USING CASE STUDIES IN BLENDED LEARNING FOR INCREASED INTERACTIVITY AND LOWER DROP OUT RATES

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Abstract

Previous research suggest that there is a correlation between amount of student interaction and the distance-learners' educational experience, e.g. Andrusyszn et al, (1999), and Wright et al, (2000). To find the most effective forms of student interaction is a major challenge in distance education in part because of the correlation between interactivity and drop-out rates. At BTH so called blended learning has been chosen for distance education, whereby students come for occasional physical meetings. This study shows that case studies are a preferred pedagogical form among students also in blended learning. The study also shows that students find interaction with fellow students almost as important as that with the teacher. It also suggests that there may not be any major differences between preferred forms of interactivity, between chats, forums and videoconferences.

Previous research has shown that Forums seem to have another advantage, that students in distributed and Webbased Distance learning courses would report feeling less threatened to seek help than students in more traditional learning environments (Kitsantas and Chow, 2007). Previous research by Kearsley and Lynch (1996) showed a drop out figure between 20 and 30% in distance learning courses. At BTH this figure has been substantially higher with more than 50%. Part of the reason may be the fact that the program is for free and that it is relatively easy to get into, after the model easy-in, difficult-out. As e-learning programs are constantly being developed and universities have become financially depended upon these programs, the reduction in drop out rates has become an increasingly important issue for institutions of business education.

Introduction

The aim of the study was to find the best combination or mix of different forms of interactivity for the MBA program at Blekinge Institute of Technology (BTH) in Sweden. The underlying assumption was that increased interactivity is likely to reduce drop our rate. Those asked were current students on the two MBA programs which are offered at BTH. One of these is a part-time, the other is full-time; both are blended distance programs, meaning that both use occasional physical meetings. Meetings are primarily used for class room lectures, case discussions and exams. The courses are the same in the two programs, only the tempo is different. We wanted to know how the students rank the different forms of interactivity, e.g. what they prefer: internet videoconferences (IV), internet chats (IC), internet forums (IF), more class room lectures (CL) or occasional physical meetings with case study discussions (CS). We also wanted to know who students find it most useful to communicate with to increase their learning, the teacher or fellow students.

Previous research on case studies has not focused much on distance education (E.g. Solberg Søilen and Huber, 2006). One of the reasons has been a certain hesitation as to the use of case studies in distance education, as case studies demand a high degree of interactivity, and most distance education has been given on a low-interactivity basis. But distance education does not have to mean low interactivity. Research by Yildiz and Chang (2003, p. 15) goes so far as

to suggest that web-based courses tend to be "richer and of more quality": they found that the quantity of feedback from peers was the same, that the value of this feed back was better, and that it was more prompt than in regular face-to-face/class room education. These findings have brought more insight into web based teaching than previously seen. But also early research indicated that web based education could offer a true community for learning (Powers and Mitchell, 1997). Mikulecky (1998) found that students were able to generate more thoughtful responses in web-based courses due to prompter response time. Moore (1989) has defined and discussed three forms of interaction: learner-instructor, learner-content and learner-learner interaction. Case studies when performed in group appeals to all three forms of interaction. This indicates why they provide such an advantageous form for interactive learning; they offer a possibility for the students first to read on his own, then to prepare and discuss in smaller groups with theory, and then to discuss with the teacher and other fellow students in class when presented. Previous research has pointed to the importance of the interaction the student has with teacher and other student (McIsaac, Blocher, Mahes, and Vrasidas, 1999). Our study confirms this.

Methodology

A questionnaire was sent to all MBA students who are currently active in the two MBA programs at BTH, the full time and the part time program. We asked them to respond by filling in the same word document where questions were defined (see appendix). The time deadline to respond was set to three weeks. It should be kept in mind that questionnaires was not made mandatory (part of course) and that students had as can be expected fully up with their course work. All communication was made over the internet and email system, which tends to give lower response rates. Most non-related assignments tend to be neglected by MBA students as well as by professionals. Of the 67 contacted by email, 33 (or about 50%) delivered complete answers which could be used for the analysis. Only students who were at the end of their education were asked, those with the most experience with program courses. All respondents were working on or about to start work on their MBA Thesis.

As BTH does not charge any tuition for the MBA it was thought that quality of the program would be maintained by making the program an easy-in difficult-out, instead of the regular difficult-in, easy-out model preferred by the high-cost programs. The number of students starting the program was more than double as many. This means that the program has had a drop our rate of more than 50% (statistics from 1. year run-through, 2005-06). Students were told that they were participating in a study for a conference on distance learning, and that their identity was not to be conveyed.

