

STUDENTS AS INFORMANTS FOR WEB-BASED LEARNING DESIGN

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Abstract

This paper presents the general conclusions of two research studies into the attitudes to Web-based language learning of primary, secondary and tertiary students around the globe. Factors investigated were student comfort, enjoyment, learning styles and strategies, study preferences, and age and gender differences, as well as the students' assessment of how useful the experience was. One clear result is not only that students are not hostile to Web-based learning, but that the Web provides a viable medium for teaching. Recommendations are made about pedagogical and technical requirements for effective Web-based language teaching.

Keywords

web-based learning, evaluation, design, learning strategies, learning styles

Description of Studies

Two surveys of students' attitudes and experiences asked whether the Web is a viable medium for language learning, either as an add-on to classroom teaching or as distance education, which elements help make Web-based learning effective, and what the technical and pedagogical requirements of good design are. The 208 participants - 136 female and 72 male ranging in age from 10 to 75 - comprised 22 primary, 82 secondary, and 104 tertiary or adult students of English as a Second Language (ESL), French, German, Italian, Japanese and Spanish, enrolled in 2 primary and 4 secondary schools in Australia, 5 tertiary institutions in Australia, Israel and the United Arab Emirates, and 1 on-line course. 111 were native English speakers and 97 claimed another native language. All courses used the Web as an addition to face-to-face teaching, with the exception of Cyberitalian (Online) which teaches a structured course entirely online.

Questionnaires focussing on learning styles (Reid, 1998), strategy preferences (Oxford, 1990), levels of comfort and enjoyment, perceived advantages and disadvantages of the Web, and overall judgements of the quality and usefulness of the materials were administered at the beginning, middle and end of three months' exposure, and a small random sample of students were interviewed at the end. 164 valid responses were received for the first two questionnaires and 128 for the third. Univariate analyses of variance were used to identify significant relationships between selected variables. Detailed analyses for each study can be found in Felix (2000) and Felix (2001).

Discussion of Results

The strong general conclusion to be drawn from both the quantitative and qualitative investigations is that the Web is a viable medium for language learning. Reported advantages (133) outnumbered disadvantages (90), with the main advantages time flexibility (33), wealth of information (30), fun (13), reinforcement of learning (10), variety (10), privacy (8), gaining computer literacy (8), the absence of a teacher (6), the ability to repeat exercises (5), and learning culture with authentic materials (5). The interesting new advantages here are *wealth of information* and *absence of a teacher*.

Reported disadvantages were the lack of speaking practice (20), unreliability and slowness (17), the absence of a teacher (15), distraction (14), absence of interaction with peers (13), and inadequate feedback (11). Here, the advantage of *wealth of information* seems to have created a new disadvantage of *distraction*. The other disadvantages — *lack of speaking practice*, *absence of teacher*, *no interaction with peers* and *inadequate feedback* — have been common in technology-based language learning, but it is encouraging that the new technologies allow them to be addressed more easily.

Comfort, Enjoyment and Usefulness of Materials

Learners of all ages felt comfortable and enjoyed the environment. When this was not originally the case, comfort and enjoyment grew over time. Not surprisingly, beginners were least comfortable and distance students and younger students most comfortable. Since the distance students had chosen this mode of study, they might be expected to perceive it more favourably, but their feeling of comfort is still a strong indication that there is a future for the Web in distance education. A clear majority of students – most particularly younger students - found the Web useful. An important finding was that they found materials most useful if they felt comfortable and enjoyed the experience.

Impediments to Web-based Learning

Our studies confirm strongly that the biggest hindrance to learning is malfunctioning technology. This has been reported throughout the CAL research, and the Web is no different (FuturEd, 2000; Schifter 2000; Hara & Kling 1999; Owston 1997), with server capacity and bandwidth posing new problems. A strong recommendation, therefore, is to test Web resources fully and to train students in their use before they are integrated into the curriculum.

Mode of Delivery

The preferred way of using the Web was within face-to-face class teaching. The least preferred was distance education without a tutor. These results may be another example of students opting for the familiar (Felix, 2000), so we cannot make clear recommendations about the single best option for delivering online materials. What we can say is that students are receptive to a variety of modes as long as they have access to a teacher either face-to-face or by email. Male and non-native students were most dependent on face-to-face contact, a fact that lends support to anecdotal evidence that these groups are less confident language learners and need the extra help provided by a teacher (for boys finding heavily language-based learning uncongenial see Prior, Sanson, Smart & Oberklaid, 2000). It would therefore be sensible to give special consideration to their needs when designing materials. The fact that time flexibility was the most frequently identified advantage in the qualitative data suggests that students are prepared to use materials in their own time. This is another reason to think that distance learning is viable, whatever the challenge of providing meaningful feedback structures, support mechanisms and communication facilities.

