

Accepted for publication in the Staff and Educational Development International (SEDI) journal

Instructor Support for New Learning Approaches Involving Technology

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Abstract New learning approaches involving technology are occurring in both universities and company training settings. Critical factors in regard to these changes are the professionals in an organisation responsible for course design, development, and delivery: the instructors and those who support them. Instructors must become engaged in the change process and supported in their initial change experiences. Two cases are presented, one from a university and the other from a learning centre for a multinational company, where innovative approaches to instructor support and engagement are being carried out. Technology is not only one of the focuses of the change itself but also used as key tool in the instructor support process.

Introduction

Both companies and universities are in a state of change. In companies, the need to dissolve the boundary between learning and work and to bring learning closer to a "just in time, just enough" model where networking with peers is an important component (Allan, 2002) is stimulating a new wave of interest in the concept of company as a *learning organisation* (De Geus, 1988; Garvin, 1993; Senge, 1990). Similarly, in universities, the need to compete internationally for new markets of students and to offer more flexibility to both local and remote students is stimulating changes in teaching and learning throughout the world (Collis & Moonen, 2001; TAFE Frontiers, 2001; Verbeeten, 2001). For both of these sectors, changes are occurring in the way that learning is structured and delivered and technology, particularly network technology, is usually part of the new approach. It becomes the task of the instructor, trainer, or tutor to realise the new approaches in practice. Instructors must become engaged in the change process or it is not likely to be realised in the way intended by the policy makers (Garside, 1998). In addition, instructors need support in making a transition to new ways of educational delivery, particularly when these involve technology (Fullan, 1991). The issues of how to support the instructors and win their commitment to the change process are of critical importance.

This article focuses on instructor support in two cases involving changes in teaching and learning and the use of technology. One case, at the University of Twente, has been underway for five years and can be seen as having reached the institutionalisation phase (Fullan, 1991). The other case, at Shell EP Learning and Development, has been initiated in early 2002 and has moved into the implementation phase by mid-2002. Although many actors and factors are important in these change processes we will focus on the professionals in the organisation responsible for course design, development, and delivery. In universities, these tasks are often handled by a single instructor. In company contexts, these tasks frequently involve a team that includes course conveners, subject-matter experts, tutors, instructional designers, and technology specialists. For convenience, the term "instructor" will be used collectively to relate to all those involved in the course design and delivery process. The questions addressed by this article are:

What are the key strategies for instructor support and to win instructor engagement when a comprehensive change in educational approach is launched in an organisation?

How might technology play a strategic role in the instructor-support process?

Can these strategies and uses of technology be applied successfully in both university and company settings?

The article has the following structure. First, a general comment is made about gaining instructor engagement in new learning approaches and the use of technology to support those approaches. Following this, two specific cases for instructor support during a change process are described: The University of Twente which has successfully completed a change process, and the Shell EP Learning Centre, which has recently launched such a process. Through a collaboration between these two groups, an approach has been launched to instructor support based on the experience of the University of Twente but adapted to the situation of the professional development programme of a multinational corporation.

The focus of the educational change in both cases is on "flexible" or "blended learning". Flexible learning, a term increasingly used in the university context, involves offering students a variety of choices in relation to the way they experience participation in an educational programme (Collis & Moonen, 2001). Blended learning is a term frequently used in the company context. It is described at Shell EP Learning and Development as:

- different types of learning resources (with a focus on re-use)
- different types of learning activities (with a focus on on-the-job assignments)
- different places and times where learning activities take place (with a focus on flexibility and efficiency), and
- different ways people interact with each other (with a focus on collaboration and networking);
- under the guidance and management of a capable facilitator (with a focus on coaching),
- with assessment based on the results of the activities (with a focus on relevance to actual workplace situations), and
- with the whole process coordinated in an efficient way via a Web-based learning support system.

From the two cases, some general issues relating to instructor engagement and support in both types of organizational settings will be discussed.

Instructor Engagement in an Educational-Change Process

Instructor support and engagement have been extensively studied as key components of an educational-change process in an organisation. Difficulties in obtaining instructor engagement regularly occur and have resulted in different approaches to instructor support. Some key points are discussed in this section.