Results and Discussion

The questionnaire consists of 13 questions. 1-5 answer basic demographic questions about students and their profile as related to the marketing of the MBA Programs. Questions 6-9 answer questions about the importance of different forms of interactivity in the program. These questions where used as the core content for this study. Questions 10-13 were used for another study. A Likert scale of 7 (where 7 was highest score, and termed "highly important") was used in question 7-9. In question 6 the student was asked to list his/her preferences for the different methods of interactivity from 1 through 5 (where 1 was most important score).

From the demographic data we learn that 30 of 33 respondents were males. The average age of the respondent was 33 years. Respondents' age varied between 28 and 36. The average number of year working experience was 9, and 67% of respondents lived in Sweden. From before we know that the large majority of those living in Sweden are non-Swedish citizens,

many whom have moved to Sweden just over the past few years from third world countries. The reason why this group is overrepresented is not clear. It may be that they are more sensible towards the cost of education.

Number of males in the two programs is about 80%. The number of students who answered the questionnaire was 91%. It is not clear why proportionately more males have answered. The large percentage of males in the program is related to the large number of foreign students, first of all from third world countries, most of who live in Sweden. The large majority of women are of Swedish and European/American nationality.

The average age is relatively high compared to other MBA programs, especially campus program. The reason is not fully clear. It may be that distance programs attract older students, who are working at the same time and need higher flexibility. This is suggested by the high level of working experience among students, with 9 years. This is by comparison with other MBA programs a high number. The amount of students who are working at the same time as they are completing the MBA is 72%.

Table 1: Questionnaire results

Question Nr.	Variable measured	Question	Scale	Results
6.	Best form of interactivity	What form of interactivity makes it more likely that you will complete the MBA program?	In order of importance, where 1 is most important, 2 second most etc	CS=2,2 IV=2,8 IC=2,8 IF= 3 CL = 4,4
7.	Best form of interactivity	How valuable would you rank the following for the overall quality of the program?	From 1-7, where 7 is best	CS=6,2 IF=5,5 IC=5,5 IV=5,4 CL=3,5
8.	Interaction with teacher	How important would you say the relationship is between your interaction with the teacher and your educational experience?	From 1-7, where 7 is best	5,7
9.	Interaction with other students	How important would you say the relationship is between your interaction with other students and your educational experience?	From 1-7, where 7 is best	5,4

We will threat the four questions is pairs. In question 6 we wanted to know what interactivity the students think is important *for him or her* to be able to finish the MBA program. In question number 7 we want to know what kind of interactivity is important *for the overall quality of the program*. The results indicate the same general conclusion: that students value case studies with physical meetings most, and more than all forms of internet activities. This is a strong argument for a blended program as opposed to pure distance education.

All forms of internet activities are found to be relatively important, so we can not make any strong separation between preferences, as was our aim from the start. In question 6 Students find most help in video conferences and chats, closely followed by internet forums, but the difference is minimal. It could suggest that they prefer the forms which offer the highest degree of interactivity. E.g. Chats offer more flexible forms of interactivity than

forums. The degree of interactivity in videoconferences depends much on the way the teacher organizes these. E.g. it is possible to organize videoconference as a monolog and on the other side, with more or less dialog. All in all we cannot separate the students' answers from their particular experiences with specific teachers and their specific pedagogic approach. For that we would need a larger and a wider base of respondents across different universities.

In question 8 we ask how important they find the interaction with the teacher and in questions number 9 how important they find the interaction with fellow students for the overall teaching experience. What we found here is that both forms of interaction is deemed highly important, but that interaction with teacher is only found to be somewhat more important than interaction with other fellow students. This says that interaction with fellow students is very important, and may indicate that students perceive this interaction to be more important than for campus education. The study confirms the overall conclusion that a high degree of interactivity is perceived to be important for the individual students and for the success of he program.

Any one form of internet activity does not guarantee a high degree of interactivity. This is in particularly true for videoconferences. Regular types of dialog in a videoconference system come in the form of uploading and working with documents (D), chat (C), video (V), and sound (S). E.g. it is possible to allow students to use the sound function or to respond by chat board. The problem has two sides. First there is a question of finding the right mix from a pedagogic perspective (*pedagogical aspirations*). In addition there may be a number of limitations in the systems, e.g. technical limitation in terms of the size of the files allowed to be uploaded (*technical aspirations*). Then there is of cause the difference between aspirations on the one side and knowledge and resources on the other, but that must be left for another paper. A model for the choice of different degree of interactivity for videoconferences may look like this:

Table 2: Degree of interactivity with Videoconferences

Degree of Interactivity	Teacher	Student
Pseudo One-Way communication	D, C, V, S	C
Limited two-way communication	D, C, V, S	C, S
Unlimited two-way communication	D, C, V, S	D, C, V, S

By Pseudo One-Way communication we mean that the communication is almost one-way. Only contact with students is occasional feedback over the chat board (C). Then there will be communication over other systems of cause. Strict on-way communication is hardly possible in any form of education, e.g. there will always be an exam turned in at the end of the course and a grade given back. Nor is it a goal.

