Case Study Teaching via Collaborative Information Technology

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CASE STUDY TEACHING VIA COLLABORATIVE INFORMATION TECHNOLOGY

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ABSTRACT

The purpose of this paper is an analysis of a collaborative, information technology-mediated teaching endeavour in marketing education. The analysis goes beyond a comparison of traditional and technology-based teaching on a learning-effectiveness level by covering the different perceptions of instructors, learners, teaching assistants and IT personnel of the cost and benefits of such settings from the process point of view. Hence, it does not only analyse learning effects in didactic terms, but also in technical, organizational, and social ones. A field experiment was conducted to gain insight into the organizational and technological design of teaching case studies in an international context by using information technology. A qualitative research design was applied. The results provide guidance for collaborative teaching of case studies in marketing education.

1. INTRODUCTION

Marketing education is currently confronted with an increasingly globalized business environment. New technologies are not only influencing international marketing practice, but also education in this field (Bell, et al. 2001). Thus, teaching mediated by information technology (IT) is becoming an important option within marketing education, because it facilitates the sharing of costs, information and expertise among multiple sites, while providing additional educational opportunities (Hackley and Webster 1997, Meier and Simon 2000, Simon 2001). This paper deals with a special form of IT-mediated teaching, collaborative, IT-mediated teaching, which has the following properties:

- Two or more learner/instructor teams are geographically dispersed.
- Knowledge and content are available from more than one source, not just from the local instructor.
Direct, symmetric interaction can take place between all combinations of remote and local instructors and learners.

A combination of media may be deployed. Video conferencing, possibly multi-site in nature, supports symmetric, synchronous communication. Additional educational material such as PowerPoint slides, printed case studies, video recordings may be incorporated into the lecture.

The use of IT in education was a widely discussed subject even before the advent of “e-learning” and “virtual universities” (Simon 2001). Whereas a lot of researchers have been focused on the effectiveness of IT-mediated learning in comparison with traditional learning (e.g. Russel 2001), less emphasis has been placed on the organizational context in which IT-mediated learning takes place in traditional higher education institutions (Kerres 1998).

The analysis presented in this paper goes beyond a comparison of traditional versus technology-based teaching on a learning-effectiveness level by covering the different perceptions of learners, instructors, teaching assistants and IT personnel of the cost and benefits of such settings. Accordingly, it does not only analyse learning effects in didactic terms, but also in technical, organizational, and social ones. The paper presents guidance for organizing and implementing collaborative, IT-mediated case study teaching in an international environment from a process point of view.

2. CASE STUDY TEACHING IN MARKETING EDUCATION

Case studies in marketing education describe business situations. They expose learners to situations very much like situations managers encounter in the real world. A case study is tailored to a particular unit of class time and focuses on a particular problem (Corey 1996). A very important issue in using case studies in marketing education is the necessity of discussion groups. Learners participate in a discussion group, present their arguments to the members of the group, and discuss them. The purpose of doing so is to develop a consensus or a group position (Corey 1996).

Hence, it is common practice in case study teaching that learners are asked to prepare the case before the lecture; sometimes even a short position paper is required. With a common basis of knowledge the lectures always contain a quite lively discussion among learners and instructors. The instructor tries to provide theoretical background knowledge and reinforces learning effects.

It has been shown that in-class discussions of case studies suffer from temporal and geographical limitations (Benbunan-Fich and Hiltz 1999). Collaborative, IT-mediated teaching may be used to overcome these limitations and expand and enrich case study discussions among learners and instructors from different universities. Previous research suggests that participants working within an IT-mediated collaborative environment will produce higher-quality solutions than learners who work on their own. They also tend to submit longer reports than participants working on case studies without taking advantage of IT (Benbunan-Fich and Hiltz 1999).