Challenges Facing Staff Engagement

A major task of the leadership during a change process involving technology innovations in an educational institution is to promote instructor engagement. Hammond and Karran in the UK (1998) identify "lessons learned" about instructor engagement, and indicate that "the crucial ingredient is the participation of staff at all levels in proposed development" (p. 232). Such full-scale participation is hard to secure unless instructors are sufficiently stimulated, usually by the central administration or management. But the balance between top-down stimulation and bottom-up (instructor) acceptance is a delicate one, particularly in universities. Instructor engagement, even when willingly occurring, takes time that many practitioners feel to be excessive, given their many other responsibilities (research responsibilities in universities as elaborated by Holtham & Tiwari, 1998 or other professional responsibilities in companies). Also, many instructors feel strongly that the ways they have always taught are in fact the appropriate ways to teach their own disciplines; change for abstract reasons such as the "future of the university" or the "learning organisation" does not weigh heavily enough to convince them to teach in what they feel will be an 'inappropriate way' for their courses and habits. Many different initiatives are occurring in universities and company training centres to deal with these issues involving instructor engagement. Many times, however, only those who volunteer for their services become involved, thus missing the hard-core of resistance that is confronted when an entire faculty or training staff must change.

A Just-in-Time Approach for Instructor Support

There are several typical models for instructor support in a change context involving technology. The most familiar is the short course or workshop, which can last from a brief hour to several consecutive sessions. Most universities have some sort of teaching and learning centre that regularly offers these sorts of brief courses for instructors. In companies, an external trainer may be brought in for a "train the trainer" session. With regard to change related to technology use, many times the focus is directly on the technology itself rather than on the pedagogy and strategy of managing the technology in instruction. Almost always these short courses or workshops are voluntary, with no particular direct payoff for the instructor other than increased knowledge (Collis & Moonen, 2001).

There are many problems with short courses or workshop sessions. The sessions are voluntary, so most instructors will not have the time or incentive to come, or to come to all in a series. Sessions run for a group are difficult to tailor to the particular situation of the individual; thus the session may be too elementary or too complex or too technical. The instructor may feel uncomfortable if he is obviously clumsy with handling the technology, which is the object of the session, particularly in the presence of peers, centre staff, or senior students. With initial experiences with new technology, many instructors become overly focused on handling the technology, and cannot at the same time also think about instructional management.

Most serious are the following two aspects. First, staff-development is most effective when carried out in a context meaningful to the instructor, and for the instructor in higher education or a company context, this is his or her course, with its own culture and the instructor's own, often deep-seated, views on appropriate pedagogies for his or her discipline. Hardly anyone else will have this same context. This observation about professional development has been made for a long time (Moonen, 1989). Second, what is learned in the session often cannot be directly tried out in practice, and thus is forgotten.

What is needed is some sort of method whereby, just-in-time, before the instructor has to work with the technology in practice, he has support for doing precisely what he is later going to be doing with his own course. He practices with the technology no more and no less than what he will need for his own teaching, thus making his time expenditure as economic as possible, and maximising the transfer from the support to his own practice.

In addition to the "when" of instructor support, another important aspect is that the instructor engagement must be sustainable after the impulse of the implementation project has passed. Support tools and sets of examples preferably from his colleagues, easily available via the instructor's computer just-in-time as he or she prepares for a new course with an efficient way to get personal help when needed, may be desirable for sustainable support when the implementation phase of a change initiative evolves into mainstream institutionalisation (Collis & Moonen, pp. 60-64).

In the following two sections, case studies of instructor-support strategies based on the above principles at two different types of educational organisations will be described.

Experiences with Staff Support at the University of Twente

In this section we review the experiences and lessons learned at the University of Twente related to strategies for instructor engagement and support in an educational-change process involving technology. The change context is outlined, the principles for staff support are given, and the combination of strategy and technology that was used is described.

The Change Process at the University of Twente

At the start of the academic year 1997 the leadership in the Faculty of Educational Science and Technology of the University of Twente in The Netherlands decided to commit itself to an initiative in which network technology would be used to support more-flexible learning so that working people could participate in the programme as they continued in their jobs and remained in their homes. The decision was made that these students would not be treated as a separate "distance-education" cohort, but rather that the opportunity would be used to re-design the instructional approach of the entire faculty toward more flexibility, more efficiency, and new forms of learning for all students. In this context, lectures would be reduced to a maximum and in place of lectures, students would carry out activities and submit the products of those activities via the Web system to which instructors and fellow students would give personal feedback. Group and face-to-face activities could still take place, but in a flexible manner so that students who were not physically present could still participate. In order to increase the relevance of the assignments, they should as much as possible relate to the students' own experiences and workplace problems and involve collaborative learning (Carleer & Collis, 1998; Collis & Moonen, 2001).

By the end of the academic year 1997-1998, this change initiative, named the *TeleTOP Project*, moved rapidly, with all the first-year courses in the curriculum re-designed for more flexibility and ready to begin in September 1998. A new Web-based course-management system (also called TeleTOP) had been designed, built, and put into use. By the following academic year the remainder of the courses in the faculty had been re-designed, and in addition other faculties at the university and in other institutions began using the approach and system. By the year 2000, the TeleTOP approach (modified in the different faculties) and system was mainstreamed throughout the University of Twente, a particularly fast change process within an educational institution (Collis & Ring, 1999).

