

Chapter II

Free-Choice Learning Research and the Virtual Science Center: Establishing a Research Agenda

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Abstract

Societies are in the midst of change, witnessing an explosion in out-of-school learning. From the proliferation of educational programming through film, television, museums and science centers, there are more opportunities for free-choice learning, self-directed and voluntary, than ever before. However, most virtual learning research is focused on classroom-based practices with little research on how learning occurs virtually. This chapter describes an appropriate research agenda, suggesting some of the research questions of highest priority. Authors suggest that models such as the Contextual Model of Learning are useful tools to understand the virtual science center experience and frame a research agenda for the future. Better understanding the nature of such virtual experiences and the factors that contribute to learning online will enable the field to better design such science centers, as well as begin to build a body of knowledge about how people in the 21st century engage in free-choice learning online.

Introduction

Globally, societies are witnessing a virtual explosion in out-of-school learning. From the proliferation of educational programming through film and television, museums and science centers, there are more opportunities for self-directed learning than ever before. In a typical day, an individual might surf the Internet to track down a book in a local library, attend a play or a book discussion group, watch a nature documentary on television or interact with exhibitions at the local science center. All of these events are free-choice learning¹ experiences — self-directed, voluntary, and rather than following a set curriculum, are guided by the individual learner's needs and interests.

The rise of the Internet in particular is fanning the flames of free-choice learning. Individuals all over the world are increasingly seeing learning in a broader sense — not simply something that occurs in the classroom or even in a place per se, but an activity that one can engage in virtually as well. Increasingly, these learners understand learning is the way individuals make meaning of, and survive in their world and they are empowered to pursue learning in their own ways. Traditionally, museums and science centers have been great places for free-choice learning, however, with the virtual explosion of new media, these institutions are poised to become an even greater resource.

Currently, the majority of virtual learning research is focused on classroom-based practices, not free-choice learning situations. Consequently, there is very little research on how learning occurs at places such as virtual science centers and therefore our ability to know how to best design such centers is limited. Research in this area is critical, since the learning potential of virtual science centers is enormous. The virtual nature of these science centers enables centers to break free of geographic, physical and time constraints, reaching an even greater share of the public, thus engaging them in science, and hopefully increasing science and technology awareness and literacy.

This lack of research exists for several reasons, including most significantly the methodological obstacles in conducting research on “non-captive audiences” in virtual environments. The evaluation and research that does exist tends to focus disproportionately on usability issues, such as reduction of system-critical errors and ease of navigation. This focus on usability is important and contributes to the ease with which users can access the resources of virtual centers, but unfortunately it also obscures larger, more critical issues at stake. For instance understanding how, why and to what end people use virtual science centers would help designers and “curators” of such sites better select, organize and present e-learning resources and activities. Understanding the impact of such experiences can also provide insights into how best to position this resource in relationship to the physical science center, other museum Web sites and other free-choice learning resources (books, magazines, television). It is akin to concentrating solely on whether the door of your science center is unlocked, without paying attention to how visitors are using the resource, whether it could be improved, and whether they are having enjoyable and meaningful experiences.

There is an even more important need for research in this area though. The existence of learning potential in no way suggests that this potential *has* been realized. Thus, on a more practical level, better understanding of the nature of the virtual science center experience and the factors that contribute to learning online will enable the field to use

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