3. PROCESSES AND INTERACTION PATTERNS

A collaborative, IT-mediated teaching event involves various actors, such as learners, instructors, teaching assistants and IT personnel (Guth, et al. 2001). The following paragraphs outline how these actors participate in a series of activities. A summary of this interaction pattern is shown in Figure 1.
A collaborative, IT-mediated teaching activity starts with the expression of intention to undertake this endeavour. The earlier this takes place the better, since aligning each participant’s teaching schedules with the other parties’ semester holidays and course agendas constitutes a major obstacle for such an endeavour. Ideally, in this finding and co-ordination phase new media applications support the search for, and co-ordination of, dispersed partners. Such tools provide scheduling support, so that parties can find appropriate dates more effectively. They also maintain a communication infrastructure for a community of scholars anxious to engage actively in international research and teaching projects.

After a certain number of parties have agreed on carrying out a joint teaching activity, the planning and preparation phase starts. Within this phase instructors exchange teaching objectives and specify the educational material they intend to use within the activity. Educational materials typically specified in international marketing teaching include case studies, PowerPoint slides and short videos that will be used during delivery. In this phase intellectual property rights are asserted and related questions addressed, such as “May others record the teaching activity and reuse the video?”, or “Under which conditions may I reuse the other parties’ educational material?” At the same time, the parties have to agree on whether they intend to evaluate the teaching. The IT personnel must identify and test
a communication platform which is available at all sites involved. Additionally, teaching assistants might prepare learners for the delivery event, for example by rehearsing their presentations.

The delivery and collaborative learning phase starts on the date of the first delivery event. At this point of time the technology must be ready, and the teaching activity fully prepared. The instructors hold lectures to the local and remote audiences, and moderate discussion among them. Learners and/or instructors present proposition statements and give summaries of the discussions.

The delivery phase may optionally be followed by an evaluation and reflection phase, during which the parties involved are asked to judge each others’ performances: learner presentations are assessed, data on learner’s perception of the event is gathered, and reflections on the technology and organizational setting can be made.

Collaborative, IT-mediated teaching constitutes a new challenge in the instructional organization of a trial event, since interaction complexity increases whenever a site is added. Various questions arise here, such as the following. Does a more complex interaction scenario require more structure in order to be effective? How should the technology be introduced to its prospective users? What interaction patterns become predominant when case study teaching goes beyond the bricks and mortar of one single higher education institution?

4. FIELD EXPERIMENT

4.1. Participating sites and content

The trial event involved three active sites (in brackets the responsible instructor):

- Ecole des Hautes Etudes Commerciales Paris, France (Jean-Paul Larçon),
- Warsaw University of Technology Business School, Poland (Daniel Michel),
- Wirtschaftsuniversität Wien, Vienna, Austria (Bodo B. Schlegelmilch).

In addition to the active sites, ESADE Barcelona (Spain), NCSR Demokritos (Greece), Institute Jožef Stefan (Slovenia) and Universidad Politécnica de Madrid (Spain) participated passively. The passive sites observed the trial, but were not involved actively in the case discussion.

The trial took place in the framework of the UNIVERSAL project (http://www.ist-universal.org), which explains the high number of passive sites. UNIVERSAL aims at developing an infrastructure for the exchange of learning resources among higher education institutions in Europe (Guth, et al. 2001, Brantner, et al. 2001). By providing an inter-organizational information system, called the UNIVERSAL Brokerage Platform, the project serves as facilitator for the secure exchange of educational material (e.g. PowerPoint slides, case studies), as well as the organization of collaborative, IT-mediated teaching.

At the three active sites the trial was part of courses in the context of a business administration curriculum. All three courses were held independently of each other. However, two lectures were taught in collaboration: a case study on Henkel delivered on 19 March 2001, and a Levi Strauss case study delivered on 21 May 2001.

The delivery of the discussions on the case studies was (too) carefully planned. The contents and the structure of the discussion were prepared in advance at a high level of detail. The faculty responsible for each of the two lectures (Jean-Paul Larçon for the Henkel Case and Bodo B. Schlegelmilch for the Levis Strauss Case) had formulated questions to be addressed during the session. Even an instructional scenario arranging the order in which participants would answer these questions was designed. All the participants (instructors, teaching assistants and learners) were provided with copies of the cases.
discussed. They prepared the questions individually, and were informed via e-mail or postal mail of which ones to prepare and when to respond.