This rapid change, involving both instructional approach and technology, would not have occurred without an effective instructor support-and-engagement strategy.

Conceptual Basis of the Instructor-Engagement Strategy at the University of Twente

The need for an effective instructor-support strategy for the TeleTOP initiative was critical. Instructors needed to be made aware of possibilities for pedagogical change toward more flexibility and the replacement of lectures with contributions from their students via a Web environment. They needed to be supported in planning to re-design their own courses. They needed to be supported in the actual re-design process as well as the creation of their own TeleTOP course environments. More fundamentally, they needed to become part of a culture change; a critical mass of reflection and discussion about flexible learning. This had to occur with no released time and thus within the constraints of the already full agendas of the instructors. Based on a review of the literature (Collis, 1998), the key ideas of the instructor-support strategy for this situation were agreed upon:

Emphasise that technology is used to extend good teaching and learning, not to replace the good teacher, but to further extend and enrich contacts with him and make access to him more flexible. This gives instructors the feeling that they are building on their strengths rather than being marginalised or threatened by the technology.

Similarly, technology should be used to extend learning resources such as books and readers, not replace them. Do not expect the instructor to become a developer of educational computer software; instead lead him to see that the learning activities he designs and guides can make use of a variety of types of learning resources (PowerPoints, Word documents, and addresses to externally available Web sites) including resources that will be found or created by the students during the course itself. This approach leads him into a new pedagogical approach where the focus is on learner activity, not instructor preparation of content.

Use the target technology as a support tool for the instructors and for those who are assisting the instructors, to build familiarity with the technology and develop the perception that the technology is a personal tool that can be used in a variety of ways.

Instead of group training sessions, provide just-in-time, individualized support focused directly on helping the instructor in the re-design of his own course, thus making his time expenditure as economic as possible and maximising the transfer from the support to his own practice.

Provide the support in a way that is scalable and sustainable as more and more instructors become involved. This involves the use of technology in the form of decision-support tools (Collis & Moonen, 2001; Collis & De Boer, 1998).

Based on these principles, not only was an instructor-support method developed, but aspects of the TeleTOP system itself were developed specifically as tools for instructor support.

The TeleTOP Instructor-Support Method and Tools

Given this context, the TeleTOP instructor-support method was developed (Fisser, DeBoer, Peters, Verheij, Strijker, & Collis, 1998). An efficient way was found to structure a series of individual contacts with instructors to support them in the redesign of their courses and the setting up of the associated TeleTOP course-support environments. The key features of this series of contacts were:

1. With two members of the TeleTOP Team, and using a first version of the *TeleTOP Decision Support Tool* (DST), a one-hour interview occurred in which initial choices were made for the instructor's TeleTOP site, based on a flexible set of questions relating to the instructor's pedagogical vision for the course. The questions were not about technology, but about features of the course that the instructor felt were most successful (these would be maintained but extended for more-flexible participation) and aspects of the course that the instructor felt were bottlenecks or regularly offered difficulties. The DST included links to examples of ways that a TeleTOP site could be set up to support various instructional settings and deal with various course bottlenecks. At the end of the interview, a tailor-made TeleTOP site with examples of all the instructor's choices was immediately generated by the DST and a printout given to the instructor for easy reference.
2. One week later a member of the TeleTOP team paid a one-hour visit to the instructor's office to discuss again the initial choices made with the DST (by walking through the TeleTOP site generated by the DST). The instructor could then indicate changes in the choices, see further examples, and discuss the implications of various ideas with the team member. The instructor was also helped in handling the basic strategies for adding materials to a TeleTOP site, done either by typing within fill-in forms or uploading pre-prepared documents such as Word, Excel, and PowerPoint files. A plan was made for a first round of filling-in of the site, involving the "Course Information" area (with material that was already needed for the printed study guide produced by the faculty) and by setting up the first level of the Roster.
3. Following this, instructors worked individually with their own TeleTOP environments, filling in and uploading various materials and getting familiar with the use of the technology. Student assistants were available to provide some technical support, but in general the instructor had to be responsible for building and maintaining his own site.

4. Each instructor then had a further one-hour meeting with an individual TeleTOP team member to walk through the partially ready version of the TeleTOP site, seeing examples of what other instructors were currently doing and getting feedback from the TeleTOP team member. A final planning was made for remainder of the preparation of the environment.
5. Two weeks before the course environment would be open to students, another walkthrough of the site occurred, this time by the education dean.

Each of these contact sessions (Steps 1, 2, 4, and 5) was structured, so that it could be completed within an hour. This was only possible because of additional tools within TeleTOP created for the TeleTOP team itself, to have an efficient way of keeping an overview of its own work and of the status of instructor contacts for each course.