Study Preferences, Learning Strategies and Learning Styles

Study preferences were evenly divided between working alone (31.1%), with a partner (33.5%), or in a group (35.4%) - data that argues strongly against a uniform teaching approach. No significant relationships were found between study preferences and any of the variables under investigation - somewhat surprisingly, perhaps, since we might have expected a preference for working alone to emerge as a special strength in Web-based learning. Similarly, no significant relationships were found between learning strategies and perceptions of various aspects of the environment. Learning styles were distributed less evenly across the categories, but again no significant relationship with other variables was established. However, a strong preference was expressed for *kinaesthetic* and *tactile* as a major learning style and for *visual* and *auditory* as a minor style - a preference that appears to be conducive to working with the Web.

One finding emerged strongly: we are dealing with very heterogeneous groups, which display great variety in study preferences, learning strategies and learning styles. However, the new technologies have the exciting potential to deal with heterogeneity, and to give us the means to produce applications, resources and activities that can address differences in strategies and styles, and cater for a broad range of student needs (see Felix, 2001 for different approaches).

Design Implications: Technical and Pedagogical

The factors that adult students valued most highly in terms of the usefulness of the materials were *clear objectives, ease of navigation, meaningful feedback, and clear and logical content*. Data relating to younger students were not reliable enough to allow definite conclusions to be drawn, but these factors are clearly linked to good teaching practice and should be taken into account in designing resources.

Feedback

The importance of feedback emerged strongly from both quantitative and qualitative studies and was expressed by students of all ages. This finding is supported by the current literature (Lyll & McNamara, 2000; Sims, 1999) as well as by earlier studies on distance education (Haughey, 1990), and is strongly emphasised in papers on quality indicators (FuturEd, 2000; Illinois Report, 1999; Kearsley, 1998; Ragan 1998). Given these findings, more needs to be done to ensure excellent feedback. A minimum adopted by many sites is to present the question, the student's response and the required answer, perhaps with green ticks and red crosses, and a running score. Beyond this, best practice would provide hints to help students who have difficulty with the questions (students dislike simply being referred to a textbook), along with meaningful and relevant comments on any errors, so that the whole process goes beyond simple marking to the stimulation of learning.

Sound

Where listening is concerned, the fact that the school-aged students complained about the lack of sound or its poor quality may have reflected deficiencies in their IT environment. Certainly, the Web already provides many excellent examples of activities delivered at high quality, with streamed audio the minimum standard we should accept for the delivery of quality sound (Goodwin-Jones, 2000).

It was not surprising that the lack of speaking practice was seen as a great disadvantage, even if comments may have reflected assumptions about what distance learning can provide. As some teachers have reported, there is no reason why students should not talk to each other in the target language while using Web materials. Apart from such in-class activity, the Web offers as many speaking opportunities as the previous generation of CAL, with voice recognition and recording already being integrated by sites such as Global English (Online). One may, however, be sceptical about the general usefulness of such resource-heavy devices (Felix, 1997). Why not reserve oral practice for the classroom and exploit the unique potential of the Web which lies, in the students' own words, in its provision of instant authenticity, wealth of information and reinforcement of learning? Other considerations apply to distance education where it is critical to integrate speaking practice. Some providers are adding sophisticated tools such as Web phone, audio, and video conferencing, and sites such as Wimba (Online) are showing what can be done with asynchronous technologies such as streaming voice email and voice forums in the form of a threaded message board with spoken messages.

Graphics

In line with Owston (1997), younger students were most impressed with graphics, but, surprisingly, a high rating for graphics did not mean that materials were perceived as more useful. There was, however, a strong indication that students spent more time working on the Web if they valued the graphics highly, so strategic integration of graphics may be worthwhile. It is worth emphasising that students were exposed to fairly simple and sparingly used graphics. Of course, professionally produced graphics will always be preferred, but the resource implications are huge. If little homemade stick figures can have a positive effect on student motivation to work longer, why not start simply?

Conclusions

The results are positive for the incorporation of the Web into language learning, with no indication that technology is a threat to the survival of teachers. It is difficult to imagine that the Web will ever replace best-practice face-to-face teaching, and more and more practitioners and constructive critics are coming around to the view that the greatest potential for the Web is to add quality to teaching and learning environments (White, 2000; Feenberg, 1999; Owston, 1997). This is not to suggest

that the Web does not also offer potential for quality distance learning, but the challenges here are greater. In either case, a basic requirement is that environments be stable and objectives clear. A positive aspect is that, in well-planned conditions, students not only find the Web enjoyable and useful, but are also prepared to work longer hours. If this finding holds over time, there must be a real prospect that the use of the technology will lead to an improvement in learning outcomes.

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