Developing Creativity and Learning Design by Information and Communication Technology (ICT) in Developing Contexts

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INTRODUCTION

This chapter has two aims: (1) to establish the link between creativity, learning, information ecology and community of practice that underpins the theoretical necessity of a contextual user-centered approach to learning design for ICT in developing contexts; and (2) to specifically discuss how a Human Computer Interaction for Development (HCI4D), based on learning design, can be applied to provide the practical instrument for building creative learning environments in developing contexts. Accordingly, the chapter will develop a new theoretical framework by using three prominent theories: creativity theory, information ecology, and the theory of communities of practice. This chapter also offers practical contributions to developmental scholars and project managers in the form of a vocabulary to address the process and learning issues in both formal and informal learning environments, and by opening up new ways of understanding creativity, learning and usages of ICT in a developing context.

BACKGROUND

Generally, the term creativity means to develop new and useful ideas (Amabile, 1996). The development of different perspectives in describing creativity has been traced from the focus of the 1950s to the 1970s on areas of personality, cogni-

tion and the stimulation of creative individuals, to the awareness in the 1980s and 1990s of the influence of environments and social contexts on the creativity of individuals, groups and organizations (Loveless, 2007). In addition to discussion of the characteristics of novelty, effectiveness and ethicality (Cropley, 2001), the current creativity discourse also encompasses (1) operating in the economic and political field, (2) acting as a possible vehicle for individual empowerment in institutions and organizations, and (3) its use in developing effective learning (Jeffrey & Craft, 2001). Creativity is, therefore, now discussed as "a good thing", promoting both personal expression and enhancing opportunities to engage in the complexities of problem-solving in the economic and cultural landscape of the 21st century (Loveless, 2007).

The uses of information communication technology (ICT) to support creativity by learning design have been described, reviewed and theorized in a range of published work in recent years (Loveless et al., 2006). ICT can be seen as a set of tools, which can be chosen as and when they are appropriate to creative processes. It can be argued that the characteristics of ICT can also make a distinctive contribution to those processes, providing new tools, media and environments for learning to be creative and for learning through being creative (Loveless, 2007). In particular, the use-centered approach to learning design by ICT can be viewed as a potential strategy to promote

learners' creative thinking skills and to improve learning abilities (Purushothaman, 2013). As explored by the domestication theory, the arrival of ICT in homes has brought with it the mobilization of material resources, skills, cultural values and social competences and capabilities. The recent rise of social media is also having an influential impact on organization innovation. These applications have shifted the way that users seek information and create and connect knowledge (Loveless, 2007). In developing contexts, designing learning for creativity by ICT should be paid more attention than in developed contexts due to the complex technical, economic, social and cultural problems.

DEVELOPING CREATIVITY AND LEARNING DESIGN IN DEVELOPING CONTEXTS

Designing Creativity-Based Learning Environment by ICT

In the 21st century, we are moving towards the "creative society". In so doing, success in the future - for individuals, for communities, for companies, for nations as a whole — will be based not on what we know or how much we know, but on our ability to think and act creatively. Meanwhile, the rapid development of technology, mainly as a result of the internet, such as ICT, has brought about an upsurge of technological tools which young people are appropriating in their everyday lives (Purushothaman & Zhou, 2014).

Wheeler, Waite, and Bromfield (2002) propose a model for the creative use of ICT in learning which includes dimensions of problem-solving, creative cognition and social interaction. The model shows that the three dimensions are independent but interactive and, in some cases, it may be difficult to distinguish between them. This means that creativity development would need to incorporate social interaction within the community of activity. Furthermore, according to

Loveless et al., (2006), the framework for creativity and ICT attempts to describe the interaction between three elements of creative practices with ICT: creative processes (for example, using imagination, fashioning, pursuing purpose and evaluating originality and value), the features of ICT (for example, provisionality, interactivity, capacity, range, speed, automatic functions and multimodality), and ICT capability as an expression of elements of higher order thinking-finding things out, developing ideas and making things happen, exchanging and sharing information and reviewing, modifying and evaluating work as it progresses through a breadth of study. Thus, it is important to note that it is not the access to digital resources, which "delivers" creativity, but the opportunities such access affords for interaction, participation, and the active demonstration of imagination, production, purpose, originality and value (Loveless, 2007).

Needs of Learning Design by ICT in Developing Contexts

Designing for learning to use a technology in a developing world scenario is often constrained because of complexity and the impact of socio-cultural factors that influence ICT usage. These factors include patriarchal gender roles, illiteracy, cultural beliefs and values. This chapter takes the position that in order for the successful acceptance and usage of technology in a developing context, greater focus has to be placed on the design elements of the technological usage in the context where it will be used. This is very important because, in most cases, the design dimensions that are successful in the western world are adapted without sufficient consideration of the social and local contextual factors in a developing scenario where they are then introduced and used. As development is a social phenomenon and ICT is a technical phenomenon, ICT design framed for developmental goals should analyze the intervention strategies based on socio-technical terms (Dearden & Rizvi, 2009). The technological

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