It can be seen that a key component of the TeleTOP staff-engagement strategy related to the use of technology. Instructors learned about TeleTOP as they used TeleTOP for a series of tasks directly related to setting up an environment for their own classes. Also, TeleTOP itself was used as a support tool for the instructors via the incorporation of various "decision support tools" (Collis & De Boer, 1998) to help the instructor via guidelines and links to examples which he could access at any time for support and ideas. As the instructor used the support tools, he automatically increased his familiarity with the TeleTOP system.

The support strategy worked. Within a year, all of the courses taken by first-year students were re-designed and offered supported with TeleTOP. Within two years, the use of TeleTOP was common for nearly all of the courses in the faculty. Instructors use the system as they use e-mail, as a tool. Students indicate that the flexible approach made possible by the system was critical to their staying in the programme. Instructors needed little or no support for their second and further TeleTOP courses.

Given this experience with a change process, a number of learning organisations began to approach the University of Twente for help in applying the TeleTOP approach and technology in their own contexts. One of these organisations was the Shell EP Learning Centre discussed in the next case.

The Context for Educational Change at Shell EP Learning and Development

Although a different sort of organisation, Shell Exploration and Production (EP) via its learning and development group has embarked on a similar but adapted strategy for instructor support and engagement. The strategy has been given the name "The Development Path for Blended Learning" and a tool has been developed to support instructors in following this path.

About the Shell Context

Course Directors (instructors) at Shell EP Learning and Development are often also subject-matter experts, many of whom have been teaching their courses in a classroom mode for some years. The students in the courses are professional petroleum engineers, petrophysicists, geologists and other technical specialists. In 2000, the decision was made to offer some courses as stand-alone e-modules available via the company intranet. By 2001, the realization took place that learning also needs to involve social interaction, workplace-based activities, and input from an experienced instructor, but that flexibility of time and location needed to remain available. The commitment was made to blended learning, with blends not only of time and place of participation but also of different forms of activities and types of communication.

The blended-learning approach requires a great deal of internal change from the individual Course Directors. Issues that the facilitator team had to focus on were assisting Course Directors in their development in terms of their new roles, changes in their instructional approaches, skills with a new technology, and insights into the possibilities that the new blended-learning approach could offer for them. The Course Directors needed support in planning the re-design process of their courses as well as implementing the actual re-designing. It was also important to develop strategies of keep the Course Directors motivated, as they were all busy people with full work schedules and responsibilities.

On a fundamental level, the challenge was to empower the instructors: they had to be given the responsibility, tools and freedom, but most important the capability to adapt to the change. Inherent to this was the need to provide appropriate direction, clarity and recognition, and ensure that each Course Director understands what their role is, what they are expected to deliver, and what value it adds to the organization. On organizational level, this "empowerment requires an individual to consider his or her own role in terms of where it fits in to the 'bigger picture', rather than just a daily enactment of a series of strategically divorced tasks" (Hill, 1996, p. 20).

To support both the Course Directors and their facilitators a process was needed. Because of a research partnership between Shell EP Learning and Development and the University of Twente, a strategy based on the Twente experience was developed.

The "Development Path" for Instructor Support at the Shell EP Learning Centre

In the context of the collaboration between the Shell EP Learning Centre and the University of Twente, a strategy evolved for instructor support and engagement in the change process associated with introducing blended learning into the courses of Shell EP Learning and Development. This strategy became known as the "Development Path for Blended Learning". In the following sections the development path is described in terms of its key baseline conditions, components and strategies. Then, the way in which technology is used to support the instructors in their use of the development path is illustrated. The results of the use of the development path to date are summarised.

The Development Path

The Development Path is a series of ten steps involved in the re-design process, away from a solely classroom course to a blended course supported by Web technology. Each of the steps includes a set of guidelines for good practice, based on research at the University of Twente (Collis & Moonen, 2001). The development path was divided into two phases. The first was for planning and the second for preparation of a first version of a TeleTOP course environment. The steps of the two phases of the development path and their key features are given in Tables 1 and 2.

Table 1. Steps in the Development Path for Blended Learning, Phase 1 (Collis, 2002)

Phase 1	Planning and Set-Up
Step 1: Setting the objectives	Setting the objective begins with a business and workplace need, expressed in a form that also suggests the sorts of activities that need to be taken in order to deal with this need. The learning objectives for the course are derived.
Step 2: General blend decisions	General blend planning for <i>Blended Learning, Shell Style</i> consists of identifying key features of the blocking of a course at the organizational level - what are the main phases (online, workplace, classroom) of the course, during what time periods and at what locations will these phases take place, and what are the main outcomes of each phase?
Step 3: General activity-resource planning	General activity-resource planning involves thinking of a general plan for the learning activities and the resources to support them.
Step 4: Blocking the matrix	The ideas from Steps 2 and 3 are combined in the planning (on paper) of the first level of the Roster for the TeleTOP site. (See Figure 1). Feedback from the facilitator team is important here.
Step 5a: Setting up the TeleTOP site: End of Phase 1 of the redesign process.	This step involves the Course Director setting up the framework of a TeleTOP site for the blended-learning course. TeleTOP is equipped with several support tools for the users for this step to allow them to set up a site without needing any special help from a technical-support person.

