Chapter 1
New Personal Learning Ecosystems: A Decade of Research in Review

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ABSTRACT

This chapter highlights over a decade of literature and research findings related to new learning ecosystems such as personal learning environments including MOOCs. New structures and environments are now in place that provide opportunities for learning in open networks, but important challenges and issues persist. This chapter also highlights challenges and opportunities in the design and development of MOOC learning experience design, conditions that must exist for people to be involved and engaged in a connectivist learning environment, challenges related to personalization and support of individual learning needs, along with new ethical and privacy concerns related to the safeguarding of data in networked environments. In conclusion, further research in areas of machine-learning AI in data-driven learning systems is discussed with emphasis on human factors such as motivation, incentives, and support that encourage course participation and learning.

DOI: 10.4018/978-1-5225-7987-8.ch001
INTRODUCTION

The proliferation of Information and Communications Technology (ICT) in recent years has changed the educational landscape. Social media and emerging informal learning ecosystems such as Personal Learning Environments, including Massive Open Online Courses, offer tremendous potential to enhance learning processes; but research and literature findings have underscored important challenges as well. This chapter presents highlights from over a decade of research on Personal Learning Environments and MOOCs with a glimpse into the new learning ecosystems. Some background will be provided which includes research on PLEs and MOOCs by the National Research Council Canada. As we enter into a new era of information abundance and learning opportunities, new ways of participating in educational experiences and learning are now available. We address possible new approaches and methods by examining next generation learning environments.

With new structures and environments in place, two areas of research are highlighted as foundational to examining learning in open networked environments: learner autonomy and a theory for learning in a digital age, that is, connectivism. Another section will look at self-directed learning, agency and autonomy as essential for learning in open networked environments with evidence from Connectivist MOOCs as a potentially disruptive pedagogy. This chapter will also look at how research on cMOOCs has informed MOOC learning experience design, specifically, what conditions must exist for people to be involved and engaged in a connectivist learning environment. The challenges related to personalization and support of individual learning needs will be highlighted along with new ethical and privacy concerns related to the safeguarding of data in networked environments. A glimpse into what the future holds in terms of next generation learning environments will also be revealed along with conclusions that will point to important area of research that are still lacking and recommendations for future areas of investigation.

Background

The National Research Council Canada has been conducting research on emerging technologies and learning innovation since 2008. One component of this research has focused on PLEs, including information gathering and user case studies exploring educational issues in massive open online courses (MOOCs). Research has been conducted in the context of four connectivist MOOCs (cMOOCs), namely Critical Literacies (#CritLit2010), Personal Learning Environments, Networks, and Knowledge (#PLENK2010), CLOM-REL-Open Educational Resources (#CLOM REL2014) and more recently E-Learning 3.0-Distributed Learning Technology (#e130 2018). Over a decade of research has identified important gaps, especially around the types of support mechanisms required by learners to be successful in these new open and accessible learning environments. #CritLit2010 was one in a series of cMOOCs facilitated by educational researchers at NRC and had over 600 participants who were interested in the particular new skills and competencies required to function well in the new media landscape as learner. It was followed by #PLENK2010 with around 1600 participants. The two had in common that they used the Moodle learning environment as a blended learning management system, but also made extensive use of a daily newsletter, The Daily, that was delivered to the inbox of all participants using RSS technology (gRSShopper) and the course hashtag to collect all Web distributed course related publications and creative productions, which then led to daily discussions. Both MOOCs also used weekly themes and guest speakers to create engagement, creative activity and thinking on the course network.