Before delivery, the instructors chose a number of learners who were asked to participate actively by presenting their solutions in the trial. The selection of learners was different at the various sites. In Austria, where such a trial was taking place for the first time, active learners were chosen carefully and personally briefed by the instructor and the teaching assistant. The active learners prepared PowerPoint presentations and were asked to make them during the trial. The passive learners prepared the same questions concerning the case, but no presentation. Thus they only submitted a paper of 5 pages summarizing their proposed solution for the trial. In Warsaw the preparation was based on general guidelines distributed by the instructor beforehand. The learners presented solutions before delivery. In the planning and preparation phase the learners who would present during delivery were chosen by the instructor. In France the learners and the instructor also discussed the case in advance. Topics related to the case study were assigned to the teams beforehand, but teams had to choose a presenter themselves.

4.2. Information technology used

At the first trial standard ISDN-based video conferencing equipment was used. France Telecom operated a multicast-unit. Universidad Politécnica de Madrid supported the trials by providing a comprehensive document on setting up a video conference environment. The document covered audio and video set-up, as well as illumination.

At the second trial the IP-based video conferencing and collaboration system ISABEL (http://isabel.dit.upm.es) was deployed. Since GEANT was not active at that time, ISABEL required a comprehensive set up of local, national and international networks in order to guarantee a 2 Mbit/s connection between all the participating sites. Figure 2 shows the network configuration of the second trial (ESADE did not participate, because they could not arrange for the technical equipment in the given timeframe).

![Figure 2: Network topology of second trial (Salvachúa and López 2000)](image-url)
5. METHODOLOGY

To examine the benefits and costs of delivering marketing education in a collaborative IT-mediated environment, a qualitative research design was applied. Such a design is considered to be appropriate when the phenomenon examined requires an explorative investigation (Degenhardt 1986) which provides the flexibility for identifying new variables and new relationships among them.

Eleven persons were interviewed (3 instructors, 1 teaching assistant, 1 IT personnel, and 6 learners) in order to get a comprehensive overview of participants’ perceptions. A set of open questions served as flexible guidance for the interviews. This set of questions was further developed as we advanced in our studies (see Rubin and Rubin 1995).

6. ASSESSMENT OF THE TRIALS

6.1. What learners think

Learners perceive the collaborative lecture as something extraordinary, which they think they will keep in their memories. They observe the performances of their international colleagues carefully and become more sensitive to presentation styles and to ways of dealing with the situation. For example, one learner stated: “One girl was talking very fast, you could see she was very nervous”.

The IT-mediated exposure to other cultures, and the opportunity to discuss a case on an international basis with remote sites, have a major impact on the emotions associated with a lecture. Learners who have not participated in IT-mediated lectures before are curious about such a new environment. The new setting brings in new discussion partners, which is appreciated by the learners, who expect to observe cultural differences in the results presented as well as the way the discussions are carried out. Or, as one learner put it: “We can learn things we cannot learn from a book”.

However, active learners do not judge learning effectiveness as highly as in a traditional setting. The heavy workload of the preparation phase and the tight structure applied in the lecture make them think they will not be provided with additional knowledge. The technology itself is a big attention-getter for those who are exposed to it for the first time during the delivery and collaborative learning phase. These learners have problems focusing on presentations and discussions. During the lecture learners have to address two audiences simultaneously, the local and the remote, a task which is not easy to manage, and which requires training.

Learners who are actively involved by giving presentations gain experience in presenting via video conference systems. The IT-mediated presentation is perceived as a new challenge some are eager to meet. Being selected as the one who will present during the lecture is treated as a reward, which makes a learner accept the extra effort required for thorough preparation. Learners enter a new playground in an international environment, where some feel that they can gain extra credits if they perform well.