The *Interactivity Mix* chosen by a teacher or an educational institution within a videoconference today will often depend on the number of students. This is largely due to technical limitations, which it is reasonable to believe will be overcome in the years to come. In a full class sharing full sound and video abilities today there will normally be a risk of computer crash, with all what that means for the quality of the course and the teacher's ability to do his or her job. This is a situation which most technological solutions are still not prepared for. On the other hand, in a one-to-one thesis supervisor situation it will often be an advantage and a possibility to have full interactivity for both parties. All this of cause assumes knowledge about all technical systems involved both on the teacher and the students' side of the learning experience.

Our findings also point to a number of theoretical questions in pedagogy.
Students find it useful to see each other during physical meetings, if only for a few hours or days. Then they can more easily relate to a face and gestures of a fellow student when they his

or her name on the internet. We have also seen that students prefer using several different technologies in their learning experience and that they prefer to stay in close contact with both teacher and fellow students. This can be analyzed according to the Socio cultural perspective (Säljö, 2000), whereby what is being taught influences the student, who again influences what is being taught, and whereby the question of how subjects are being taught influences the content and the content influences how things are being taught. In other words, we see a mutual influence between three factors; the content, the teacher and the student.

Distance learning is a special case of *high-tool intensive activity* in the sense that we are using a large number of not only *intellectual tools*, but also *technical tools*. Our finings confirm that the student is seeking a high degree of complexity in his learning experience. This makes it a relevant phenomenon to study from the socio cultural perspective. The model presented in the table below suggests examples of how this may be conducted:

Table 3: Content-Teacher-Student Tripod for Mutual Influence in Distance Education

	Student	Teacher	Content
Student	X	Extending personal availability	Extending online availability
Teacher	Keeping deadlines	X	Extending product selection
Content	Extending reading time	Extending amount of material	X

The student influences teacher to stay online more often, to extent and change his time of availability. This means that the teacher will have to reorganize the way he or she works and make schedules. It could also be added that the student influences fellow students to more written communication. This means that fellow students may have to read and comment on more written material, which again would imply that their writing performance is likely to improve. The student influences content providers, such as text book editors, to provide more of their information online. This has in turn increased the amount of supporting material that comes with the textbook. It has in fact opened up for a whole new world of business opportunities for editors by becoming involved as an active learning partner.

The teacher influences the student to turn in his or her assignment at the exact time and date. If you are told to turn in a paper on June 5 at 12:00 and it says received at June 6 at 14:34 in the teacher's mailbox the deadline has not been met. Web education provides an opportunity to record dates like never seen before. As there tends to be more assignments in distance education this means that the students must and will organize their time better. The teacher influences the content provider to extending his product selection. E.g. it may be helpful for the teacher if the editor provides examples of exam questions, online quizzes and links to further readings. Some of this material can be exclusively delivered to the teacher.

The content provider influences the student to spend more time with the large selection of teaching material, whether textbooks or supportive material. He influences the teacher to buy more supportive services and can raise the barrier to entry for other editors. These are just some examples. There are many more and they are bound to change continuously as new technology is introduced.

Distance learning with high-tool intensity also addresses a number of research possibilities for Cognitivism, the theory that focuses on what happens inside the head of the person studying. E.g. what happens when we increase the number of technical tools in distance education? Are there a preferred number of tools from a cognitivistic perspective? In other words, even though the students seem to search high complexity in his or her teaching experience, there will be a limit to what he or she can handle purely cognitive.

From a behaviorist perspective what are the results of these teaching techniques on the student's future actions? Will he start working in a different way? Will he be better prepared for the mobile working environment of tomorrow? It would seem that if the student learns the subjects but also the form he will be better prepared for both. These are all questions which could be investigated within the theory of Behaviorism.

It should also be investigated how many physical meetings are deemed necessary. At the moment there are about 4-5 of these per year at BTH, including the graduation ceremony. What is the optimal number of meetings? This is an important question also for the economy of the students, as each trip means high traveling costs. From a product perspective it is a question how many physical meetings it takes before the program start to look like an executive MBA, as a part of the definition of an executive MBA today is the number and extent of the physical meetings. At the end these are all questions for further papers and discussions and their answers would of cause require new and different studies.

Conclusion and Implication

This study makes a number of conclusions: That students find that case studies is the best form of interactivity for themselves and for the overall quality of the program. That students find their interaction with both teacher and fellow students to be highly important for their learning experience. That students do not make any clear distinction between preferences for different form of internet interactivity. Further more the study supports the idea with the blended programs because of their contribution to a higher degree of interactivity.

In dealing with these issues we have presented two models which may be of help: one which shows the difference in Degree of interactivity with Videoconferences and another which concerns pedagogic theory, a Content-Teacher-Student Tripod for Mutual Influence in Distance Education.

