Introducing iPads in Danish natural science museum settings: a youthful user perspective

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Abstract: For portable tablet resources to be efficient and relevant tools for participatory learning, their adoption and didactic substance need to be developed with a dual view to learners' socio-cultural contexts of learning and to institutional objectives for adoption. I substantiate my claim through analysis of a media-ethnographic study on the introduction of iPads at three Danish natural science museums – all with didactic concepts centered on user-generated video-productions. Digital mobile and social media technologies have long been associated with the promise of providing valuable and unique new opportunities for enhancing and supporting participatory learning experiences in museums. Recently, portable tablets have been a central focus in Danish political and learning discourses and many museums now experiment with ways in which iPads can deliver the assumed dissemination and experience results. This presentation discusses museums' use of iPads from a user-led perspective and, in particular, the mismatch between the call for museums to use these technologies as tools to embrace or even challenge young users' expectations and the user experience realities. Based on my preliminary analysis, I present two issues surrounding the differences between users' reflections on the user experience as compared to the content and communication purposes intended by the museums. Firstly, users' prior knowledge and experiences raise the bar for user expectations, reinforcing the need for contextual grounding and justification on the use of tablets. Secondly, use of iPads in some instances enhances the classroom feel to the visit seen from the young users' perspective. By way of conclusion, it is argued that even though didactic focus on creators is obvious, it has profound impact on conceptual framing and how natural science and media production and dissemination themes are balanced.

Keywords: participatory learning, portable tablets, social media, young people, user perspective

Background

Digital mobile and social media technologies have long been associated with the promise of providing valuable and unique new opportunities to enhance and support participatory learning experiences in museums, science centers, zoos and aquariums (Drotner & Schrøder 2013; Giaccardi 2012; Simon 2010; Tallon & Walker 2008). Recently, portable tablets such as iPads have been a central focus in Danish politics and learning discourse as 'the perfect tool' for replacing, supplementing or introducing new digital concepts and technologies in formal and semi-formal learning contexts (Bundsgaard 2012; Folkeskolen 2011; KMD analyze 2012). One could argue that even though portable tablets provide new and unique tools and possibilities the issues and research themes surrounding the introduction of new technologies in semi-formal learning settings are far from new (Rushby 2012). With the high frequency of technological swaps over the last decade from laptops, PDA's, smartphones and now tablets, and the persistent interest and priority of digital technologies in museums and research, a long list of research into mobile learning and the issues surrounding the introduction of new digital technologies in museum learning settings has eventually been provided (Rushby 2012).

Despite overlaps and similarities of issues surrounding, for example, the use of smartphones in museums, questions are still pertinent as to when, how, and why tablets are efficient and relevant tools for participatory learning. This is especially true in light of many museums' impending decisions to 'jump the bandwagon,' as well as other museum's virgin-like attempts to conceptually frame and make use of their recently acquired tablets. This paper's main proposition is that, for portable tablet resources to be efficient and relevant tools for participatory learning, their adoption and didactic substance need to be developed with a dual view of learners' socio-cultural contexts of learning and institutional objectives. This proposition may seem just as un-revolutionary as it is new. However, as argued above, its importance continues to stay relevant partly because development practices rarely follow the ideal patterns that theory sometimes advocates; but also because technologies, users, and use continue to develop and change.

This short presentation represents preliminary discussions connected to three first attempts of introducing iPads in learning settings, in: The Natural History Museum of Denmark, The Blue Planet − National Aquarium Denmark, and the natural history museum, Naturama.

Personal context is an influential factor for user experiences and meaning making processes

Issues regarding the relevance and efficiency of digital technologies, and the dynamics of using technology, have a long and continued tradition within the areas of human-computer interaction and interaction design. In much interaction design theory (such as user centered design, user experience design and participatory design), the convergence of design artifacts, users and context is perceived from a holistic perspective (Sharp et al. 2007). This holistic approach to development and user experience shares similarities with Falk and Dierking's (1992), and George Hein's (1998) observations and theories on users' active construction of their museum experience. An important point in Falk & Dierking's large scale framework is that the user influences the experience in the interaction between the user's individual needs, knowledge, motivation and expectations (personal context) as well as the museum's physical environment (physical context) and interaction with other users (sociocultural context) (Falk 2009; Falk & Dierking 1992).

