Increasing Value Without Increasing Effort?
The Use of WebCT in Accompanying Face-to-Face
Lectures Under the Constraint of Low Budget

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Abstract

After a period of unbridled enthusiasm about economical prospects, e-learning today is linked with the expectation of increasing expenditures. We implemented an e-learning offering at low cost for the benefit of students and teachers in a course on general pedagogy. This article describes the core ideas in our planning and the empirical findings on the students' use of the course.

Résumé

Après une période d'enthousiasme débridé sur les prospectives économiques du e-learning, son développement aujourd'hui est lié à des attentes d'augmentation des dépenses. Dans cette étude, une offre de e-learning a été réalisée à un coût moindre, pour le bénéfice des étudiants et des enseignants dans un cours de pédagogie générale. Cet article décrit les idées principales utilisées dans notre planification et les résultats empiriques sur l'utilisation faite par les étudiants de ce cours.

Following the demise of the enthusiastic promises about how e-learning would promote a revolution in learning—offering cheaper, better, and more effective learning opportunities—the discussion has shifted. European universities in particular declare "that they implement e-learning activities to enhance the quality of teaching/learning processes" (Lepori, Cantoni, & Succci, 2003, p. 79), that they use them to enrich existing programs and do not expect cost reduction or new revenues. Moreover, e-learning activities are often restricted to project work with strong financial support (Arnold, Kilian, Thillosen, & Zimmer, 2004; Hagedorn, 2002). In contrast, e-learning in the normal teaching context of university plays a marginal role, and its potential is seriously underdeveloped (Conole, 2004). Appart from financially supported projects, the possibility of using e-learning should also be considered in regular lectures, and as the differences between pure distance education and pure face-to-face teaching begin to meld, e-learning should be considered as complementary to face-to-face lectures. In particular, classes for beginners,

which often have large numbers of students, seem to benefit greatly from enrichment by offerings of discussion, information retrieval, and consultation, all of which go beyond a large auditorium and seem of especial benefit in undergraduate education (Chickering & Ehrmann 1996; Chickering & Gamson, 1987).

On the other hand, financial restraints force institutions to focus on solutions that do not involve increased expenditure. Therefore, we tried to create an online offering to accompany a regular lecture to provide added value for the students and that could be set up without any more effort than the usual work of preparing a lecture. This article focuses on whether this kind of online offering is possible and if it does add value for the students. Although our experiences are related to on-campus students who regularly attend face-to-face classes, they are transferable to distance education, especially as in recent years the gap between on-campus students and distance students has become increasingly two aspects of a continuum (Dede 2001).

Context

In the teacher education program at the Technical University of Kaiserslautern, students must take several courses in pedagogy, sociology, psychology, and philosophy. These are introduced by general lecture courses in each area that students are required to attend during their first three semesters. The Introduction to General Pedagogy (*Einführung in die allgemeine Pädagogik*) course is intended to give the students an introduction to pedagogical thinking, major theories, and terminology. This course is offered once a year as a series of lectures and attended by 50-150 students. As it is a compulsory introductory course, the students generally have had no other lectures in pedagogy and often do not know one another. The course is given weekly for one semester (about 3-4 months) and consists of lectures (about every other week) and workshops about methodical and communication skills (between the lectures).

We could see several problems with this format. First, as the aim of the course is to gain knowledge of fundamental concepts, we believed it desirable to give the students opportunities to use the particular terminology in discussions. Second, the regular lecture format lacked opportunities for in-depth discussions of assignments, which consisted of readings from the two introductory textbooks. On the other hand, the students' goals, which might differ, must be taken into consideration. From discussions with students and from course evaluations, we knew that their goals included gaining competence in pedagogy, passing the lecture examination, and in general becoming familiar with pedagogical ways of thinking, especially as most were studying technical sciences and so were not accustomed to social sciences and humanities concepts.

