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INTRODUCING “CONVERSATIONAL” E-LEARNING TO MANAGEMENT EDUCATION: A COMPARISON OF STUDENT EXPERIENCES FROM TWO MIS COURSES

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ABSTRACT

This paper draws on the experiences of management education students following courses using a combination of e-learning and class-based learning methods at Nyenrode University. Evidence is taken from two international MBA courses in Management Information Systems, which followed the same pedagogical design but were delivered using contrasting IT platforms. Both courses were designed to support a “conversational” rather than “instructional” model of learning, where the emphasis was placed on knowledge building and skills acquisition through the trajectory of active participation. In both cases, technology was introduced to support a student-centred learning process through “e-learning”, rather than an “e-teaching” model based on the instructor’s direction.

We record how students responded to the technological and pedagogical innovations incorporated within these courses. The findings from both courses are remarkably similar, suggesting a number of ‘platform-independent’ factors which determine student responses to this new method of course design and delivery. Student attitudes towards the adoption of ICT tools and acceptance of the conversational “e-learning” approach in both courses appear to be strongly linked to social pressures, with peer opinion and the prevailing learning culture exercising an important influence on potential adopters. The results suggest that course instructors should invest a significant amount of time in socialising learners to accept changes in the new learning approach and method of course delivery, as a means of overcoming initial adopter inertia amongst students.

1. INTRODUCTION

Approaches to management education have been strongly influenced by traditional pedagogical models (Gheradi, Nicolini, Odella; 1998). A notion of learning as a process of information delivery from a knowledgeable source (either a teacher or text book) to a target lacking that information has been a common feature of management programmes. Conventional programmes turn managers into passive learners, dependent on experts to interpret and deliver conceptual knowledge to support their own learning. The defining characteristic of this approach is a teacher-centred learning model, which is presented as the only valid form of gaining knowledge. Raelin (2000) notes that this approach has robbed managers of the skills to create knowledge, by acting, reflecting and creating meaning within their own environments:

“Knowledge is not what resides in a person’s head or in books or in data banks. To know is to be capable of participating with the requisite competence in the complex web of relationships among people and activities.” (Raelin: 2000;274)

The teacher-centred approach limits the time for interaction between learners, and the opportunities for knowledge-sharing. It also minimizes the importance of the social context to learning in which experience-sharing can flourish.

To address the weaknesses of this traditional pedagogy however, requires a paradigm shift in the way we view learning. Following a social approach, the locus of the learning process moves from the mind of the individual to the participation framework in which it takes place. Indeed it calls for a reconceptualisation of the roles of teachers and students, who become co-participants within a learning community. For all parties concerned, this represents a cultural shift in relationships, bringing with it greater involvement and responsibility for learners.

The challenge for management educators emerges in terms of the way this new collaborative learning approach is presented to students. How may we successfully introduce a participative framework within traditional programmes of study? In this paper we suggest a hybrid course design, drawing on class-based and virtual collaborative methods as one possible approach. This involves the use of virtual technology to support collaborative “e-learning”, rather than an “e-teaching” model of instruction¹. We report on the effectiveness of this combination of learning methods and the response of students to this new learning approach.

2. THE DESIGN OF THE MIS COURSES: PEDAGOGICAL PRINCIPLES

The courses that we describe in this paper were designed according to the social collaborative model of learning, in an attempt to introduce a participative framework for student learning within the International MBA curriculum. The Management Information Systems (MIS) course represents one module within the MBA programme of study, and is aimed at helping students to develop a sensitivity for managerial considerations in IT decision-making. Students are drawn from a junior / middle manager profile, with usually three to five years work experience. They are expected to complete a large amount of work off campus, preparing assignments and tackling pre-course activities prior to attending classes on campus.

Traditionally, MIS courses at Nyenrode have been taught using a combination of formal lectures and individual reading and preparation outside class. The lectures are intended to provide for students the knowledge and skills which they need, as well as an insight into work-based practice. This approach is consistent with the teacher-centred philosophy found at many business schools. However, it is questionable how effective or appropriate this methodology really is for student learning. Jordan (1997), with special reference to MIS instruction within MBA programmes, offers a strong critique of this method:

“Formal lecture material is only necessary so that the students can build a framework upon which to accumulate knowledge, skills and practice. Much of the learning needs to be student initiated, except in the case where students have little or no real world business experience, or little drive to facilitate their own education.”