Table 2. Steps in the Development Path for Blended Learning, Phase 2 (Collis, 2002)

Phase 2	Preparing for Launch
Step 5b: The evolving course	A "blended course" is not finished before making it available to the participants, but rather, is deliberately only partially filled. It is intended that the participants contribute resources throughout the course, thus helping to build the course resources as the course continues. In this step, decisions are made as to what needs to be available in the site for the first time through and what will be submitted by the participants.
Step 6a: Detailed resource planning	Detailed resource planning means to select available learning resources, including examples such as Word documents, Power Points, real workplace data, workplace stories, workplace documents, external Web resources, cases, etc. If material is available in print form, it should not necessarily be changed to a Web-based form; only if there is an added learning value in doing so.
Step 6b: Specifying additional Web modules	If it is valuable to obtain some new resources of the course environment, these should be specified and arrangements made for their creation or procurement. For the first cycle of a course, this should be held to a minimal. After each cycle, further decisions can be made as to what is valuable to add and how to integrate learner submissions as part of a new resource.
Step 7 Detailed activity planning	Make explicit in the TeleTOP site the instructions for each activity including what to submit, where, when, and how assessment will take place.
Step 8: People planning	Plan for the communication, collaboration, and coordination that will occur during the course, among learners, within the course team, and between the instructor and the learners.
Step 9: Time and management planning	Anticipate and reduce the likelihood of inefficient practices by being aware of the aspects of running a blended course that can cause unnecessary time and frustration for participants and facilitators and preparing ahead of time to manage those aspects in an efficient way.
Step 10: Launch	Efficient introduction of the course to participants.

While the steps are presented in a linear form in these tables, in practice Steps 2, 3, and 4 have come to occur in an iterative and interrelated fashion, as do Steps 6a and 6b, and also Steps 7, 8, and 9. However, presenting them as separate steps ensures that particular attention is paid to each aspect.

Guidelines

For each of the steps a brief set of approximately five guidelines for the Course Directors was developed, again based on the experience and research at the University of Twente. Tables 3 and 4 show one representative guideline for each of the steps of the development path.

Table 3. Sample of guidelines for the Development Path, Phase 1 (Collis, 2002)

Development Path Step	Sample Guideline
Step 1: Setting the objectives	In terms of learning and performance objectives, think PROBLEM FOCUSED rather than CONTENT FOCUSED : State the learning and performance objectives in terms of the types of problems to be solved and tasks to be done in the workplace situations of the participants.
Step 2: General blend decisions	Before any contact session, have a PREPARATION PERIOD supported by TeleTOP: During the preparation period, participants should not only be studying background materials but should also be identifying their own workplace and performance gaps and doing activities that bring resources and experiences from their workplaces into the TeleTOP environment.
Step 3: General activity-resource planning	For learning activities, think of a combination that involves DISCOVERY; ANALYSIS, COMPARE AND CONTRAST; APPLY; AND REFLECT AND GENERALISE tasks: While these are not the only ways to categorise workplace-oriented activities, they do form a good basis for designing a series of activities that get progressively more complex.
Step 4: Blocking the planning matrix	For the words on the cells of the Roster, think CONSISTENT AND COMPLETE . Copy the same basic wording on each cell interface in a column. For any cell where there will be a submission, indicate what is due and when. Keep the text to a minimum; just enough to make the overview clear.
Step 5a: Setting up the TeleTOP site: End of Phase 1 of the redesign process.	In terms of the set up of the course Web site, START SIMPLE : Begin by only choosing the basic options: News, Course Information, Roster, Email, Categories, and Archive. You can add more later.

Table 4. Sample of guidelines for the steps of the Development Path, Phase 2 (Collis, 2002)