To resolve our problems, we decided to adopt a blended learning format to allow discussions to be added to the lecture. Beause of financial constraints, we revised the course development in our normal preparation for the lecture. We were able to make use of an existing WebCT installation licensed on campus. The content pages came as a by-product of the reorganization of the lecture content, and we also used a textbook on which the lectures are based (Arnold & Pätzold, 2002). Tests were based on older examination questions with the addition of some new questions especially designed for this purpose. We decided not to expend too much effort on moderating the forum as we expect forums to be fruitful, especially when they are the result of users' activity. Instead, we tried to encourage online discussion between the students. Nevertheless, we did post random questions on the forums and regularly read them.

Implementation

As our resources were limited, we decided to aim for maximum use by planning based on our goals and those of the students. I emphazize this, as e-learning offerings frequently seem to be designed at least partly based on technical capability (Jung, 2001). Also, as we implemented blended learning, we could attain many goals in the regular lecture. Therefore, we emphasized two goals. First, we wished to give the students an opportunity to deal with the concepts mentioned in the lecture and the literature through online chats (Weber-Wulff, 2003) and forum discussions. Second, with the students' goals in mind, we offered them a way to prepare better for the examination by creating online quizzes, lists of central concepts, and so forth. In our opinion, both strategies were also appropriate for reducing students' unfamiliarity with pedagogic concepts, and in particular we expected that focusing on central concepts would increase their willingness to talk about the subject.

The online course, therefore, consisted of three core elements, all of which made use of the basic functions of WebCT.

Content pages did not provide detailed presentations of the topics discussed in the lecture, but only gave short lists of central terms and names closely connected to the lecture. Each page referred to one face-to-face meeting.

Quizzes. Students could take the online quizzes at any time and as often as they wished during the lecture period. Questions were similar to those on the final examination and some were identical.

Forums. We established a few forums that gave students the opportunity to continue discussion of questions raised in the lecture, the forum itself, or the literature. To foster engagement in these discussions, we offered examination credits for each posting that reached a certain standard. Thus

we ran the "risk" of allowing students to pass without taking the examination, substituting active postings throughout the semester.

Chats. We twice replaced the lecture with online chats for all participants. To our surprise, chats with 60-120 participants were successful and among other benefits offered a valuable way to estimate how familiar the students were in general with the concepts of the lecture (Lermen & Pätzold, 2004).

Research Methods

To find out if the benefits of the online course were as we expected, we examined one course held in 2001-2002. We used the examination grade (without extra credits obtained through forum postings) as a measure for the learning success of the students, keeping in mind that it was an introductory lecture and that other criteria such as critical thinking were not expected until later in their pedagogical studies. Fifty-three students took part in this examination (usually a significant number of students attend the lecture to gain a sense of the topic and skip the examination at this time). To gain an impression of the students' use of and benefit gained from the online part of the course, we examined the various tracking results provided by WebCT. In particular we examined the tracking results of online activity (accesses, written postings, and postings read) of the 53 students who attended the exam and compared them with the examination results. The indicators for online activity were correlated with the examination results using Pearson's product-moment correlation provided by SPSS. We expected a positive correlation.

Findings

Figure 1 is a scatterplot showing the distribution of examination results (the range is between 7 and 22.5 points of 23 obtainable) compared with the number of times individuals made online access. The line of best fit illustrates a slightly positive correlation ($r=.21$) between these variables. An increasing number of accesses indicates a higher mark on the examination. Although this effect is plausible, it is not significant ($p<.1$) for our population.

Another indicator for online activity is the number of written postings. The correlation between the examination results and the number of postings is $r=.37$ ($p<.01$). To illustrate this, one can compare the average examination results of students with higher online activity (writing postings) with those writing no postings. Figure 2 shows that students with two or more written postings reached an average of 18.56 points, whereas the students' overall average was 15.88 points ($T(51)=2.41$; $p<.05$), so the difference is 2.7, which is about 6/7 of a standard deviation ($SD=3.18$). Moreover, our concern that the students might use the forum to circum-

vent the examination proved unfounded in this case. Those students who used the forum were in general also those who gained good marks. As mentioned, the results used for statistical analysis are pure examination points without extra credits obtained through forum postings.