It is our belief that MIS courses should be student-centred, drawing on the work experiences of learners and using them as basis for reflection and shared learning. Students ought to engage in a process of reflection, combining theoretical insights from the conceptual world with experiences from the practical ‘real world’. The process of sharing these experiences with other learners in a “conversational” approach exposes each individual to multiple viewpoints, as well as different perspectives on IS strategy and management.

Based on this rationale, we developed a new design for MIS courses at Nyenrode, which focused on a conversational paradigm for student learning. This was reflected in the revised design of the preparatory work, which shifted from the traditional self-study mode of learning to a collaborative

¹ By e-teaching, we refer to the automated vision of instruction described by Leidner & Jarvenpaa (1995). The focus of the technology in this approach is aimed at knowledge dissemination rather than knowledge creation.

approach. The off-campus work within the MBA programme usually consists of reading and short individual activities. For the MIS modules, the preparatory work was redesigned so that students acquired the concepts of the course following a process of research and reflective thinking, situating the theory of the course within each participant's own work environment. The rationale behind this design was to draw on student work experiences, creating a forum for ideas-sharing and knowledge-building during the pre-course phase of learning. It was anticipated that this would help students by exposing them to a variety of organisational experiences in MIS strategy, building a bridge between the theoretical and practical dimensions of the course.

Assignments were based on a four-stage learning process, along the following lines:

- *Assimilation, reflection and near transfer of the target concepts*: application of the MIS concepts to the work environment – a preliminary organisational assessment, testing the student's ability to situate the new learning within the familiar environment of the organisational environment.
- *Reciprocal teaching and learning*: students were asked to share their conclusions with a partner, exchanging work experiences and reflecting on the bigger picture.
- *Far transfer of the target concepts*: a problem-solving exercise, conducted by peers, on a different organisational setting – requiring students to apply their learning to an unfamiliar case example.
- *Collaborative, group-learning stage*: students reach a deeper level of understanding of the concepts by sharing their work experiences, and reflecting on the aggregate experiences acquired through dialogue and reflection with peers. The multiple perspectives should lead to a new set of conclusions on the effectiveness of MIS strategies, according to different organisational perspectives.

This learning process was applied to four different assignments, which focused on topics ranging from network and telecom arrangements to e-business applications. The assignment on network arrangements for example, started with students responding to a number of discussion statements, which encouraged reflection on the target concepts for this topic. Individuals were then asked to complete a "near-transfer" exercise, involving a description of the network arrangement of the organisation in which they worked, exploring the degree to which the system was aligned with business objectives. In the next stage of the assignment, these individual reports were shared between partners in a comparative analysis of organisational network arrangements. The reciprocal phase of learning was then extended to an unfamiliar case example, which students tackled together in pairs. The final stage was a group discussion, in which students were asked to derive a number of general principles on the design and management of networks, based on the multiple perspectives arising out of the individual reports.

The pedagogical objectives for these activities were aimed at promoting active learning – encouraging students to explore and make sense of the concepts through their own efforts – using the organisational environment and the combined experiences of their peers as a framework for investigation. The four-stage process was designed to guide students in the learning process for each assignment, helping them to build up their understanding of the concepts in an incremental fashion – moving from individual investigation and reflection to group-based conclusions.

The collaborative learning of the preparatory phase of the course was intended to provide a platform for broader and deeper discussions on MIS topics within the class sessions on campus. Indeed, with the fundamentals of MIS theory and practice covered in the preparatory phase, the classes offered the opportunity to introduce new fields for discussion on "hot topics" such as complexity and knowledge management. In this way, the conversational metaphor of the preparatory work could be extended to the class sessions, with discussion building on student insights and experiences from the preparatory phase of the course.

3. THE ROLE OF IT IN THE COURSE DESIGN

The preparatory work was conducted over a six week period between December 1999 and January 2000 for the first MBA group, and between December 2000 and January 2001 for the second group, with each course involving 80 study hours in the preparatory phase. Students in both courses were organised into formal working groups of between four and six participants, which were responsible for the written output for the collaborative assignments. The principal difference between these two courses related to the provision of IT support, with contrasting learning environments used for each course.

For the first group (1999-2000), students were presented with a course web site, on which the assignments for the preparatory work were posted. Each study group was given its own working space on the course site, consisting of a chat box with log, as well as a message board and discussion area. The chat box was designed for synchronous communication within the group, with a log recording all conversations. In addition to this the discussion area and bulletin board could be used for postings and was intended to support discussion threads by students. No learning materials were posted on the site, however, with students using a course textbook for reading and reference purposes.