Steps of the Development Path	Representative Guideline
Step 5b: The evolving course	For the activity blends, think CONTRIBUTE : Plan for activities involving submissions that can potentially be re-used during the course and after.
Step 6a: Detailed resource planning	When beginning detailed resource planning, think CYCLE 1, 50%, CYCLE 2+, 80% : For the first cycle through a blended course, do not try to do too much in advance in terms of pre-structured resources. Wait to see what is really needed, and what comes in from the participants.
Step 6b: Specifying additional Web modules	When designing a Web module to be used as a resource inside the TeleTOP Roster, think HYPERLINKING, NOT PAGE-TURNING : A major strength of Web resources is that they allow depth, extension, and cross-linking through hyperlinks. If a linear sequence is used, the user must always know in advance what the length of the sequence is, and what the purpose is.
Step 7 Detailed activity planning	For each activity, think COMPLETENESS OF INSTRUCTIONS : Make the following information available: (a) purpose of the activity, (b) explicit steps for carrying out the activity, (c) explicit indications about standards that are expected for the products produced by the activity and how the products of the activity will be assessed, (d) explicit instructions about what to submit and where and when feedback can be expected, and (e) an indication of what will happen with the results of the activity (i.e., how they might be further used or re-used).
Step 8: People planning	For any collaborative activities, think COORDINATION : Group activities can be very frustrating and inefficient without clear task divisions and agreements among participants. Make sure that groups have these divisions and agreements, by asking them to archive them either in the workspaces or as submissions via the Roster.
Step 9: Time and management planning	When designing activities, think EFFICIENT FEEDBACK AND ASSESSMENT : For instructors experienced in blended learning, the major time investment is giving feedback, monitoring, and assessing participants as the course is in progress. Thus plan to use (and re-use) standard feedback and examples from participants for responses to submissions.
Step 10: Launch	Two weeks before the launch, think INVITATION MESSAGE AND WELCOMING NEW ITEM : The Course Director should send a standard invitation message to all associated with the course, telling them the URL and inviting them to go to the site and do the indicated introductory submission within a set time period.

The guidelines are in a process of evaluation and evolution.

In order to consolidate the steps of the development path and the guidelines for those steps, a support site for the Course Directors was developed using the same TeleTOP system as they will be using to set up their own blended-learning sites.

Technology for Support of the Development Path Process

Based on the experiences with decision-support tools built into the TeleTOP environment at the University of Twente, a "Development Path" Web site was developed using the TeleTOP system to support Course Directors through these ten steps at a time and pace convenient for each of them as individuals, and at the same time, introduce them implicitly to a form of learning in which activities based on workplace tasks form the structure for the instructional redesign of their courses. Another aspect of the strategy for the Development Path TeleTOP site was to model for the instructors the way a TeleTOP environment could be used to support this sort of workplace-oriented learning. For each of the steps, a brief description of the step involved is provided, as well as the guidelines for the step, a visualisation of the step as a process, and also some additional examples and resources are made available.

More importantly, the site presents a series of activities to guide the Course Director through each step of the development path relative to the re-design of his own course. Each step leads to a result that is directly applicable to the new course. By submitting their planning for each step into the Development Path site, the Course Directors are also making their design decisions and reflections available for their colleagues who will use the site after them. In this way, a series of resources are building up, based on the contributions of the Course Directors themselves that can serve as valuable examples for others. Also, feedback is provided via the site to each of the submissions of the Course Directors, providing a growing collection of comments from the members of the support team that can be assessed whenever needed. The TeleTOP system allows material to be added that is only visible to a subgroup of the users of a system. Thus resources for the support-team members are also available but are not seen by the Course Directors. In this way, the Development Path site is an evolving support resource for the facilitator team as well.

The Development Path site reflects the main conceptual principles for support of instructors in a change process involving technology as had been developed and validated at the University of Twente (as noted earlier):

Instead of group training sessions, provide just-in-time, individualized support focused directly on helping the instructor in the re-design of his own course thus making his time expenditure as economic as possible, and maximising the transfer from the support to his own practice.

"Practice what you preach" in the support: Use the same technology and instructional approach as the instructors will be using in their redesigned courses.

Provide the support in a way that is scalable and sustainable as more and more instructors become involved. This involves the use of technology in the form of decision-support tools (Collis & Moonen, 2001; Collis & De Boer, 1998).

The development path strategy and technology support also reflects principles of organisational learning:

"From an organizational perspective, such an approach is targeted at enhancing and improving the efficiency and effectiveness of traditional learning, transforming learning from an event to a process by removing the time and space boundaries that classroom impose, moving learning closer to employees daily work, goals, and challenges, giving learners more control over their own learning, and expanding the learning opportunities available to them, as well as forging closer links among training, knowledge sharing, on-the-job collaboration, and feedback – all in the service of performance improvement" (Davis, 2001, p. 2).

Thus the Development Path is more than a job aide: it is a deliberate attempt to contribute to the growth of the Shell Learning Centre as a learning organisation.

The Facilitator Team

An important part of the support process at Shell EP Learning and Development involves human support as well as technology. The Course Directors are being supported by a team of staff members of the Shell Open University on an individual basis. This group is called the facilitators, reflecting the principle whereby the facilitator (or coach) does not "teach" or take over the tasks of the learners (in this case the Course Directors), but equips them with the tools, knowledge, and opportunities they need to develop themselves to work independently and professionally (Peterson & Hicks, 1996). The facilitators use the Development Path site as a tool to support their interactions with the instructors but also interact with them on a casual and personal level.

