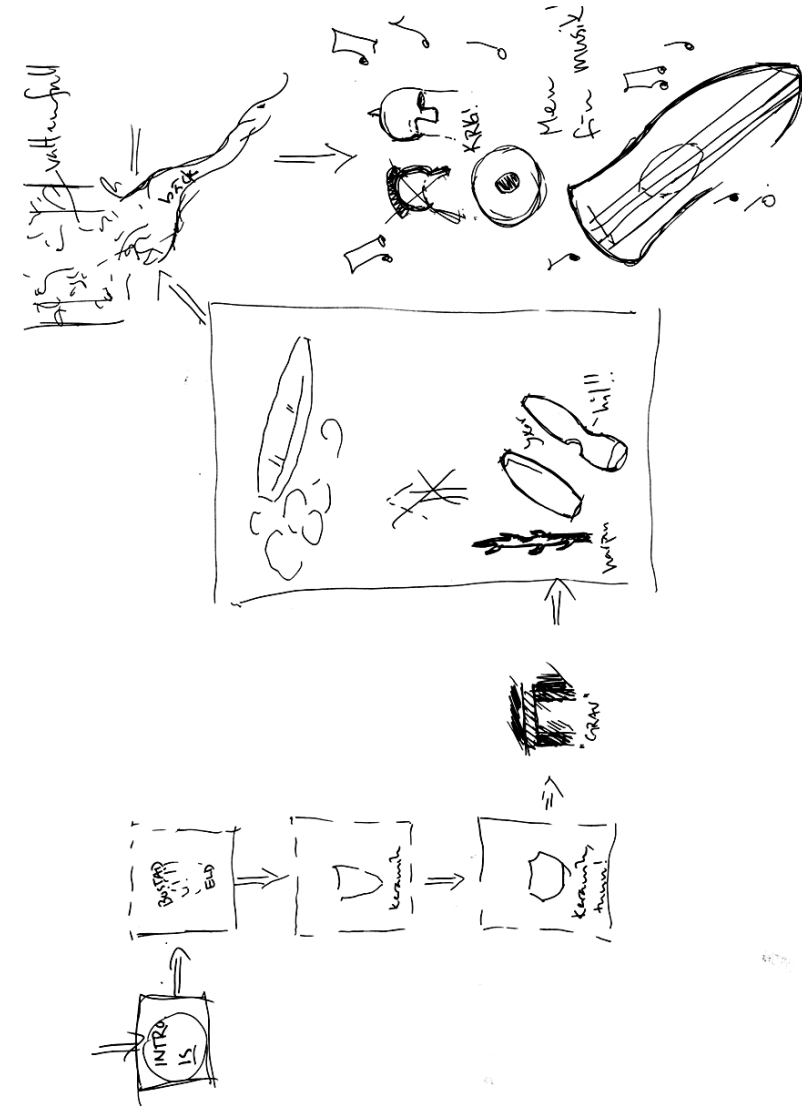
Figure 5. Ian's map.

Figure 6. Ingrid's map.

The analytical focus in the secondary transformation unit is on the visitor's meta-reflection and their meaning-making as it appears in the connection between form and content in the representations (Kress, 2003). The analysis deals with the selections that visitors made and the choices they faced when making the maps. The visitors also interpreted the task differently – some made concept maps while others made a geographic spatial layout – which makes it interesting to study the type of map each participant produced. The photos were analysed thematically; as a way of focusing on each person's entire collection of photos. In the study, the photos and maps were discussed during a short interview and there is a detailed analysis of these different aspects of engagement. In this article, however, we will focus on the meta-reflection of the representations already mentioned.

When discussing his photos and his map, Ian explained in detail how he perceived the *exhibition's design* and its *historical* interpretations. For instance, he believed that aspects like the colours and the materiality of the exhibition make a positive difference to its communication with visitors. He was critical of some of the archaeological interpretations, which in his opinion were not up to date with the most recent research findings.