The IT infrastructure for this course was designed as an enabler, to facilitate interaction between peers throughout the whole pre-course phase of learning. Students were encouraged to view their study groups as virtual communities of practice – a network for ideas and experience sharing. The choice of IT tools therefore matched the pedagogical aims of the course, with the chat box and bulletin board supporting the conversational learning approach. (See Walker & Baets (2000) for a full discussion on the design of this course environment)

For the second MIS group (2000-2001), the *Whizzdom* learning platform² was introduced to host the course. The platform supported conferencing tools such as NetMeeting for synchronous discussion and document sharing, as well as a forum for asynchronous group discussion via a bulletin board. The design for the site went a step further than the original course however, in the provision of all learning materials on-line. No textbook was issued for this second group of students. Instead, the reading materials for the course were delivered in the form of hypertext-linked concepts, which were interlinked with concepts within this course, as well as outside the course, covering the full range of disciplines within the MBA programme of study (accounting, economics, finance, marketing etc.). Individuals were therefore able to pursue their own exploration threads, following concepts links from MIS to all areas of the MBA curriculum within the virtual library. The rationale behind the organisation of learning materials in this way was to provide learners with an integrated knowledge-platform, offering them a holistic rather than functional perspective of managerial knowledge. Students were encouraged to consult all their learning materials on-line. Their reading, activities and cases were presented within a work area on the course site, integrating all learning resources for this course. The IT site for this second MBA group therefore represented much more than a communication platform, offering instead an integrated knowledge environment for the course. (See Baets & Van der Linden [2000] for a full discussion on the theory behind the design of the knowledge platform.)

The arrangement of hypertext-linked course materials for this second group was intended to develop further the student-centred approach. The knowledge platform was designed to support personalized learning trajectories, giving individuals the freedom to choose their own learning pathway, rather than follow a prescribed curriculum set out by the instructor. Through the hypertext retrieval system, individuals were able to make their own selection of concepts and cases to support their work in the performance of the four assignments. In addition to this, the environment included synchronous and asynchronous communication tools, to facilitate the experience-sharing and collaborative work in each

² A Microsoft compatible learning platform. See www.whizzdom.nl for further details.

study group. The environment therefore empowered students to engage in a new style learning approach, rather than follow a conventional 'e-teaching' course design.

4. PRESENTATION AND DELIVERY OF THE COURSE

A pre-course orientation session was arranged for both MBA course groups, which consisted of 20 students for the first group (1999-2000) and 29 for the second group (2000-2001). The purpose of the meeting was to outline the objectives for the course and the preparatory work to be conducted on-line. A brief overview of the functions of the learning environments for each course was presented, with students able to question the instructor on the pedagogical and technical dimensions to the group assignments. Unfortunately no time was made available for students to get to grips with the courseware, which would have been the preferable way of introducing the course. Students were expected instead to learn by doing, in keeping with the pedagogical objectives for the course.

As mentioned previously, the preparatory work was divided into four assignments, to be completed over a period of approximately one and a half months. Each assignment was allotted a period of two weeks for completion, with a target date set for finishing the work and conducting the virtual group discussion.

Student learning for the assignments was monitored through the logged discussions for the chat box, the discussion boards for the groups, as well as through the receipt of completed assignments at each stage of the course. On-line tutors were also allocated to each student group, to answer queries about the coursework, support students learning and participate on a random basis in the synchronous group discussions. Provision was made for the course instructor to be available to respond to e-mail queries on specific content areas of the assignments. These types of communications were instructive in showing how individuals were coping with the learning process for this course.

5. EVALUATION METHODS AND PROCEDURE

Student learning and assessment of the preparatory phase of the course was measured using a combination of questionnaire and interview techniques. A pre-course questionnaire was designed to gauge student expectations towards online learning and its relevance for management education. We hoped to capture pre-adoption beliefs and attitudes of students towards the e-learning approach. Through the use of a post-course questionnaire, we aimed to revisit student attitudes to the pedagogical approach in a post-course analysis. Responses were measured using a five-point Likert-type scale, adapted from Hiltz's (1994) instrument designed to evaluate the effectiveness of an online course. For the second questionnaire however, an open response section was included at the end of the instrument to allow students to comment on the strengths and weaknesses of the course design, as well as their learning achievements during this phase of the course.