Falk and Dierking highlight twelve factors influencing museum meaning-making processes and the quality of museum experiences (Falk & Dierking 2008). Moreover, they argue it is the idea of sets of factors which can provide reasonable explanations for users' attitudes and understanding (Falk & Dierking, 2008). Finally, they stress the importance of the personal context: prior experiences, knowledge, motivations, and interests (Falk & Dierking 2008). These observations have guided this study's initial approach to understanding what role portable tablet resources play and can play in museums' learning settings.

Methodological approach

In methodological terms, the project adopts a mixed-method approach involving media ethnography (observation, focus-group interviews) and an action-based research approach. The intervening part of the study has focused on participation as a concept and design resource in the development process specifically connected to the learning sessions at National Aquarium Denmark. There was additional involvement with The Natural History Museum of Denmark, and the natural history museum, Naturama, but this was limited to observations and focus-groups. The study primarily draws on observations and focus-group interviews with young users aged 13-17 years (oldest primary-pupils and youngest upper secondary-pupils). I followed two sessions in each of the three institutions (six sessions in total), observing pupil interactions with iPads and social dynamics between pupils. Focus-group interviews were conducted after the sessions (one hour with four girls and four boys in each focus-group) providing users' own reflections on their experience. In addition to this, pupils' content productions have been collected and analysed.

Three very similar ways to have young users produce content

All three cases represent the institutions' first attempts to use tablets. They share several characteristics in their conceptual framing and didactic design. As argued by Nina Simon (2010), many museums are fixated on creators, despite the diversity and popularity of other participatory options. This focus also characterises these three cases which all choose to have users produce video-content. Although with differences, National Aquarium Denmark and The National History Museum of Denmark have chosen to have the user-led content productions as a central part of their overall didactic design. Both stressed their formulated teaching purposes through the use of keywords like 'production', 'dissemination', 'communication', 'knowledge sharing', 'strengthening IT- and media competences', 'designing' and 'being creative'. Terms not normally connected to teaching purposes at the two natural science institutions. Also they let the production and production-planning phase take up much of the session time and instructor guidance resources available. Furthermore, they had the issues surrounding the user productions as one of the central developmental focal areas and evaluation criteria. Another common feature is the choice to have information gathering and task solving activities built upon a combination of QR-codes and pre-produced videos containing interviews with scientists (for example, The National History Museum of Denmark) or short introductions and simple tasks provided by the educators (as in National Aquarium Denmark and Naturama). Users are asked to explore the content tagged to QR-codes placed in collections or exhibitions and collect videos and images connected to their task solving and observations.

Discussion

Based on my preliminary findings, I summarise two key points of discussion for my presentation:

(1) *Bi-directional expectations are not aligned between young users and museums. Users' reflections on their experiences illustrate the mismatch between the call for museums to use these technologies as tools to embrace, or challenge, young users' expectations and the users' experience realities.* This point is illustrated by presenting two patterns that my data suggests: Firstly, user expectations in general are very high. Tablets are becoming like electrical outlets. Like Facebook and other digital technologies, iPads are becoming part of young people's 'infrastructure', not necessarily providing anything unique or spectacular. As a consequence, expectations, prior knowledge and prior experiences raise the bar for users' expectations. The need for contextual grounding and justification on the use of digital technologies can be considered a highly influential factor in the young users' experience processing. They have tried it before in other learning contexts and are used to reflecting on and evaluating digital experiences. The overall experience is very sensitive to users' scrutiny, in part, because the use of iPads can become the core experience. Secondly, the use of tablets extend the classroom feeling: From a user perspective, the use of iPads in some instances enhances the extension of the classroom experience, risking a downplaying of the unique contextual grounding of the visit. Many young users reflect on the classroom feel to their visit, when enhanced by the use of iPads. They are aware of their visit being a school visit with learning purposes, but a common thought is concern around the feeling that they have not utilised the full potential of the sites because they have had a tablet 'to take care of'.

(2) *Didactic focus on creators is obvious but it has a profound impact on conceptual framing. This ultimately results in a mismatch between institutional objectives for adoption and user realities.* The choice to have users producing video-content seems obvious and has positive impacts on the experience (both from a user and museum perspective). However, the practicalities surrounding the production of videos influence the overall conceptual framing to such a degree that both users and museums comment on it. One consequence is the risk that focus is diverted away from the site, the artefacts (or living organisms) and the themes important to a natural science institution. The issue lies in the direction the learning sessions are taking. They are either 'media production or dissemination learning sessions having evolution as theme', or 'evolution learning sessions using iPads and media-production as learning tools'. Even though these two directions seem extreme, the tipping of a balance is a pertinent issue from the perspective of both users and museums.

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