Wiki Supporting Formal and Informal Learning

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PREFACE

Already in common use outside the educational arena, wikis are rapidly moving into education as a form of learner communication and expression, and as a means to facilitate collaboration and working in groups. Many uses of wikis in formal education have been outlined by scholars and practitioners mainly focused on the students' perspective. However, further investigations are needed on how teachers are actually using this tool to support the design and development of educational materials as well as the evaluation of both individual contribution and active participation to collaborative learning projects. Literature also lacks of established and documented experiences in using wikis to support knowledge flow processes for informal learning. Drawing together relevant contributions from lead international experts in the field, this book will seek to provide a valuable tool and a source of knowledge for all those involved in enhancement of formal and informal learning both in higher and adult education: for example, in the case of formal learning, faculty members and researchers in the educational field; human resources managers and content/knowledge managers in organizational informal learning.

The main topics dealt with are:

- wiki-based collaborative learning
- design and development of curriculum materials
- co-writing as educational strategy
- human resource development
- knowledge flow processes
- professional problem solving
- evaluation and assessment in educational activities based on co-production

The underlying assumption shared by the prominent authors of this book is that wiki-based approaches is one of the keys to supporting and improving the quality of formal and informal learning in higher education and adult education.

The book is articulated into two main parts. The first part consists of Chapters 1-5 which through a panorama of the state of the art and various theoretical frameworks, explore wiki-based learning processes and deal with critical issues that emerge from this new approach to learning and knowledge building. The second part, consisting of the next

five chapters (Chapters 6-10), describes a series of experiences and good practices in the use of wiki-based approaches in both university settings and organizational context, also considering its potential to collaboration and evaluation of individual contributions in informal settings.

In Chapter 1, David Neumann outlines the nature and purposes of wiki applications in the university curriculum. The key assumption is that merely using a wiki in a university course may not necessarily guarantee an enhancement of student engagement and learning; teachers need to use an evidence-based and theory-driven approach to make effective use of a wiki in the curriculum. A framework of ensuring a constructive alignment between learning outcomes, wiki-based learning activities, and assessment is discussed as one means by which to guide the educational application of a wiki in a curriculum. Recommendations on the design and delivery of a university curriculum that makes use of a wiki are also provided.

Michele Notari and Beat Döbeli Honegger (Chapter 2) regard wikis as flexible tools for collaboratively creating, linking, revising and regrouping content enabling the focus on content and on the content creation process. The authors claim that not the tool wiki itself but the inherent properties like openness, easiness to use philosophy of equal multi-users and cloud computing make it an archetypical tool ameliorating technology enhanced socio-constructive learning settings. Two scripting models are presented followed by some collaborative learning scenarios using wikis. The chapter is concluded by presenting a list of core wiki functionalities which may build a headstone for many future learning tools.

The co-evolution model, introduced by Joachim Kimmerle, Ulrike Cress and Johannes Moskaliuk (Chapter 3), extends the discussion describing how learning and collaborative knowledge building with wikis take place. This theoretical framework is based on Luhmann's systemic approach as well as on Piaget's theory of equilibration, combining these approaches. Experimental studies that have tested the co-evolution model empirically are also presented, focusing on the interplay between an individual's knowledge and the information which is available in the wiki. Moreover, it is explained how network analysis may be applied to examining knowledge building with wikis. The chapter ends pointing out how findings may be transferred to the exchange and development of knowledge-in-use, using pattern-based knowledge building as an example.

Chapter 4 takes a critical view of wikis from a multidisciplinary stance: a psychological one (studying the concept of anxiety related to wikis and other aspects of their experience in general), an educational one (reflecting on the impact of the introduction of wikis on pedagogy) and a human-computer interaction approach (looking at elements such as negative emotions and anxiety toward editing, user experience and usability). The authors, Lorenzo Vigentini and Benjamin R. Cowan, demonstrate how each individual approach produced relevant and interesting findings for reflecting about both the pedagogical reasons and the potential negative, as well as positive consequences of introducing new technology in HE.

The second part of the book opens with a series of experiences and good practices in the use of wiki-based approaches in formal educational contexts.

Peter A. Hastie and Ashley Casey (Chapter 5) present an interesting set of three case studies that are grouped around the common them of using a wiki in teaching physical education. The case studies represent different types of applications in both the students (high school, undergraduate, graduate) and the use of the wiki (design of a game, lesson planning, article analysis). The chapter highlights how in each of these three cases, a

community of practice was developed which allowed learning to move into a 24/7 dimension. The experiences that the authors relate and the descriptions of the student feedback would be useful to other educators that are contemplating using a wiki in similar applications.

The wiki pedagogy outlined in Chapter 6 provides an initial framework for understanding the use of wikis in schools. The authors, Norhisham Mohamad-Nordin and Jane E. Klobas, report on the introduction of active learning with wikis in Malaysian schools teaching the national information and communication technology curriculum. Design based research is used to understand the environment, to iteratively design wiki based learning activities, and to evaluate the project. Both teachers and students reported significant benefits from the project which enabled not just learning of subject knowledge but also how to learn collaboratively.

In Chapter 7, Stefania Bocconi discusses how wiki-based environments can promote students' argumentation skills in university courses. An experimental study is described, which was designed and developed in a university setting to investigate students' behaviours and the situations determined by the use of wikis. Results confirm the potential of wikis to effectively favour both the creation of a rich argumentative network and the quality of individual argumentative acts. The chapter is concluded by presenting a conceptual architecture (WikiDiA- Wiki for Dialogical Argumentation) for wiki-based learning processes in the area of argumentation.

The effects of wiki-supported collaborative learning (WSCL) practices in higher education contexts are discussed in Chapter 8. Based on the findings from the literature, Marija Cubric contextualises the effects that this type of collaboration has on students' learning and the development of non-cognitive skills, identifying the factors that can either enhance or hinder learning. A conceptual model of wiki-supported collaborative learning is also presented in order to aid further understanding of the specific learning processes and interactions that are taking place in this context. The chapter provides practitioners and researchers with a review of the current practice and recommendations for curriculum development and assessment.

Regarding this latter point, in Chapter 9, Guglielmo Trentin illustrates and discusses a methodology that enables evaluation of the collaborative learning process based on professional co-writing in a wiki environment. The proposed approach is based upon the elaboration of information traced automatically by wiki, employing survey grids and formulae to calculate participation and contribution indexes. The experiment has shown how the combined use of techniques for content and network analysis, applied both to the interactions between community members and to the lattice structure of the wiki, provides a variety of useful information for evaluation purposes also in an informal learning situation within a professional community.

In Chapter 10, Marisa Ponti, Stefano Renzi and Jane E. Klobas use actor-network theory (ANT) to discuss how social workers might interact with a wiki space to share resources, inform practice, and maintain their professional identity. The case is situated in a large, Italian local health authority. One important difference from other similar cases is that wiki is considered not as the first system to support learning among these social workers but as a potential replacement technology for an existing structured knowledge management system (KMS). The authors begin by introducing the health authority and the role of the social workers. Key concepts of ANT are then used to analyze the situation and reflect on the success or failure of the wiki. The chapter is concluding by presenting how the wiki was designed to both maintain the value of work completed to date and meet additional needs for informal learning and maintenance of professional identity.