Ingrid talked about the pottery and said she was very impressed by the prehistoric craftsmanship, since she was familiar with the techniques and knew how difficult it would have been to make such things. About the musical instrument, she explained that she had first noticed the sound it made. Then, when she spotted it, she was *astonished* because she had never seen such an instrument before and that was why she found it fascinating. The objects appealed to her for *aesthetic reasons.*

In the interview, Justin explained that he had recently been working with prehistory and the Middle Ages in school. This may be the background to his interest in the exhibition. Thanks to his education, he already knew quite a bit about what was presented in the exhibition, like the term prehistory and the runic alphabet. In his map he included the things he found interesting ; apart from the rune stone and a few other things, he had also depicted a comb. The comb was included because his mother liked it, he said.

Janet also included "Justin's" rune stone in her map, since it was he that made her aware of it. She also included the comb and the "stones" (jewels) from the same exhibit, plus a few other things. She explained that there were also lots of bits of bones spread all over the exhibition, but she didn't pay any special attention to them. Instead, she pointed out accessories and other "external things", as she put it, "that we as human beings surround ourselves with". Such things have always been important to us, she said, and even if they look different today, their essential features are the same. This was something that especially appealed to her, she said. As we understand it, her statements can be understood in relation to her profession. Apart from this, she also explained that this was at the end of their visit to the museum. They had already gone through the other exhibitions and were now a bit tired. That was the reason why they had gone through this one rather quickly.
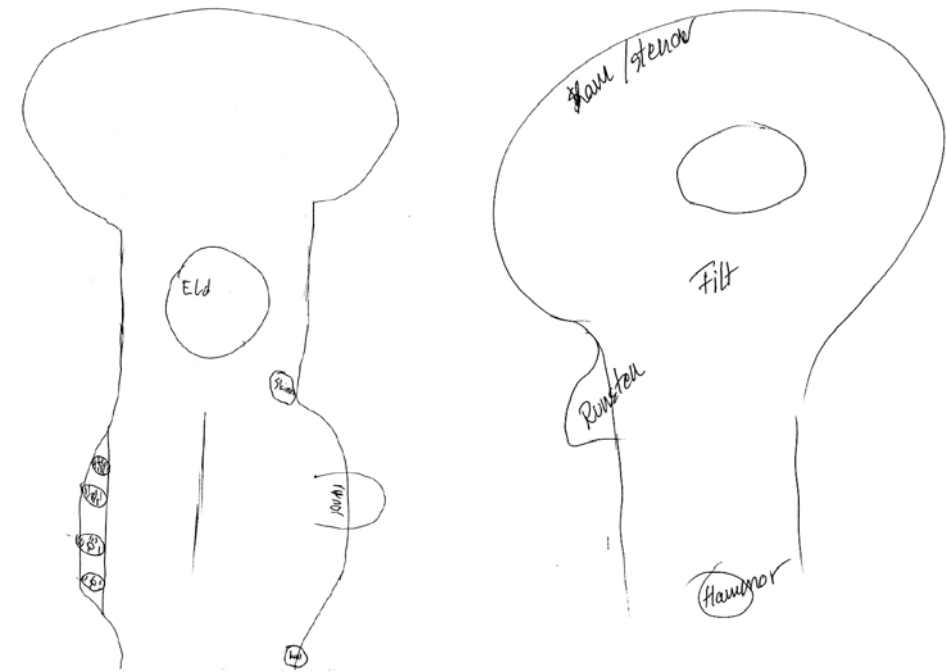

Figure 7 + 8. Justin´s and Janet´s map.

FORMS OF ENGAGEMENT

The brief examples presented here are an illustration of how meaning-making – in an archaeological exhibition – can be described in a rather detailed manner. We have presented the model of Learning Design Sequences as a tool for structuring the analysis of data.

In the analysis, we emphasised the connections between the semiotic resources and the visitors' narratives and other representations during their visit. What seems to be an obvious difference between learning in schools and learning in museums is the relation to a curriculum. Another difference seems to be that the multimodal resources used in a museum exhibition are used much less in schools, where verbal representations are still the dominant mode. In this article, we have focused on learning activities in a semi-formal context, seeing learning and meaning-making as the key points. This means that our study of the visitors' engagement does not highlight questions such as: Did the visitors learn what the curators had intended?

