Blind Students’ Challenges in Social Media Communication: An Early Investigation of Facebook Usability for Informal Learning

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ABSTRACT

Social Networking Sites (SNS) are increasingly used in academia to facilitate informal learning, knowledge co-creation, and collaborative problem-solving. Deriving these pedagogic benefits requires SNS usability for all. This paper reports results of an early investigation into SNS usability for blind students. Think-aloud observations generated verbal evidence of six participants’ Facebook interaction experiences. Verbal protocol analysis revealed where and how challenges arose in online social interactions. Design standards analysis identified responsible interface elements and potential remedial measures. Results show that locating Friend’s profile and Timeline, reading, writing, and posting messages were significantly challenging. Participants needed additional time and effort, and occasionally sighted help, to perform these basic SNS functions that are integral parts of informal learning activities. Feasible design improvements are proposed that merit further investigation. Implications for educators, learning technologists, cognitive scientists, and usability experts are discussed.

Keywords: Blind Student, Informal Learning, Online Social Interaction, Social Media, Usability

INTRODUCTION

Social media offer myriad informal learning opportunities by facilitating peer communication, fostering learning communities, and promoting 21st century literacies (Muñoz & Towner, 2011; Lybeck, Bruhn, & Feyissa, 2011). Over 90% of American youth regularly use social media for academic and personal reasons (Smith, Caruso, & Kim, 2010). Facebook, with over a billion monthly users, is the most popular social networking site (SNS) (Facebook, 2013). The ‘Timeline’ is Facebook’s most visible online social interaction (OSI) platform (Muñoz & Towner, 2011). It offers a conducive environment for informal learning. Students clarify doubts by posting questions that are answered by others through reply posts. They engage in discussions and collaborative problem-solving by ‘commenting’ and ‘liking’ posted topics. This informal, social learning positively impacts academic outcomes (Shen & Wu, 2011). Blind
students could utilize informal social learning to understand concepts typically explained through diagrams, figures and charts (Hüllen, 2006).

While empirical evidence shows that sighted students have benefited from SNS-mediated informal learning (Muñoz & Towner, 2011), it is unclear if these are available to the blind. The approximately 45 million blind people around the world (World Health Organization, 2012) comprise an atypical group that interacts with SNS and other computer-based systems by listening to information read aloud by screen reader (SR). They perceive information presented on a Web page as continuous stream of audio. Their Web accessibility and usability needs are distinct from typical sighted users (Babu, 2011). The scant research in this area informs us that SNS lack the accessibility and usability needed in SR-mediated interaction (Buzzi, Buzzi, Leporini, & Akhter, 2010; Wentz & Lazar, 2011). However, it is unclear as to where, how and why blind users face interaction challenges in performing basic SNS functions such as communicating with others. Such understanding is necessary to work towards ensuring SNS accessibility and usability for the blind. Such accessible and usable SNS will allow us to explore suitable informal social learning strategies for this atypical student population. To pursue this research successfully, we first need a clear understanding of the nature of their SNS interaction challenges. This in turn will require an in-depth and contextual investigation of their SNS interaction experiences.

This paper presents a qualitative approach to examine blind students’ SNS interaction experiences, and demonstrates its utility in explaining the nature of their accessibility and usability problems. Think-aloud observations of six blind Facebook users generated verbal evidence of their interaction experiences using Timeline. A combination of verbal protocol analysis and design standards analysis showed that common OSI tasks—locating a user profile and the Timeline, and reading, writing and publishing messages—were difficult. It explained where, how and why accessibility and usability problems occurred, and what design improvements could possibly help. Results provide a glimpse of how blind students think, act and perceive a problem situation in SNS use—something of interest to cognitive scientists and human factors specialists. It identifies some avoidable design choices in creating a barrier-free informal learning platform—useful for designers and developers of social media and collaborative utilities. It demonstrates the feasibility of our qualitative evaluation method with a small sample. This assumes significance as blind students comprise a low incidence population thinly scattered across institutions. Further study of other task contexts, using other OSI platforms and social media genres, involving a more diverse sample will lead to design principles on SNS accessibility and usability for the blind. Social media compliant with such design principles will allow us to investigate informal learning strategies that enhance academic outcomes for blind students.

**LITERATURE REVIEW**

Here, we define key concepts and present brief review of relevant literature.

**Informal Learning**

Informal learning occurs through daily interactions and shared relationships with others. It is an ongoing process that is typically unstructured and learner-controlled, occurring beyond the walls of the classroom (Marsick & Watkins, 1990) such as in communities of practice and through coaching. A range of learning strategies are employed that are ‘caught not taught’ (Davies, 2000). It is often spontaneous and creative. Such informal, discovery-oriented learning has been shown to significantly improve academic outcomes (Colley et al., 2003). The openness, conversational, communal and collaborative qualities of social media, combined with their popularity among the youth make them excellent tools for informal social
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