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Abstract

Keeping up with technological development

Should we sprint or should we stroll?

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David Brett

Research assistant at the Faculty of Foreign Languages and Literature, University of Sassari.

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The unprecedented developments in IT which have taken place in recent years have triggered unparalleled changes in a vast array of fields, not least of which, that of education. However, like every boom, it has its downsides, and there is growing concern over the so-called 'digital divide', in short, the difference between 'those who can effectively use new information and communication tools, such as the internet, and those who cannot' (Digital Divide Network, 2003). The main feature of this gap is that of accessibility, however, 'effectively' exploiting the possibilities available also involves a series of human factors, first and foremost, competence in the 'new literacies' that the IT revolution has given birth to. This paper will examine another facet of the digital divide: that of the necessity to adapt new technologies to educational purposes, so that the former may be easily used by teachers and learners alike.

Awareness of the digital divide has led to an emergent tendency to focus on what can be done with limited technology that 'can be as effective for teaching [...] as the use of "unlimited" technology' (Egbert & Yang, 2004). In other words, we should not necessarily shy away from the so-called 'cutting-edge' technologies, but at least in part, avoid the temptation to be overwhelmed by 'the dizzying array of technologically feasible options' (Doughty & Long, 2003), and focus on what can be achieved with more limited means, that will subsequently be accessible to a greater number of users.

A key concept in the following discussion is that most of the technology we are currently using in the fields of online, or distance, education was not originally developed with this purpose in mind.

Manifestations of this abound, and include:

1. An large proportion of interactive exercises available on the Web are created with coding in HTML/javaScript, a combination that was originally envisaged solely for gathering information. As a result, providing effective feedback entails considerable recoding and even then the HTML/javaScript system has serious limitations.

2. Macromedia Flash, perhaps the most versatile tool for the presentation of multimedia on the Web, a program that opens up huge possibilities in the field of distance education, has not been developed with e-learning primarily in mind, as Macromedia's main money spinner is advertising.

3. The most common format for sound on the Web, MP3, and related reproduction software were designed to cater for the commercial music market – most examples of the latter are quite unsuitable for educational purposes for a number of reasons.

Therefore, instructors who desire to exploit technology to enhance and/or substitute traditional teaching practices often find themselves grappling with applications that are ill-suited to the task at hand. Substantial alteration is necessary in order to render the systems compliant with pedagogical dictates and specific educational needs. This adaptation entails a high level of technical competence, often beyond that of the instructor, as 'few working teachers have the time to do formal programming courses, and most would think that any kind of programming is therefore beyond them' (Arneil & Holmes, 2004). Those who do possess such knowledge often work within the realms of the production of commercial software. Optimum/near-optimum solutions to the problems outlined above, have, and are being produced in such contexts, however, for obvious reasons these are not then made available to the community at large as open-source tools.

This paper will underline the importance of exploiting the potential of existing technology by illustrating three working examples of features that are desirable in, if not fundamental to, distance learning packages, that were technically possible at least five years ago, and yet today are vastly under-used, if not wholly absent.

1. Providing intrinsic feedback for text-entry exercises.

In most interactive exercises text-entry, or gap-filling, items are corrected by way of a simple script that compares user input to one or more strings provided as correct answers by the instructor. Far more preferable is the scenario in which the system proffers intrinsic feedback and 'mimic[s] a good teacher offering helpful advice and encouragement' (Bangs, 2005). For example, the script may scan the input character-by-character, compare it to the closest 'correct' string and colour code any differences it finds, hence providing guidance in the case of input that is essentially correct, but that contains spelling or punctuation errors.

2. Expanding the range of interactive exercises.

Drag'n'drop is one of the most promising functions for the creation of interactive educational material (Brett, 2005a). One particularly versatile typology is that where text must be dragged onto a labelled image – an exercise type that could be applied to myriad educational fields. While such exercises do

exist, an authoring tool to facilitate instructors with the rather complex coding is not currently available.

3. Effective presentation of sound on the Web.

Audio is the sine qua non of a number of fields of education, notably second language learning, phonetics and music, yet its presence on the Web is surprising low (Brett, 2005b). Even where it is to be found, functionality and usability are rarely optimum. The rather bulky media players used to read audio in the .mp3 format tend to distract learners; an alternative solution, the insertion of plug-ins, often sacrifices consistency and functionality (Brett, 2005c). An emerging solution is that of custom-made Flash mp3 players, which allow sound to be presented in ways that are more in keeping with educational contexts.

In conclusion, while it is of great importance to keep track of current technological developments and explore their applications to the educational context, we should beware that this does not turn into a sirens' call, waylaying us into placing too much emphasis on what could be done, rather than what can be done. This is not an incitement to conservatism or to become 'laggards' as in Rogers' (1962) work on the diffusion of innovation, but rather a reminder that much more can be done with the tools we already have at our disposal.