

# Chapter 50

## Using Technologies to Integrate Vocational Learning in Multiple Contexts

**Alberto Cattaneo**

*Swiss Federal Institute for Vocational Education and Training, Switzerland*

**Carmela Aprea**

*Swiss Federal Institute for Vocational Education and Training, Switzerland*

### ABSTRACT

*Due to various influences and developments, learning nowadays must be conceived as a lifelong process that occurs within and among different formal, non-formal, and informal contexts. However, learning poses new requirements for individuals as it urges them to cope with diverse and dynamically changing perspectives, articulate these diversities, and reconcile them into a meaningful whole. In this chapter, the authors present theoretical and empirical evidence that accounts for the potential of technologies as facilitators for connecting and integrating learning across different contexts. Given the authors' specific expertise, they particularly focus on learning in vocational and professional settings.*

### INTRODUCTION

Today's societies are characterized by relentless change as well as by constant transformations which inter alia manifest themselves in the flexibilization of formerly rather rigid social structures, such as institutions, routines, and norms. This 'liquidity of forms' (Baumann, 2005) is also observable with respect to learning, which is no longer conceived as being related to only one specific time (e.g., childhood and adolescence) or place (e.g., formal schooling). Instead, the cur-

rent debate emphasizes that learning is a lifelong process that occurs within and among different formal, non-formal, and informal contexts. However, this development poses new requirements on individuals as it urges them to cope with diverse and dynamically changing perspectives, articulate these diversities, and reconcile them into a meaningful whole (Griffiths & Guile, 2003; Guile & Griffiths, 2001). Especially with respect to today's workplaces, practitioners have to continually connect theory and practice, abstract and practical knowledge, vertical and horizontal knowledge,

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and thinking and acting in order to acquire and sustain a firm basis of knowledge, skills, and attitudes that allows for competent performance (Baartman & de Bruijn, 2011). Consequently, the need to foster a connection among these different settings is becoming a prevalent educational concern and an increasingly recurrent topic on educational scholars' agendas (Ludvigsen, Lund, Rasmussen, & Säljö, 2011; Stenström & Tynjälä, 2009; Tuomi-Gröhn & Engeström, 2003).

In this chapter, our aim is to account for the potential of technologies as facilitators of connecting and integrating learning across different contexts. Given our specific expertise, we will focus in particular on learning in vocational and professional settings. In order to support our claim, we will first delineate available theoretical approaches that further conceptualize the need to connect and integrate contexts in the field of vocational and professional learning. To illustrate these considerations, we will then provide two examples stemming from our empirical studies. Finally, we will discuss future trends and draw conclusions with respect to the question of how technologies could be effectively used in education—and especially in the vocational field—in order to not only react to, but also proactively drive the permanent change that characterizes our society.

## **BACKGROUND**

As previously mentioned, the need to cope with and integrate diverse learning settings has attracted the attention of many educational researchers. In this section, we would like to delineate three well-known models that consider these issues in particular: 1) the expansive learning model from Fuller and Unwin (2003); 2) the connective model from Griffiths and Guile (2003); see also Guile & Griffiths (2001); and 3) the integrative

pedagogics model from Tynjälä (2005, 2008, 2009). In concordance with the application field that we concentrate on in this chapter, all three stem from vocational and professional learning, whether taking place within different workplace settings or within at least school and workplace contexts<sup>1</sup>, respectively.

As an example of learning taking place in the workplace, Fuller and Unwin's model is one of the first attempts to conceptualize the benefits of different learning settings by specifically pointing out the affordances coming from participation in multiple workplaces. The model particularly stresses the fact that learners can profit from actively participating in different communities of practice (Wenger, 1998; Lave & Wenger, 1991), where they encounter differences that can be integrated through “«opportunities to reflect, explore and cross into new communities of practice» (Fuller & Unwin, 2003, p. 424). The authors define *expansive* learning as opposed to *restrictive* learning, with the latter referring to learning that is limited to only a few workplaces where a small number of tasks are performed and little time is available for reflection.

Griffiths and Guile's model puts much more emphasis on the connection between the school and the workplace, which involves more than «connectedness (simply linking contexts and/or modes of learning)» (Griffiths & Guile, 2003, p. 64). Instead, educators have to take account explicitly of the relationship between theoretical and everyday knowledge in their attempt to mediate the different demands arising in the contexts of education and work (Griffiths & Guile, 2003, p. 59). However, the second model shares with the previous one the prominent role given to reflection in promoting learning and overcoming the separation between practical and theoretical knowledge. Through reflection, learners can find a way to connect informal and formal learning as well as vertical and horizontal learning (vertical learning

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