Obviously passive learners, who knew from the beginning that they would not be actively involved in the lecture, perceived it differently. They valued the fact that they could seize the opportunity to acquire new knowledge from the participants at the remote sites. Unlike the learners presenting the results they followed the lecture attentively. However, the structured discussions and presentations were perceived as very distant and lacking in emotion. The lecture appeared like a very long presentation, which left no room for unscheduled discussions as in traditional lectures. They even observed differences in the presentation styles between the different sites: According to one passive learner: “Our instructor was in the middle of the learners, the French instructor was sitting behind a desk and was separated from the learners”. Even, if they did not have to present their results, they regarded the lecture as a chance to learn more about new means of IT-mediated communication.
6.2. What faculty thinks

In collaborative, IT-mediated teaching lecture preparation changes considerably. Coordinating the different sites requires extra efforts. Teaching objectives have to be communicated. All sites have to gain access to the educational material used. At the same time, intellectual property rights have to be respected, which makes the distribution of material more cumbersome (e.g. orders for printed case studies must be placed in good time, pdf-versions of PowerPoint-slides must be created in order to hinder direct reuse of the content, videos have to be shipped or digitized). The international audience in general, and the presence of other instructors in particular, put additional pressure on the preparation work.

The planning and preparation phase differed according to instructors’ experience with collaborative, IT-mediated teaching. The following pattern was observed. Less experienced instructors prepared the presentation with their learners more diligently and in greater detail. Instructors who were more familiar with the setting had their learners prepare as usual, but selected the best learners to present their solutions. Instructors who had worked in the setting on a regular basis prepared the IT-mediated lecture in the same way as a traditional one.

Perceptions of the lectures also differed substantially depending on instructors’ experience. Instructors placed in this kind of setting for the first time were more curious about the technology, but doubted its reliability to a certain extend. They were also more excited about the exposure of their learners to an international environment. However, due to the tight structure of the lecture their expectations were not completely fulfilled. A “traditional” setting for case teaching was perceived to be more effective.

Instructors who had engaged in IT-mediated, collaborative teaching before expected unique learning effects as a result of the cultural differences between the different schools. They assumed that differences in the proposed solution and argumentation would occur because of different attitudes towards some topics at the various sites. These expectations were not really fulfilled due to the structured outline of the lecture.

None of the instructors got any information on the technology used. However, they felt sufficiently supported during the trial by the IT personnel. Perceptions of technology varied. Instructors who had worked in this context before were enthusiastic about future possibilities for joint teaching. Instructors encountering for the first time perceived the limitations of the media more strongly. More experienced instructors do not perceive the limitations as strongly. Or, as one instructor put it: “The Vienna Case was perfect. Perfect means the professor forgets that he is teaching in a virtual classroom”.

Teaching a case study with more than two sites involved requires a relatively rigid discussion structure, in order to avoid chaos in the discussion process. This forces participants to focus on the answers prepared in advance leaving no room for additional, ad hoc contributions. Within such a structured setting free discussion cannot develop. Hence, new or intercultural differences between answers from various sites were rare.

6.3. What IT personnel thinks

For the technical staff the trial provides an opportunity to improve their skills in deploying video conferencing technology in a classroom setting. Preparation work usually has to be started some time before delivery, when technical systems at the various sites have to be set up and their interoperability has to be tested. Communication from the IT personnel addresses two target audiences: local users, and IT personnel at the remote sites.

Organization at the local site goes beyond technical preparation work, to include informing teaching assistants, instructors, and learners about the possibilities of the new media and the differences between “manual” and IT-supported delivery. The event put additional pressure on the IT personnel
who for the first time felt responsible for managing crucial functionality in an international teaching environment.

7. LESSONS LEARNED

7.1. Social interaction patterns: new roles for the learners

Involving learners in new teaching activities requires instructors to identify “pioneers” within their classes. Our findings suggest that only those who are motivated to participate in such an undertaking should be put at the forefront. However, if instructors were to divide classes into active and passive learners, they might impose a new two-tier role-distribution, reinforced by technology, with negative effects on overall learning effectiveness.