In addition to these instruments, a selection of students were interviewed during the completion of the preparatory assignments and afterwards, in order to provide further detailed feedback on their learning experiences. This input was combined with the process-related feedback from the chat logs and assignments to give a rounded view of student learning for the course. The objective of the research was to learn more about student experiences following the conversational e-learning model. Central to the inquiry was an investigation into the conditions determining student acceptance and adoption of this learning approach.

6. OUTCOMES AND DISCUSSION

As with all research the study results from these courses have certain limitations. Both courses focus on small class sizes, with no control group included in the analysis. Moreover the duration of the

research was limited to a three-month period in which the preparatory work and classes were observed. A longitudinal study would no doubt give greater insight into user attitudes and experiences. As such, the courses should therefore be viewed as pilot studies, offering a first step in the examination of student responses to a conversational course design using virtual technology.

What emerges from the research however, is a large degree of common ground between the two classes in their opinions on the course design and delivery. This is surprising, given the differences between the two groups regarding the IT platforms used for each course. Through the interviews and open response questionnaire data gathered for both courses, we observed a convergence of opinions amongst students on the necessary conditions in which collaborative e-learning courses should be delivered. Participants uniformly spoke of a socialisation process, prior to the delivery of a course, as crucial to the adoption of e-learning methods. Socialisation, in its simplest form, requires a clear introduction to learners regarding the aims and objectives of the course and the rationale for the design. Students need to be convinced that working on-line is necessary and value-adding. They also need to understand the reasons for the selection and design of the IT infrastructure which they will be using. There is no automatic acceptance of this learning method by students, nor do they view it necessarily as value-adding. As one international student from the 2000-2001 class noted:

“ . (computer technology) can be an effective way of delivering management education, but you can’t just put it in front of a group and expect them to accept it fully. I suggest working on the marketing of the concept to the group and thinking more of the introduction process.”

“ . If you want to make the class more of a success in the future, definitely take more time on the front end to ensure that everyone is comfortable with the technology and expectations.”

Given the limited experience of participants conducting their learning on-line prior to the MIS courses, the marketing and introduction of the platforms to students appears extremely important. Notably half of the students within each course grouping had no previous experience of using chat boxes for pair discussion, with that figure rising to 62% for group discussion on-line, either conducted synchronously or asynchronously through the use of bulletin boards. For the second MIS group (2000-2001), only 5% of the class had followed courses which involved the use of synchronous communication tools, with a similar figure experiencing courses in which all materials, assignments and learning resources are delivered on-line. The majority of students therefore faced a steep learning curve in adopting IT tools to support their learning.

Managing expectations was also a recurring theme in student responses. Many commented that imposed changes in learning style were not welcome, particularly when they clashed with the culture of the overall programme of study that students were following. For “certificate-oriented” students who are interested first in meeting the requirements of the course, rather than benefiting from enriched learning opportunities, the change in learning culture can be quite threatening:

“ . . . some students found the assignments daunting and cumbersome, and some described the homework as confusing and a waste of time. My personal theory is that the people who have always been comfortable with the traditional approach (memorizing – rather than actually learning – enacting the cognition) find the new approach counterintuitive, and therefore daunting.” (1999-2000 student)

Diffusing the culture shock for traditionalists, accustomed to a diet of individual readings and self-study, assumes therefore a major role in the socialisation process. This is indeed quite challenging, when the demands, organisation and arrangement of an e-learning course run counter to the learning culture of the overall programme of study. Students anticipate a consistent approach to instructional methods across course boundaries; by increasing the workload and/or asking too much of students on-line, there is a danger of creating a negative attitude towards the course. As many students responded

in interviews after the course, the perceived increase in demands for the on-line design of the preparatory work had a demotivating effect, with people complaining about the workload, rather than focusing on the opportunities arising from this new learning approach.

“The pre-assignments were just a bit too much which results in people complaining and getting in a negative spiral and that is a pity.” (2000-2001 student)

Strongly linked with the acculturation process is the procedure by which students are introduced to IT tools. For IT novices and traditional-style learners, the way that IT tools are demonstrated appears to have a crucial effect on adoption ratings for their use in the course. Investment in terms of orientation time with groupware and conferencing tools at the beginning of a course will pay off. Respondents noted that for both MIS courses, the briefings offered to students were too short - rather rushed and counter-productive - giving too much detail and information which was not taken on board. The briefings were scheduled at the end of a course block, with students feeling quite tired and unfocused. As a result, the meetings did not have the desired effect in readying students to tackle the collaborative assignments. Notably for the IT novices, the sessions had the opposite effect in scaring them and building-up resistance.