To be able to investigate engagement, we have developed a methodology, which takes into account various sources (sometimes referred to as "triangulation"): recordings of passages through the museum, including talks, photos taken at the exhibition, and afterwards map-drawings and interviews. To organize the relationship between these different sources, we have used the model called Learning Design Sequences. In this final part, we outline a way to interpret different kinds of engagements: expressive, narrative and meta-reflective. This second model has evolved through an abductive process as we tried to find out how to organize our interpretations of the visitors' involvement and engagement.

Our intention has been to show how visitors' engagement is context specific and prompted by different semiotic resources in the exhibition. In their encounters with objects, written texts, images and the like, visitors tend to use different 'starting points' or 'places' that they focus on and to interpret selected parts of the exhibition. The visitors' interests create a direction that determines how they become involved in the exhibition. The figure below is an illustration of how engagement at different levels can be conceptualized.
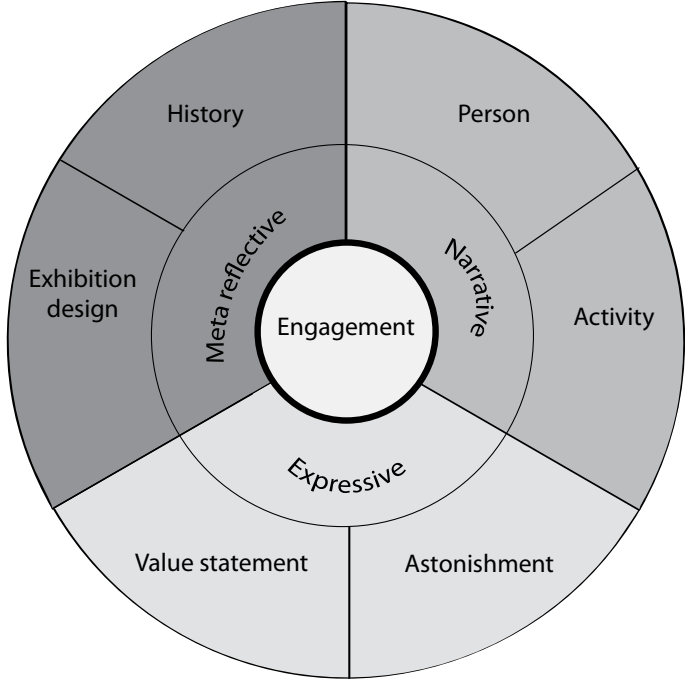

Figure 9. Forms of engagement.

The majority of the different categories can be found in our example of the two pairs of visitors. We have focused on patterns that appear in the analysis, which means that we highlight the most salient categories of each participant. As an archaeologist, Ian's engagement was guided by *meta-reflection* on both the *historical* interpretations and the different modes and media of the *exhibition design*. Ingrid's engagement was diverse, but primarily *narrative* in character and based on her hobbies. Her profound knowledge of pottery also made her *meta-reflect* on the production of ceramic artefacts. Apart from this, Ingrid also expressed *astonishment* when she found out about objects that were new to her. As for Justin, his engagement was mostly *expressive* and concentrated on *positive value statements*. His mother, Janet, became involved in the exhibition from a *narrative* perspective based on her professional interest in the exhibition, and she also expressed *negative value statements*.

CONCLUDING REMARKS

In this article, we have outlined a theoretical and methodological framework for studying visitors' engagement in museum exhibitions. Meaning-making and learning are seen here as two aspects of communication and engagement. It is not possible to generalize in terms of 'every' visitor or the 'typical' visitor about these visitors' engagement. But we do think that our theoretical approach and methodology give a deeper understanding of what visitors' engagement entails, not only as cognitive understanding but also as emotional engagement, interest and identity construction.

It would also be possible to focus more specifically on other aspects of communication and engagement on the basis of our perspective; these aspects might include the exhibition as representation, the exhibition as a part of – or a break with – tradition, institutional arenas for communication or, for example, the extended, digital museum as a social medium for interaction.

What seems central to us is the relation between a theoretical approach – a design theoretic and multimodal understanding – and a related methodology, and the kind of 'knowledge-object' that is constructed by them. We also believe that our model has the advantages of studying both a social understanding of individual engagement and detailed analyses of forms of representations and communication in micro-situations.

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