

Compressed Video and Computer Conferencing within an authoring software - A critical analysis.

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INTRODUCTION

This essay aims at presenting a critical analysis of two technologies – a Compressed Video, and Computer Conferencing – used within an authoring software for developing a Web-based course. To this end it gives a short description of the context, it analyses the two technologies using Bates's seven ACTIONS criteria as a reference.

The approach in this essay is that proposed by Nunan (1998), i. e., to highlight the use of technologies by teachers and students alike, and not the technology per se. Media can usually be carried by more than one technology (Bates, 1993). Since the two chosen technologies use the same way to deliver the course – the computer – when analysed in the light of each of Bates' criteria, show both similarities and differences.

CONTEXT

The Application of Information Technology in Education course is a subject for the MA degree in Computer Science. Offered as of 1998, it was developed - and is being administered – within an authoring software, the AulaNet, by the same professors who created and developed this software. For them, the course has two objectives: to qualify students in the use of new technologies in the educational area, and to test the AulaNet as a Web-based teaching environment.

The duration of the course is five months. It was first offered to 150 students and, the second time (now underway) to 70 students. This constitutes a small number for distance education. There are two ways by attending classes: students can undertake this course by enrolling at the university, or as attendee. In the former the student pays a fee and obtains all the rights and duties relating to the course. In the latter, students are allowed to participate but they do not benefit from direct tutoring.

Although this course has used, for research purposes, all the technologies offered by AulaNet (texts, hypertexts, slides, videos, captured images and sounds from Internet, videoconferencing, listserv, BBS, and email two technologies, which were present along the whole course, have been selected), for this essay: Compressed Video (Real technology) and Computer Conferencing (BBS generated by the AulaNet's own system).

APPLICATION OF THE ACTIONS TO THE CONTEXT

According to Bates (1995a), an approach to decision-making regarding the use of technology in distance education should be based on the context in which it is used, and on an analysis of questions that each institution needs to ask, grouped under seven criteria: Access, Costs, Teaching and learning, Interactivity, Organisational issues, Novelty, Speed . According to him, Access and Cost are the chief criteria for discriminating between technologies.

Applying these criteria to analyse the two chosen technologies (Compressed video and Computer conferencing) we obtain the following:

	Access	Costs	Teaching/learning		Interactivity		Organisational	Novelty	Speed
			Present.	skills	Material	social			
Compress	Poor	Poor	poor	Averag	Good	poor	Averag	Good	Poor

ed video				e			e		
Computer conferenc e	Averag e	Good	Poor	Good	Good	Good	Good	Good	Good

Access

Increasingly the student market is being segmented by the nature and location of the target groups. As a result when analysing a context from an access standpoint, i.e., how can students better achieve distance learning, the course designers should consider target groups from various angles, such as: purchasing power; age; learning experience; study at home, at work or at a teaching institution; full- or part-time study or training. Bates (1995b) calls attention to an issue that decision-makers are asking themselves at present: choose a technology that covers a larger number of people because it is of easy access, or use the newer technologies which exclude a large number of students unable to access them for different reasons?

Today the majority of Brazilian students doing their Masters have access to a computer either at home, at university or at work. However, many of them are unable to have access to an audio-video, either because they are not connected to the Internet or because their computers do not have a sound board. For this reason, access to classes with pre-recorded compressed video is considered poor. On the other hand, Computer conferencing only ranked as average in the context, also because of its limited connection to the Internet. When Bates (1995c) talks of access to Computer conferencing he places the telephone as a restriction for two reasons. The first is the difficulty of accessing telephone networks; the second is the poor quality of telephone lines. In fact, in Brazil although a middle-class student usually has a telephone at home, access is difficult because of network overloading.

Regarding the course which is being analysed, this argument applies to Computer Conferencing and Compressed video alike, since both technologies are dependent for their connection on a telephone line.

Costs

Costs are high for institutions and the students alike in Compressed video technologies. On the institutional side, in addition to structural costs and existing production costs of the two chosen technologies, there are specific costs for recording, editing, publishing and for video space memory, as well as for storing large volume of messages for a computer conferencing environment. But costs become even more significant when analysed as a function of the small number of students. On the student side, there are hardware costs (modem, soundboard) as well as costs for telephone lines used for the course which is entirely online. These costs are high for students undertaking the course at home.

