Mobile Literacies: Learning in the Mobile Age

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INTRODUCTION

Over the last decade, consumer access to mobile phones has increased to the point where there are nearly as many mobile device subscriptions on the planet as there are people (International Telecommunications Union, 2013). The ubiquity of Internet-capable mobile devices in the lives of people around the world has given rise to new learning practices that occur in an increasingly complex digital ecosystem. Mobile learning enables teachers to deliver instructional materials to a student when they need them, at points where the relevance and value of the knowledge are highest. To achieve the promised benefits of mobile learning, instructional designers and developers will need guidelines for designing mobile learning systems and materials effectively. It is also important for instructional designers to master the skills required "to design multimedia messages that promote meaningful learning" (Mayer & Moreno, 2002, p.107). This article will examine the work of leading experts such as Dr. John Traxler (2009) at the University of Wolverhampton in the UK, Dr. James Gee (2011) of Arizona State University, and Dr. Aaron Doering (Doering, Veletsianos, Scharber, & Miller, 2009) at the University of Minnesota.

Current knowledge in the field of mobile message design comes from a number of sources, including theories of learning, perception, and communications theory. Early research in this area (Wang & Shen, 2012) defined some of the formal characteristics of mobile learning such as captioning and font sizing, and offers guidelines for understanding the uses of particular constellations of mobile technologies. Other projects investigated psychological and pedagogical properties of mobile learning experiences, such as cognitive load and inquiry-based learning (Shih, Chuang, & Hwang, 2010). Further, many of the findings on cognition and eLearning, as presented by Clark and Mayer (2011), are applicable to learning with mobile devices.

In this chapter, we will present a brief examination of the new developments in the field of the Learning Sciences, and how these developments have opened new possibilities for the design of mobile learning experiences. We aim to expand the definitions of mobile learning message design to account for the growing presence of mobile Internet access in the lives of learners. We argue for the treatment of mobile learning as a fundamentally new form of literacy that is situated in the social fabric of the learner, enabled by technology, and supportive of spontaneous learning. As we propose in this chapter, mobile learning has evolved into a new phase of research that we call 'mobile literacy.' For the purposes of this discussion, mobile literacy may be defined as a system of meaning-making wherein learners use mobile technologies to achieve their goals and communicate with others in their communities of interest. This definition removes the study

DOI: 10.4018/978-1-4666-8239-9.ch033

of mobile learning from a focus on a particular technology and places the focus on how people learn and achieve their goals through the use of mobile technologies.

To make this process relevant to practitioners and researchers, this paper will proceed through three parts. First, the literature review will outline the current trajectory of scholarly research on mobile learning, and the precedents that have given rise to this new, socio-cultural vision of mobile learning. Researchers such as John Traxler are currently engaged in this ongoing research. In the second part, we will offer an analytic perspective that compares cognitive literacy paradigms (associated with reading and writing) with a socio-cultural, New Literacies approach to mobile learning. This approach comes from the pioneering writings of James Gee (2011) Michael Knobel, and Colin Lankshear (2007) in the United States. The final section will provide a design framework for integrating three crucial strands of design decisions for mobile learning literacy into a learner-centered whole. This work is under continued development by researchers such as Aaron Doering (2006). These three sections will provide practitioners and researchers with the context, tools, and frameworks necessary to embark on deeper explorations of the new possibilities inherent in mobile literacies research in their own projects and endeavours.

OVERVIEW

In this review of the current thinking in approaches to mobile learning, we explore the evolution of mobile learning research as it exists within the broader frame of the field of education, and outline the argument for mobile learning as a new form of literacy. Over the last decade, mobile learning research has reoriented from a technologically-focused area of research towards a practices-oriented area. An account of this shift will provide the necessary framing for a new approach to message design that takes into account the concerns of instructional systems design and the Learning Sciences. This chapter examines three relevant sources of ongoing work that have emerged in the last decade. The first, Traxler's *Evolution of Mobile Learning* summarizes the recent historical context and changes in the field of mobile learning, and the directions proposed by one experienced researcher in the field. Second, we present Collins and Halverson's *Rethinking Education in the Age of Technology,* and examine how it connects to some of the larger changes that are occurring within the education system of the United States (a frequent test market for mobile interventions). In the summary, we connect these works to research in the New Literacies as a means of providing an expanded view of the opportunities inherent in taking new perspectives on mobile learning.

This selection of research approaches to mobile learning illustrates the development of a 'socio-cultural turn' (similar to Bonnell, Hunt, & White, 1999), a perspective now endemic to American research perspectives on Education. This socio-cultural turn, instigated by research from Lev Vygotsky (1974), Lave and Wenger (1991), and Yrjo Engestrom (2003), has fundamentally shifted how researchers understand the learning process. Whereas research in the 1980s and 1990s focused on individual cognitive approaches to learning, this socio-cultural turn has begun to refocus on how learners develop their cognition within a social context. This reorientation of the field away from a purely cognitive stance mirrors the 'cognitive turn' of the 1970s and 1980s, when researchers pivoted away from Behaviorist models of learning and moved towards research in cognition.

This turn has manifested as a growing appreciation of the social and phenomenological aspects of mobile learning, and an acknowledgement of the role of the mobile medium's capacity for supporting situated learning (Lave & Wenger, 1991; Wenger, 2009). Following this review of the evolving socio-cultural turn in the field, we present a new message design heuristic for instructional designers who hope to create rigorous and high-