IT novices need time as well as an incentive to learn how to use communication software. The learning curve for the effective use of synchronous tools is often quite steep for beginners. This was particularly true for the 2000-2001 group when trying to get to grips with NetMeeting - installing the software, coping with firewalls within their own organisations which impeded the downloading of this tool etc. Students struggled with the technical problems associated with the use of this tool, but also a perception problem that the benefits of communicating in this way were not compelling enough to merit a serious effort to master the tool.

“The information-exchange did not work, especially NetMeeting, because the software access barrier is too high, when discussing with more than four people the idle-time is too high related to the time ‘present’.” (2000-2001 student)

“Some people were not willing to invest their time to learn to use this new tool when they could instead email their document or pick up the phone (there is no learning curve for those two options). From this perspective I see these tools as suffering from the same challenges that any new product has to face: early adopters will go for it and will try to motivate others to use it, and laggards will balk at it and say that it is a waste of time.” (2000-2001 student)

Aside from the technical frustrations of chat boxes crashing, or individuals being “kicked-out” of on-going group discussions, the perceptual problem of the value of the tool influenced student attitudes a great deal. The view that conferencing tools are inflexible and restrictive gained a lot of currency, with participants commenting that they felt tied to written rather than spoken communication in the collaborative activities. This often led to a direct and rather unfavourable comparison of communication methods:

“NetMeeting did not work: cannot compete with physical meetings.” (2000-2001 student)

It also highlighted a perceptual divide in learning styles between the adopter and traditionalist segments within the class:

“The (course) design does not seem to account for those students who prefer contact (telephone or in-person) to written contact. This is a common difference in personality traits. Some people will never prefer to communicate in writing. That particular student may demotivate the rest of the group or at least cause frustration.” (1999-2000 student)

The contrast in learning styles was reflected quite clearly in the post-course questionnaire results, which highlighted a division of opinion between the adopter and traditionalist segments over the value of the conversational learning experience. An “adopter” segment of roughly a third of each class supported the learning experience, viewing the switch to collaborative discussion-based activities as value-adding. Notably for the 2000-2001 class, 41% of students believed that the course design helped improve cognitive skills – the capture, comprehension and retention of key concepts of the course. 31% believed that the course increased opportunities to utilize prior knowledge and experiences in the performance of the preparatory assignments. Participants from this adopter segment highlighted the “*commercial and exchange opportunities (rich / reach)*” and “*sharing of company practices*” as value-adding features of the collaborative learning process. However, an equal number of “traditionalists” were unconvinced by the experience, noting that there was no improvement in the levels of communication and interaction during the course, with only limited collaborative learning and ideas-sharing. Students in this segment of the class cast doubt over the cognitive and motivational benefits of conducting the pre-course work in this way.

There was however a broad level of agreement amongst students on the difficulties related to the management of synchronous communication within the study groups. Students needed assistance with the basics of organising these meetings and in developing a Netiquette or protocol of on-line behaviour. Introduction and guidance on these issues was necessary at the beginning of the course. Problems also arose over the rationale for synchronous meetings, with some participants viewing this as an opportunity for chat rather than discussion on the collaborative activities for each assignment. A cultural issue also emerged in terms of the way participants approached the meetings. The concept of real-time meetings departed quite radically from the traditional self-study mode of MBA work off-campus. Students work at different speeds and are not accustomed to synchronizing their study rhythms with peers off-campus. Getting group members up-to-speed within the study groups, so that they were in a position to share their knowledge and work experiences was a real challenge for many students on these courses.

“Work and studying requires a lot of self discipline in time management and depending on others is difficult to achieve and ask for.” (1999-2000 student)

Given these operational challenges, students welcomed a strong tutorial presence on-line to guide them through the collaborative work. Tutorial support was viewed as critical in helping students to get started with the work. This applied to technical support – in tackling user-anxiety and frustration with the conferencing tools – as well as input over content issues. Traditionalists looked for a higher profile for the course instructor on-line, which they believed would add value to the learning process. Feedback and greater interaction with the course instructor were cited as important motivational stimuli, supporting student learning.