Despite the high costs in the use of these two technologies, particularly for the course under consideration, these costs are, in fact, an investment in research, and not an expense. As such, its cost-benefit relationship is considered positive.

Teaching-learning

This criterion refers to two aspects: Presentational features and Developing Skills. Basically each medium has its strengths and weaknesses in terms of its presentational qualities, but from an instructional point of view, some are clearly stronger than others, says Bates (1995d). For instance, while TV has a high-quality presentation, compressed video is relatively weak in presentational terms. On the other hand, it seems that technologies may be distinguished by their capacity to develop different types of skills. For instance, while Computer Conferencing can develop skills for knowledge building and creative writing, TV can develop skills for analysis and evaluation.

The 'development of skills' aspect in the course under discussion was considered average technology, while Computer Conferencing was considered good technology. The 'presentation' aspect under both was considered weak technology.

Interactivity

Bates (1995e) says that technologies may be considered better or worse in accordance with the impact they have on interactivity. This impact may be evaluated by factors such as: teacher-student and student-student communication (synchronous or asynchronous, one-way or two-way, permanent or transient); the control students exercise over their learning materials (options to set their own pace of study pave their own way), and feedback on student responses.

In the case of the Application of Information Technology in Education Course, student interaction with the material is considered to be good under the two evaluated technologies. In compressed video because, although students receive a pre-prepared class, they choose whether they want to receive it, interrupt it or ended it at time they so desire. It is worth remembering that students can, in this particular course, obtain the same content through slides or texts. In Computer Conferencing, students are free to produce their own knowledge as they do not depend on the pre-prepared class. On the other hand, from a social interaction standpoint both technologies have opposing evaluations. While audio-video is considered to be poor because students undertake video classes individually, computer conferencing is considered to be good because the interaction, especially among students, is strong.

Organisational

This criterion basically refers to how institutions organise themselves in order to offer the newer two-way communications technologies. But in addition, it also include legal and ethical issues. Bates (1995 f) says that the number of conventional teaching institutions that are offering new technologies for distance education courses is on the increase. He believes this is due chiefly to two reasons: a) these technologies are

less expensive than one-way technologies, and b) the required behavior of the teaching staff is very similar from their conventional teaching. As a result these institutions would have to invest on the team that prepares the instructional design and the teaching materials; disseminate specific laws of privacy and copyright; create, disseminate and control guidelines, as well as ethical codes to teachers, students, and staff.

The university promoting the course analysed in this essay is, in terms of hardware, software, and tutoring, one of the best equipped universities in Brazil that offers courses via computer. Hence the organisational criterion for computer conferencing underwent proper evaluation. On the other hand, because the university is still not sufficiently well organised to handle audio-video technology, it was only considered average on this score.

Novelty

Bates (1995g) says that novelty is a two-edged sword. On one hand, external funds for new technologies are easy to come by; on the other hand, there is the risk of discontinuity or unsustainability when external subsidies for such projects cease.

Compressed video and Computer Conferencing were considered to be good under the novelty criterion because they have only recently been introduced in Brazil's teaching culture. Research has probably been the strong suit in the development and application of new technologies in the Application of Information Technology in Education Course , for which, to confirm Bates' words, subsidies for research have not been difficult obtain.

Speed

This criterion refers to the potential of two-way technologies for speedy dissemination of information, as well as rapid updating of teaching material so necessary for a world undergoing rapid changes. As

applied to the course under analysis, compressed video is considered to be poor owing to its lack of flexibility for updating its contents and for its slowness in downloading. Conversely, computer conferencing is considered to be good for the same reason.

CONCLUSIONS

Bates' criteria for selecting technologies raise some questions. Should newer technologies be used despite their high cost and impossibility of access to a large number of people? Are course designers really innovating or are they simply reproducing conventional teaching patterns – whether face-to-face or distance – under the new technologies? Are two-way technologies contributing to the improvement of learning?

It is difficult to answer these questions as we are living in troubled times. We are witnessing at present an incessant search for new and different ways, specially in the academic world, through research in both technological and pedagogical areas.

This essay does not pretend to provide the answers, but to limit itself to analysing the application of the two technologies to a particular context, where teaching and research are both equally relevant. It attempts to show that Bates' criteria are not determining factors in the choice of technologies but are, above all, elements that facilitate the analysis of context.

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