The facilitator team has regular meetings to discuss recent developments, problems, issues, and emerging trends related to the blended-learning process. These meetings are instrumental in information sharing, communication, and refinement of the strategies for the support of the Course Directors and the overall Development Path implementation. The meetings also help the facilitators to grow as a learning community themselves.

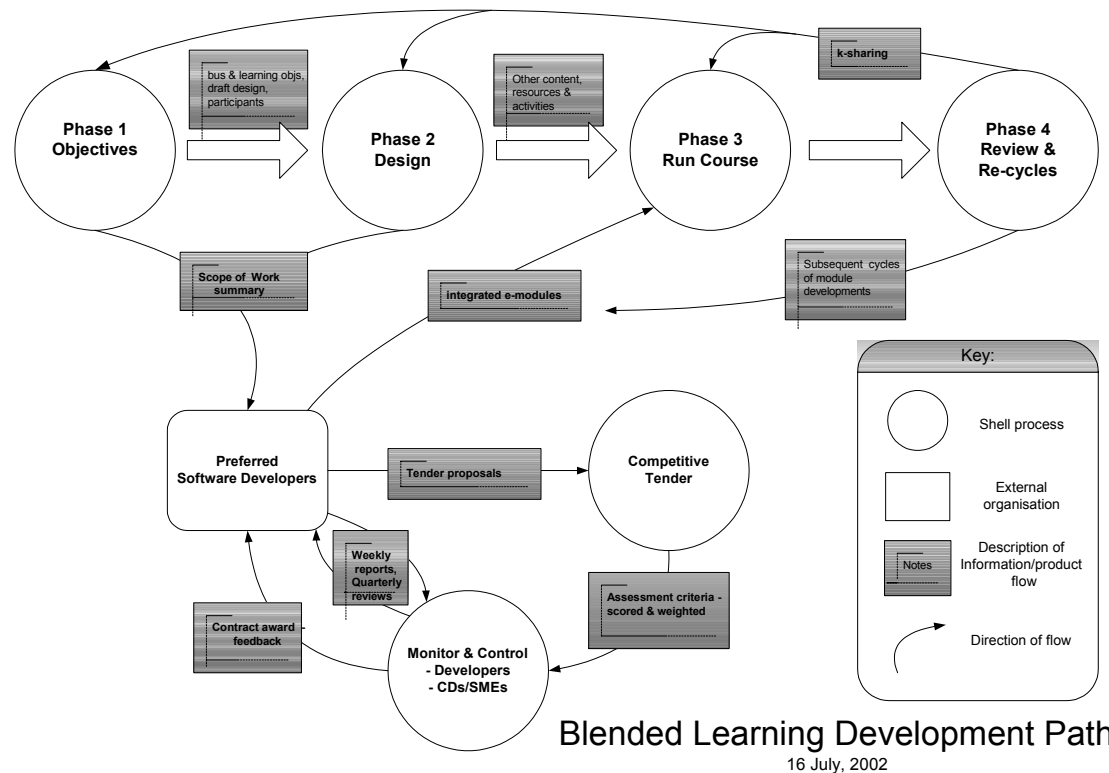
Results to Date

At the start of 2002 the target was to delivery 15 new blended courses and 100 e-modules. To date (end-June 2002) the Shell EP Learning Centre have already completed 11 blended courses and 86 e-modules some of which are standalone while most are integrated within the blended courses themselves.

During Q2 2002 these targets were changed to emphasise the shift in strategic direction away from 'simply' digitizing all existing course content into standalone, self-study e-modules towards the philosophy embedded in the Development Path i.e. to take a fresh look at the courses from a business and learning perspective (Phase 1) and designing in activities and appropriate resources, including options for e-modules (Phase 2), to produce a integrated mix of components to meet the defined needs. Consequently, the targets were modified to become more correctly 20 blended courses for the year with no specific target for e-modules.

There has been a mixed reaction to the Development Path itself from the various stakeholders within the Learning Centre. The Development Path has become an essential collaboration and knowledge-sharing tool within the team of facilitators supporting the Course Directors. Best practices are shared within the team which has been especially helpful in getting new team members on board and up to speed. Those Course Directors who help pioneer the blended approach in 2001 (pre-Development Path) have been reluctant to actively take part and submit knowledge into the Path itself although they have enthusiastically make resources available to be shared with the larger numbers of Course Directors going through the process in 2002. The Path has also been invaluable in engaging Course Directors from other parts of Shell, with no history of being involved in blended learning, where often face-to-face meetings were not easy to arrange and a such the Path became an essential distance supported collaboration tool.

