An Interoperable ICT Educational Application for TOEIC Preparatory Study

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INTRODUCTION

This article reports an empirical research project on the design, implementation, and evaluation of an innovative interoperable Information and Communication Technology (ICT) educational application, called "ATR CALL BRIX," which has helped university students in Japan improve their TOEIC scores. The ATR CALL BRIX application may possibly be adapted for use in other situations in which it is believed that a blended learning (BL) environment, which combines in-class activities and outside-of-class learning tasks, can help students successfully prepare to take the TOEIC Listening and Reading Test.

BACKGROUND

Blended Learning Issues: A Definition, Learning Tasks and E-Literacy

Osguthorpe & Graham (2003) defined BL as a combination of face-to-face delivery with online delivery. However, there is still some confusion or rather, a lack of satisfaction with this definition that is apparent in the literature. As BL has evolved with ICT innovations, an unhelpful number of definitions and variations of single definitions have come into use, leading critics to comment that the BL concept lacks coherence; and thus, research for BL development and training is 'inconsistent' and not useful (Oliver & Trigwell, 2005).

A second issue has arisen from BL's flexibility in its combination of face-to-face teaching and online delivery of learning tasks. What are effective blends of these two basic modes of presentation? Teachers need guidelines to help them determine what skills are required by students so that they may successfully engage with both elements of the materials. Moreover, many of today's students may use more technology in more ways than any previous generation, but that does not mean that they are necessarily aware of its learning potential or that they are able to use it efficiently for learning (Deutsch, 2010). Academic e-literacy should not be taken for granted.

Motivation within Blended Learning

The attrition rate, often cited as high for BL courses and an indicator of low motivation, is actually sometimes lower than, or similar to, that of face-to-face courses.

Potentially, with the comparatively flexible nature of BL in terms of time and space constraints, and as course design improves driven by the financial benefits of lower delivery costs, the attrition rate could become significantly lower than other delivery systems (Bonk & Graham, 2004).

Research studies have also pointed out areas for consideration in regards to the different types of motivation people have, and how individual motivational factors can vary in BL as time and space limitations are reduced (Auld, Blumberg, & Clayton, 2010). Andrade and Bunker (2009) advocated the need for affective strategies to handle negative emotions during distance learning.

The flexible nature of BL also appears to be a key factor in student motivation because students are able to learn when and how they choose, factors which give them control over, and responsibility for, their own learning.

Facilitating Blended Learning for Different Learning Styles

Akkoyunlu and Soylu (2008) applied the Kolb Learning Style Inventory to a BL model and focused on two types of learners – divergers and assimilators. Divergers respond more to concrete experiences, contact with peers and teachers, and find it difficult to learn online. Assimilators prefer lecture learning, respect the knowledge of experts, and benefit from reflection. Divergers are seen to be more active than assimilators. Although both are goal orientated, assimilators tend to seek goals from their instructor. They found that catering to individual learning styles resulted in a higher level of retention, and more success with the development of self-regulated learning (SRL).

Lim and Morris (2009) showed that if learning plans are more inclusive to multiple learning styles the learner centeredness of the delivery is enhanced, which results in more active learners. Moreover, BL has the capability of being adapted to suit individual learners on multiple levels (Schmidt, 2007).

Making the Transition from Exclusively Face-to-Face Teaching Methods

The feeling of being overwhelmed at having to adapt to a new learning environment and to discover new learning roles without proper support, for both teachers

and students, resulted in the actual learning purpose of the course being obscured (Parsons, 2011). Furthermore, Vaughan (2007) found that students who felt overwhelmed with technology did not develop successful self-management skills. Thus, there is a risk that if learners do not demonstrate a certain level of SRL before entering a BL course, the technological element and the unfamiliar learning tools could damage their motivation, hindering rather than fostering the development of SRL which is needed for successful BL (Zhao & Johnson, 2012).

Azevedo, Moos, Greene, Winters, and Cromley (2008) found that in a hyper-media environment, students demonstrated better performance when they received their goals from a teacher rather than during online learning.

BL is often described as having a greater pedagogical richness than other learning methods (Osguthorpe & Graham, 2003); however, Kay's (2009) study found that there was an element of regret by teachers who tried BL, and found that they had overused technology in the classroom. The discussion of the theory of variation in teaching methodology also highlights the need for better BL course design (Oliver & Trigwell, 2005). The results of Motteram and Sharma's (2009) study also showed that it is important for teachers to create a blend that is learner-centered and based on what is already known pedagogically.

It has been questioned whether BL benefits are long-term or depend on a novelty factor. Some have argued that using technology to make the face-to-face element more dynamic and fun is using technology like 'a toy' for its 'own sake' (Shroff & Vogel, 2010).

Hartnett, St. George, and Dron (2010) examined another aspect of BL which is perceived to hamper motivation. They found that learners felt that there was no genuine need to interact online, and that especially for collaborative work, meeting face-to-face better facilitated their needs in terms of saving time and receiving more effective feedback. With these sobering findings and concerns about BL in mind, we planned our project.

A Definition of Blended Learning

BL in our project was defined as a combination of in-class activities with outside-of-class activities integrated in a single learning environment by ATR CALL BRIX, an interoperable ICT educational application for

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