The Role of the Quizzes

A strong relationship between the examination results and the results of the quizzes might also be expected. In our analysis the results in this area could not be used because the use of the quizzes varied considerably. Often students practiced with the quizzes, filling them in as often as they needed to gain the full marks; others did not use them online, but instead made hard copies so that they could practice at home. Therefore, the pure results of the students are not meaningful. On the other hand, observing the use of the quizzes led to assumptions that might serve as a starting point for further investigation. The idea is to distinguish between types of users who use the quizzes in various ways and probably with differing goals. To explore this we observed types of use as tracked by WebCT and identified four types of use of quizzes (Table 1).

Although the various types of users can be clearly identified, the names given them in Table 1 are speculative. We do not really know if *Exerciser* is doing the work, and we do not know if the so-called nonusers really did
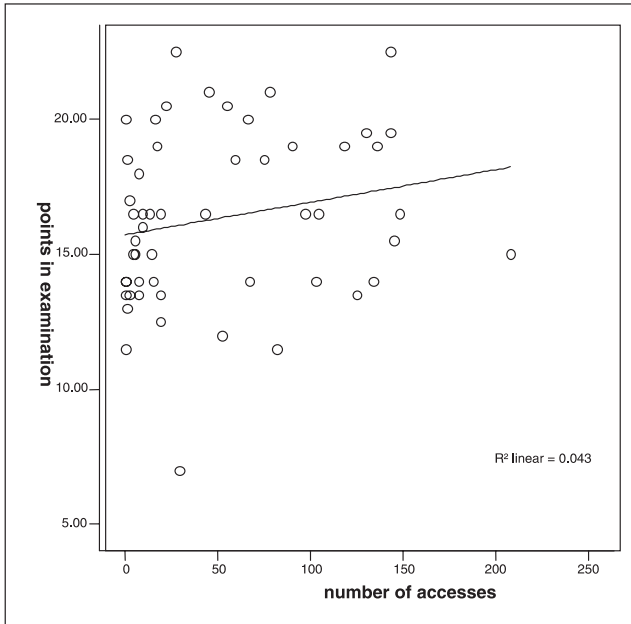

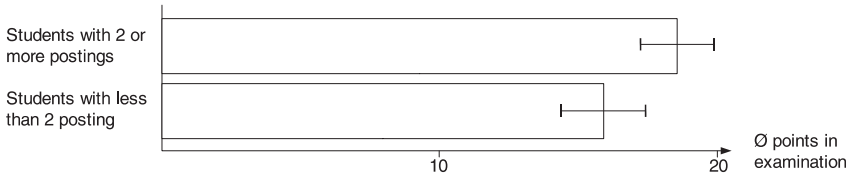*Figure 1. Scatterplot of the relation between number of accesses and examination result (N=53, r=.21, p<.1).*

Figure 2. Comparison of examination results between students who wrote two or more postings (n=9, M=18.56, SD=2.69) and students who have written fewer than two postings (n=44, M=15.88, SD=3.1).

not make use of the quizzes. Some students made hard copies of the quizzes for practice elsewhere, and those copies may also have been used by nonusers. Nevertheless, it can be stated that various patterns of use promise to be an interesting area of further investigation.

Discussion

The results shown here should encourage university teachers to implement e-learning activities even when there are strong budgetary constraints. In our experience positive results can be attained even with small effort if the planning is based on the students' goals. Moreover it seems that forum activity in particular should be encouraged as there is a strong correlation between this and the final grades. Even rewarding forum activity did not show negative effects. Those who received bonus points from this activity also gained better average marks in the examination without counting the bonus points.

The use of quizzes in online courses as described above should be investigated further. It seems that users vary considerably, and better knowledge about them might lead to improved ways of constructing these quizzes.

In general, the online activities proved of benefit to the students and the teachers. Students who made extensive use of the online material performed better in the examination. Teachers need to be more precise in their planning (e.g., as they must make clear decisions about what concepts will be the focus). A secondary effect for teachers is to see that online

Table 1
User Types in Online Quizzes

Type	Use
Non users	No use of quizzes at all
Exerciser	Try one or two quizzesshortly before the examination
Extensive exerciser	Extensive use shortly before the examination
Constant exerciser	Extensive use throughout the whole semester

chats (and forum discussions) offer an additional way to estimate how competent students make use of the concepts taught in the lecture.

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