In addition to the Phase 1 & 2 Development Path steps described earlier (Table 1) Shell EP have also now added more business and quality process focused steps and checkpoints resulting in a 4 Phase process as shown diagrammatically in (Fig. X?). Crucially, before moving from one phase to another there is a formal checkpoint when the outputs of that phase are discussed and reviewed before any further progress is allowed. Not only does this capture useful insights into good and not so good practices but adds formal sign-off steps into the process, essential for audit of the scale of capital investment being committed in this work and to be sure consistent quality standards are maintained across all courses. This also proved essential to managing the processes for outsourcing work to software developers where e-module content was seen as an appropriate medium for specific resources within a course.



Implications and Future Directions

The instructor-support strategies at the University of Twente and Shell EP Learning and Development have similarities and differences. Some implications of these for other similar organisational settings can be predicted.

University of Twente

At the University of Twente, the change process moved quickly and efficiently. The TeleTOP support team was considered no longer necessary after two years because all instructors were making use of the system. In a way, the strength of the approach became a liability, as the educational support was probably withdrawn a year too quickly. In our experience, there is a first level of support needed to win instructor engagement and help them over the barriers toward a change in their teaching practices. The strategy identified earlier served that purpose. However, a second level of support is then valuable to help instructors into a fuller exploration of new instructional practices. Probably a number of the instructors felt that they knew enough, after one or two cycles, and have not challenged themselves to continue to think critically and creatively about their educational practices (Collis, De Boer, & Slotman, 2001). Just as lectures given year after year can become stale, the same use of TeleTOP year after year can also become a lost opportunity for continued instructional experimentation. To counteract this, the faculty has again supported a new round of instructor support with a new decision support tool (De Boer, 2002) with the aim of stimulating instructors to new ideas about diversifying learning for different subgroups of students, within the common use of the TeleTOP system.

With regard to implications for other universities, the principles underlying the TeleTOP approach appear to be generalisable, although some of the instructor-support tools are built into the system and thus are not available elsewhere. The recommendations based on the University of Twente experience are theoretically grounded and have worked in practice. Variations of them have also been used in other universities, again supporting the generalisability.

Shell EP Learning and Development

At Shell EP Learning the change process started off slowly as the pioneering Course Directors got on with transforming their courses from solely classroom-based into mixed-media courses of different blended styles. However, recognition of their ground-breaking efforts helped transmit their enthusiasm and experience to the other Course Directors who were willing to explore the new approach once others has shown the way was feasible and beneficial to the business. This recognition came through e.g. asking the pioneering Course Directors to deliver presentations on their progress to the other Course Directors and to contribute resources to the Development Path. These pioneers were key to the eventual wider penetration of the Development Path approach since peer pressure to try new approaches to learning was much more effective than management pressure.

The Course Directors wanted a particular kind of pragmatic support from the Development Path. While they may have been interested, they didn't have the time to get involved with the academic or pedagogic depths behind the new approaches but wanted to be supported in quickly getting the job done. Consequently the team of facilitators supporting the Course Directors focused on coaching them through the process and making them aware of previous good practices but didn't insist on each Course Director following the Path step-by-step. However the support team continued to effectively use the Path to store and share knowledge about good practices and useful mistakes.

Initially the Course Directors didn't see a need for Phase 1 and wanted to dive straight into the detailed design activities of Phase 2. However, gentle, but persistent, coaching emphasized the benefits of taking this opportunity to think again about the business needs for this course (in whatever format) and to re-visit the learning objectives before getting involved in any detailed learning design and decisions about whether e-modules were appropriate or not.

What has now been developed is a process to support the scaling up of blended learning course production within Shell EP. While the initial and enthusiastic pioneers could be offered personal support, often 1:1, as more and more courses needed to be transformed, and more Course Directors became involved with differing levels of enthusiasm, skills and experience, then the support processes had to become more structured and formal. Furthermore, it's the nature of the EP business that Course Directors will move on to other jobs within 2-3 years so the Development Path, and the Support Team around it, have become essential knowledge repositories, sustaining and refreshing the knowledge and experiences picked up during 2001 and 2002 for re-use in 2003 and on with new Course Directors and courses.

Conclusion

Although the terminology is not often used, universities can also be seen as learning organisations. One of the key features of a learning organisation is the ability to respond to change and to learn from within by different methods of sharing of experiences. Tools such as the Development Path site provide a mechanism for the sharing of experiences and ideas among the instructors in an organisation at the same time as providing the instructors with targeted and "just-in-time" support for their own tasks. Although there are certainly differences between university settings and company contexts, the instructors in each may be more similar than different in terms of their personal responses with regard to change in teaching practice. The benefits of gradually becoming more of a learning community among themselves via the shared experience of a strategy such as the development path and the use of common tools and technologies to capture and make reference to each other's experience holds much promise for the future.

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