“I believe that the online discussion would have been more useful if there was a tutor online as well. Then we would have had direct feedback and learn from it!” (1999-2000 student)

Looking back on the course as a whole, students measured satisfaction for their learning in terms of the coherence of the course design and link between the virtual and class sessions. Uniformly students highlighted the importance of a strong link between the two phases, with class sessions building on the accumulated learning from the virtual phase of the course. A perceived discontinuity between the two phases could, in their estimation, lead to demotivation and frustration, especially if the virtual work was seen to be peripheral to the topics covered in the class sessions. Content issues and lessons learned from the virtual collaboration should be a focus for the class sessions. Indeed, the accumulated knowledge and experiences emerging from this phase of learning ought to be recognised and validated through the assessment scheme for the course. The intrinsic rewards arising from the experience-sharing process were not sufficient compensation for the performance-driven participants among both MIS classes.

“The preparatories were good to give everybody a more or less the same starting point for the sessions on campus. However, little links between the prep. work and the actual sessions on campus were made. Although the insights I got from the prep. work were good (I learned a lot from it), I doubt whether I would have had trouble in class understanding the topics dealt with if I had not done the prep. work.” (1999-2000 student)

Finally, students also argued for a sense of continuity in the learning methods employed across both phases of the course. As one student from the 2000-2001 class lamented:

“The joint learning disappeared in the course itself.”

From this perspective, a coherent course design should attempt to standardise learning in terms of content and style across both the virtual and class sessions. The course should carry through the collaborative interactions and “learning by doing” philosophy from the on-line work to the class sessions. This represents an important insight, highlighting the need to carry the collaborative learning approach over to the class sessions, so that a coherent learning experience is presented to students.

7. LESSONS LEARNED

We believe that a number of important lessons can be drawn from these cases on the effective presentation and delivery of e-learning to students. Notably, the learning culture within each class appears to have played an important role in shaping student acceptance of e-learning and the conversational approach. This was particularly true for IT novices, who were using collaborative communication tools for the first time. Anxiety over the technology translated into criticism of the learning methods, with questions raised over the cognitive and motivational benefits of this new approach. This was reflected in the results recorded in the first questionnaire, where IT novices students declared a clear preference for traditional study methods over the e-learning approach.

Parallels can be made here with IS research literature, which has highlighted the influence of social norms and affect on IT adoption. Notably Triandis (1971) suggested that social norms and affect will have a more pronounced effect in determining behaviour when the behaviour is new (as in adoption). Even though this effect vanishes following adoption, use of social norms may be important in inducing initial use and the subsequent development of perceptions (Agarwal & Prasad 1997). Karahanna, Straub and Chervanny (1999) report that these perceptions become important in sustaining and institutionalizing usage of IT.

Karahanna et al. go on to suggest that social pressures from the organizational environment may be an effective mechanism to overcome adopter initial inertia in adopting IT. Based on the feedback from the MIS courses we observe a similar need to prepare students to accept the technical and cultural changes tied up with the e-learning method. Students from both courses confirmed that the introductory process was crucial in shaping attitudes towards the conversational approach. We may therefore conclude that the socialisation process – helping learners to accept these changes – represents a key responsibility for course providers. The evidence indicates that the successful adoption of the “conversational” learning model also appears to rest on the level of tutorial support students receive and follow-up in terms of the linkage between the virtual and class phases of the course.

Interestingly though, both student groups recorded positive assessments of the potential of e-learning to enrich learning in the post-course questionnaire. 93% of students from the first course and 64% from the second responded positively regarding the potential of virtual course design and delivery, confirming that computer technology can contribute to new ways of teaching and learning. This demonstrated that students could distinguish between the potential value of the approach and their own learning experiences. Again this insight appears consistent with IS research. As Karahanna et al. have

found, as users gain experience with a system, ease of use concerns are displaced by more instrumental considerations involving the efficacy of the innovation to increase one's performance. The social or non-task centred factors therefore become irrelevant when evaluating the potential value of IT. This finding augurs well for future experimentation with e-learning and the conversational learning approach.

FUTURE DEVELOPMENTS

It is our intention to experiment further with the conversational e-learning approach, broadening our scope to consider the learning effects for an entire programme delivered according to this pedagogical model. We will offer a project-based Masters programme in Business Innovation and Intrapreneurship (MBI&I) to Nyenrode students in 2002, based on a combination of virtual learning and face-to-face tutorial sessions. The virtual space will be supported by a learning laboratory, containing theoretical content, cases, an electronic incubator and collaborative tools. It is hoped that students will adopt the conversational approach whilst conducting their learning on-line. Indeed, we will be interested to observe how students respond to a coherent programme of study organised in this way, as opposed to individual experimental courses within a traditional MBA structure.

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