Whereas in classroom-based discussions it is relatively easy to address all learners, this is very hard to achieve when additional sites join a case study discussion - a natural effect caused by the increased number of learners. There is a danger that a larger number of learners will not participate in the discussion and consequently become increasingly less interested observers of the scene. As a consequence, new instructional settings in collaborative, IT-mediated teaching have to be designed and deployed to assure an effective transfer of knowledge to all learners.

When delivery is conducted in a multi-lingual setting, many participants are forced to present their solutions in a foreign language. This might cause problems, since participants might not be familiar with presenting in a foreign language. For other non-native-tongue participants the usage of a foreign language might cause difficulties in understanding their peers. However, at the same time it provides a learning environment within which international experience can be gained.

7.2. Teaching organization: new roles for the faculty

All instructors would have preferred more time to coordinate the preparation of the delivery. In the finding and co-ordination phase a (IT-mediated) meeting of the instructors is recommended to discuss questions of course outline, presentation styles, contents and discussion processes. This should improve the quality of the teaching endeavour, especially when collaborative, IT-mediated teaching is carried out for the first time. The number of participating sites should be limited to two or three. If more sites are involved co-ordination becomes too cumbersome.

The planning and preparation phase should leave enough room for new solutions to be developed spontaneously during delivery. There is a danger that instructors push learners towards developing a “perfect solution” beforehand in order to guarantee a good performance in front of the international audience during delivery. However, even in an IT-mediated, collaborative teaching environment an open and flexible approach to discussion should prevail. Hence a semi-structured teaching scenario is to be recommended, in which the key issues of the case are identified beforehand, but with no detailed time schedule associated with them. Instructors should put additional emphasis on motivating learners to deliver creatively, which should help them to get additional attention despite an IT-centred environment. At the same time, instructors and teaching assistants are required to coach learners in order to reduce the pressure perceived when presenting in front of an international audience.

At the beginning of the delivery and collaborative learning phase instructors should explain why collaborative, IT-mediated teaching, apart from exploring new technologies, offers advantages on several levels. Learners would like to be informed about the different competences of the participating schools, in order to understand the value of exchanging knowledge in a collaborative environment.

7.3. IT support: new roles for the IT personnel

Organising the technical environment involves more aspects than simply providing technical support. IT personnel should inform faculty about the possibilities and limitations of the new technologies and
the differences between “manual” and IT-mediated delivery of teaching materials.
It is recommended to familiarize learners in advance with the use of the IT involved. Familiarization
should focus on providing training in the new skills required (e.g. microphone handling, addressing
two audiences simultaneously). Additionally, background information on the kind of IT used should
be provided to instructors and learners. Users do not only prefer to be familiar with the usage of this
technology, but also want to be informed about the educational and business opportunities it offers.
Collaboration tools such as the UNIVERSAL Brokerage Platform, which goes beyond video
conferencing, can support the co-ordination work in the preparation phase. Such tools provide means
for the exchange of educational material and for the protection of intellectual property rights.

8. CONCLUDING REMARKS

This paper presents recommendations on how to deploy collaborative, IT-mediated teaching
effectively. Learners should be given guidelines on the importance of various issues concerning case
study presentation, but should have enough freedom to find solutions for themselves. When preparing
the delivery, instructors should list the issues that will be subject to discussion beforehand, so that
remote instructors and learners can prepare themselves, but desist from a strict schedule. The
technology should be introduced at the beginning of delivery. Moreover, familiarization exercises
should be carried out.

Our findings show that collaborative, IT-mediated teaching is perceived as more successful when
faculty gains experience by becoming involved more often in such endeavours. At their first trial
lecturers have difficulties in judging the quality of the technology, and tend to overestimate its
limitations. Hence, collaborative, IT-mediated teaching needs to be conducted several times to
establish routine and confidence. However, numerous challenges remain in the area of deploying
collaborative, IT-mediated teaching. In particular, more thorough investigation is required of how to
deal with a larger, international audience losing the attention of passive learners.

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