

## Chapter 31

# Virtual Collaborative Learning: Opportunities and Challenges of Web 2.0–based e–Learning Arrangements for Developing Countries

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### ABSTRACT

*New technologies are used increasingly to enhance people's lives in many fields, and education is a very important sector that can benefit from technological development. The idea of using technology to facilitate and enhance learning, known as electronic learning, has led to the development of a wide range of applications and implementations worldwide. Electronic learning can offer new opportunities for developing countries by increasing access to education and improving learning outcomes. This chapter presents Virtual Collaborative Learning (VCL) as a modern technology-enhanced team-learning arrangement based on a constructivist learning paradigm. By utilizing Web 2.0 tools to empower and enhance classical e-Learning methods, VCL reaches far beyond classical Web-Based Training. Opportunities and challenges of VCL for developing countries will be discussed based on a long European teaching and research experience.*

### INTRODUCTION

The introduction of Internet has had a considerable impact of many aspects of our society, altering processes and approaches in public, private, and corporate settings. The uses of Internet range from

information retrieval to social functions (Long & Baecker, 1997). Besides supporting and enhancing existing approaches, the use of Internet has facilitated new approaches in many different fields, creating 'e-Forms' such as e-Business, e-Commerce, e-Government, or e-Health. In this chapter, we will

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discuss a technology-enhanced approach from the area of education, known as electronic learning, i.e. e-Learning. Among the alleged benefits of e-Learning—in comparison to traditional learning practices where physical presence of teachers and learners in the same classroom environment is essential (Rumble, 2001)—are an access to a wider audience, an easier access to learning resources, and a time and space independence.

The emergence of Web 2.0 introduced new participation tools and communication channels for Internet users who were thus empowered to become real content creators and developers on the Web (Murugesan, 2007). Internet users can now actively create and share useful content, and easily participate in synchronous and asynchronous discussions and dialogs. In educational setting, modern Web-based participation tools offer teachers the ability to support collaboration in interactive learning environments they always needed (Jonassen, Peck, & Wilson, 1999).

In addition to traditional e-Learning and Web-based teaching practices, Computer-Supported Collaborative Learning (CSCL) further utilizes Information and Communication Technologies (ICT) and recently Web 2.0 features for an effective and efficient delivery of learning content in a modern, attractive, interactive, and learner-centered form. In this chapter, we will introduce and discuss a particular CSCL-arrangement called Virtual Collaborative Learning (VCL). The aim of VCL is to support both individual and collective learning processes and enable learners to develop their own knowledge and share it by interacting with teachers/tutors and other learners using modern communication and collaboration tools. While practicing this, new competencies in social media, teamwork, decision-making, and intercultural awareness can also be gained and developed (Schoop, Bukvova, & Gilge, 2006).

Developing countries have a considerable potential to benefit from e-Learning applications and use modern Web 2.0 features to improve local education practices and programs. This chapter of-

fers an introduction to the state of the art and best practices of CSCL in higher education, in particular the VCL arrangement, based on the long research and teaching experience at the Chair of Business Informatics, especially Information Management, of the Technische Universität Dresden in Germany. The benefit opportunities and implementation challenges of VCL deployments will also be discussed, taking into consideration the special needs and limitations in development contexts.

In the Background section, we will review basic concepts to understand VCL and blended learning and the use of Web 2.0 applications to enrich the learning experience in virtual classroom environments. The practical implementation of these concepts in higher education will be explained with the help of three examples and the systematic approach of VCL-centered blended learning arrangements will be presented based on the experience with application in European settings.

The later part will discuss the potential of Web 2.0 to enhance learning experiences in developing countries through VCL and blended learning. The expected challenges and limitations of these practices will also be foreseen based on difficulties faced in previous studies and on frontier to technology and e-Learning in developing countries.

Recommendations will be then proposed to unlock the explored potential of Web 2.0 and VCL for education in developing countries, and to overcome possible limitations and boundaries, followed by a summary of future research requirements and intentions. A conclusion wraps up the chapter highlighting the key findings and suggestions.

## **BACKGROUND**

As education plays an essential role for development (World Bank, 2012), it is important to explore and consider new development opportunities in this sector and adopt new strategies to overcome

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