From the perspective of pedagogic theory we have shown how students, teacher and content may influence what and how knowledge is being transferred. We have also raised a number of pedagogic questions for further research both from a cognitivist as well as a behaviorist perspective.

Despite the wide use and acceptance of internet technologies this study shows that students still find short physical meetings with case study discussions highly valuable for interaction with teacher and fellow students.
Video conferences are on average considered slightly more useful than internet forums and just as useful as internet chats. Starting fall 2007 it is the ambition of the MBA programs at BTH to make all distance courses available over videoconferences, with so called video lectures. The number and length or these lectures is still up to the lecturer to decide. For some there will be an equivalent of the same number of hours as in class room lectures. For others it will be a question of a smaller number of lectures or so called mini-lectures. What form and mix is being chosen depends much on questions such as what each teacher is comfortable with and how much IT knowledge and interest he or she possesses overall and in particular when it comes to each system.

It has been found that teachers who rely on low interactivity, who do not check their email regularly, or who are not available online, e.g. over Skype, have less satisfied students and perform less satisfactory. Consequently they have been found to be less useful for distance education, even though they may be excellent researchers and class room teachers. In other words, availability is a prerequisite for interactivity in distance education and would be defined as a Key Success Factor.

Before doing this empirical study the author had an understanding from feedback that students valuate video conferences more than any other form of interaction in distance education. As students only had one course with videoconferences during the entire program, and these lectures were not compulsory or started on by students, the basis for drawing conclusions on video conferences was too weak. Future tests should focus more on this particular issue.

This study shows that it is not only a question of finding the right mix of interactivity between different media, but of finding the right mix of interactivity within each media. This is particularly the case for more elaborated systems, like videoconferences. Today there is also the tendency towards more integrated systems, where a number of functions are made available in the same place. The difference in mix within each media may be considered more of a pedagogical issue and decided by the individual teacher based on his or her pedagogic conviction, but the mix of media is often set by the university administration.

Case studies do not have to be removed from the MBA education simply because the program is offered on distance. More, physical meetings are not required for the use of case studies even though this was the situation tested here. Case studies can be used in internet activity, e.g. as a part of video lectures, preferably then with a higher degree of interactivity on the part of the students, as limited or unlimited two-ways communication. One reason for the positive feedback on case studies is that method by itself opens up for a great deal of interactivity, compared to e.g. regular class room lectures (Solberg Søilen and Huber, 2006, pp. 27-31).

What we can recommend in general from our findings is to allow for and prepare for the high complexity and intensity of interaction which the student is seeking in distance education and which seems to prepare for the success of the MBA programs, also by reducing drop out rates.

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Questionnaire

RESEARCH PROJECT CONDUCTED BY

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For a paper to

19th Business Administration Conference (NFF)
Bergen, Norway on August 9-11, 2007

"The Future of Nordic Business Schools"

Dear Student,

Please take a few minutes to fill out the questionnaire. I will use the answers in a paper for an upcoming conference.

Upload it anonymously under "NFF paper" on LUVIT/FEC066 no later than Saturday, April 14 at 22:00.

Thank You!

Klaus

A. Demographical data

1. Gender (Man /Woman)   …………………………………………...

2. Age   …………………………………………...

3. Years of Working experience   …………………………………………..

4. Your current position (Student and or Professional)

                                                 …………………………………………...

5. Where do you live (country)   …………………………………………...

B. Interactivity

6. What form of interactivity makes it more likely that you will complete the MBA program?

Rank the following (in order of importance: 1,2,3,4,5 event. 6):

    a.   the use of case studies
    b.   the use of video conferences
    c.   the use of class room lectures/physical meetings
    d.   the use of internet forums
    e.   the use of internet chats
    f.   other   …………………………………………...

    Your comments   …………………………………………...

    7.   How valuable would you rank the following for overall quality of the program

    Rank each from 0-7, where 0 is "not important at all", and 7 is "very important":

        a.   the use of case studies
        b.   the use of video conferences
        c.   the use of class room lectures/physical meetings
        d.   the use of internet forums

e. he use of internet chats
    f. other

Your comments   …………………………………………...

8. How important would you say the relationship is between your interaction with the teacher and your educational experience?

Use same scale from 0-7   …………………………………………...

9. How important would you say the relationship is between your interaction with other students and your educational experience?

Use same scale from 0-7   …………………………………………...

C. Tuition

10. Would you have been likely to join the program if you had had to pay for the MBA education? (yes/no)

11. (If yes) How much (max) would you be willing to pay for the MBA program at BTH?

12. Would you be more likely to stay in the program if you had had to pay for the MBA education? (yes/no)

13. (If yes) How much would the MBA program have to cost before you would seriously consider NOT dropping out?

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Your comments to anything in the questionnaire:

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Thank you again!