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Colloquium

A taxonomy of Internet-based technologies integrated in language curricula

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Introduction

As Rushby (2005) observes, a new constructivist learning paradigm for the various uses of Internet-based technologies (IBT) and environments is emerging. IBT have evolved and been applied to language learning for almost 2 decades. However, research and scholarly discussions that provide a reliable taxonomy of IBT integrated into language curricula that would enable language teachers and learners to quickly grasp the nature and the huge variety of IBT have been lacking. To cope with the seemingly intractable legion of IBT applications, a novel taxonomy that categorises IBT applied to language learning into three types has been developed. Based on differences in locus of control, such IBT applications were classified as: (1) those integrating computer-mediated communication (CMC) tools; (2) those integrating learning management systems (LMS); and (3) those integrating Computer-Assisted Language Learning (CALL) programs into language curricula. This novel taxonomy was tentatively tested with students taking a media technology course for its validity. The students found it interesting as well as illuminating, although questions also arise in regard to the inclusion of new IBT programmes such as interactive blog and YouTube.

The National Cheng Kung University (NCKU) Internet-based English Learning & Testing Project

Beginning in 2006, the NCKU has launched a project (see http://english.ncku.edu.tw) intended to design and implement IBT-based English learning environments for instructors and students of English as a foreign language (EFL). As Jarvis (2006) comments, the English language has become an international and global language belonging not only to native speakers but to non-native speakers as well. To illustrate, over 80% of Internet-based information (Graddol, 2000) and most university textbooks are written in English. Many non-English-speaking countries have thus attached a great importance to EFL education. Currently in Taiwan as well as in many other countries, for example, EFL teaching has received as much attention as IBT (Graddol, 2004). As EFL proficiency has been made desirable at least partly by the growing popularity of the

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Internet (Liu, 2005), IBT applications have been targeted in the NCKU project as indispensable for future language learning. Given the great variety of cutting-edge IBT programs (Bonk & Graham, 2006; Levy & Stockwell, 2006), however, it is often confusing which IBT tools should be used for what purposes by teachers in their attempts to integrate IBT tools into their language courses. An appropriate taxonomy of the available tools thus becomes the first but critical step towards the full functioning of IBT programs.

Taxonomy of IBT integrated in language curricula

An ideal taxonomy should be simple in its criterion so that users can grasp the categories in an instant. To achieve this, we based our taxonomy on the simple but well-established construct of locus of control and came up with three types of IBT often found in language classrooms (see Table 1). Depending on who controls or facilitates learning, IBT classrooms can be classified as: (1) those integrating CMC tools, which provide peer-supported learning environments; (2) those integrating LMS, which give control mainly to the teacher, although often complemented with peer-supported and/or self-controlled assignment; and (3) those integrating CALL programs, which provide learners with self-paced learning environments.

Category A: Programs integrating CMC tools

In this category, CMC tools are defined as IBT without any learning content but can be used for engaging the learner in written and/or spoken communications with one or more peers in language curricula. CMC tools can be asynchronous (eg, email, discussion board, forum, etc) or synchronous (eg, chat, Messenger, conferencing, Skype, etc).

Category B: Programs integrating LMS

In this category, LMS, such as Blackboard and WebCT, are defined as virtual classrooms that provide two-way synchronous and asynchronous CMC tools for the instructor and the students, an online space for learning materials, and an online space for students to work collaboratively. CMC also offers assessment tools and resources for students to use at any time anywhere.

Category C: Programs integrating CALL

In the category, CALL programs are defined as online language-learning lessons such as BBC Learning English and other IBT-supported language-learning websites, tutorials, testing systems and games in which the user can complete learning tasks alone.

Validity and possible queries with the taxonomy

As a tentative examination of the validity of the novel taxonomy, 17 students taking the Fall (2006) course 'English Learning through Digital Technologies' at NCKU were introduced and asked to provide their responses to the taxonomy. All of them found it interesting and helpful in understanding IBT tools and their potential applications, although several queries were raised:

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Table 1: The three types of integrating IBT into language curricula

Category	Integrating CMC tool (eg, chat, conferencing, MSN Messenger, Skype, forum, email, etc)	Integrating LMS (eg, Open-source learning platforms, Blackboard.com, WebCT.com, etc)	Integrating CALL program (eg, BBC Learning English, language learning websites)
Locus of control	Mostly peer-supported; tools only	Teacher-led, although often accompanied by peer-supported and/or self-controlled assignments; tool-enhanced content	Mostly self-controlled; tool-enhanced content
Instructional mode	Drill-and-practice; one-to-one and one-to-group, collaboration	Lecturing; one-to-one and one-to-group, collaboration; Drill-and-practice	Tutorials, testing, simulations, games, etc

CMC, computer-mediated communication; LMS, learning management systems; CALL, Computer-Assisted Language Learning.

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- How to categorise 'publishing' tools such as YouTube, Blogs, etc;
- How to categorise collaboration tools such as Blogs, Wikipedia, CollabFab, etc;
- With the rapid evolution of IBT, is it possible to identify the use of various kinds of IBT in future language courses?

These questions can actually be answered if we consider IBT tools as lying in a multi-directional continuum. That is, an IBT tool is often multifunctional with one or more dominant functions. Blog, for example, can be both a self-controlled and a peer-supported tool, although its self-controlled feature apparently dominates the other. So conceived, the taxonomy should be applicable to future IBT tools as well, thus validating its existence.

Conclusion

The taxonomy was developed both as a pedagogical and a research tool. As a pedagogical tool, it has the potential to help students of IBT applications to quickly and easily grasp the host of IBT programs and their uses. As a research tool, it provides a framework in which research questions asked can be made more precise. As an example, the authors are currently conducting a study that attempts to identify the relationship between various IBT tools and language (English) learning. It asks, in particular, what types of IBT tools are better suited to the learning of which language skills, ie, listening, speaking, reading and/or writing. A taxonomy like the one proposed here would help to pin down the specific tool that proves most useful. It is worthy of note, however, that taxonomy is a relative rather than an absolute construct and that the taxonomy proposed here represents merely one of the many possible dimensions along which IBT tools can be better understood and thus make a better use of. Different taxonomies are possible and encouraged, as long as they provide valuable insights into the nature or uses of IBT applications. It is hoped that the proposed taxonomy will serve not only as a useful research and instructional tool but also to attract more taxonomies to serve the various research needs of IBT applications.

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