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Cross-Professional Collaboration on E-Learning Courses

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Abstract

The past 20 years have seen increasing collaboration between universities and other organizations. This paper examines the problems that arise in cross-professional collaboration in the area of e-Learning, when the design team at an e-Learning company works with academic Subject Matter Experts (SMEs) to create multimedia courses. The data are drawn from interviews with instructional designers at three e-Learning companies based in Singapore, as well as the author's interactions with two academic SMEs. The paper focuses on four aspects of the interaction: (a) differing priorities, (b) use of multiple modalities, (c) pedagogical knowledge, and (d) ownership of the course.

Key Words: e-Learning, collaboration, cross-professional collaboration, Subject Matter Experts.

1. Introduction

Collaboration is becoming a fact of life at universities. Over the past 20 years there has been growing collaboration between different universities, industry and universities (Powell and Owen-Smith, 1998), and researchers and practitioners (Rynes, Bartunek, & Daft, 2001) in diverse areas such as the life sciences/medicine (Powell and Owen-Smith, 1998) and medical practice (Sarangi & Roberts, 1999). There are several reasons for the collaboration, such as pressure for funding as well as the need to systematically research and disseminate findings (Roberts & Sarangi, 2003).

One of the recent areas where academics have begun to collaborate is in the education sector. Corporate organizations and universities have begun to recognize the commercial value of educational degrees and courses (Buchbinder, 1993; Currie, 1998) especially those that can be offered through distance education. As universities begin to explore the option of distance education programs, some university professors have asked e-Learning companies to design multimedia versions of their courses; at the same time, e-Learning companies have approached university faculty to provide content for academic courses for the commercial market. In this relatively new sector of e-Learning, academics and business organizations collaborate in developing a product.

Collaboration requires "the coming together of diverse interests and people to achieve a common purpose via interactions, information sharing, and coordination of activities" (Jassawalla and Sashitthal, 1998; p.239). Although this diversity can generate innovative solutions through

synergy, problems arise when the differences are very great. Guri-Rosenblit (2003) points out that these collaborative ventures in e-Learning have often failed and attributes their failure to the enormous difference between "the organizational cultures of these two worlds" (page 15); where corporations expect decisions to be made fast and deadlines to be met, academics spend large amounts of time on reflection and deliberation.

The type of collaboration between academics and the organization in an e-Learning venture can be described as cross-professional following Amabile et al. (2001). Although the study by Amabile et al. involved collaboration on a research project rather than a product, a number of features are similar, namely, the people are members of different professions (academic and business); they are collaborations between individuals or teams and not between firms; and the collaborators are not all members of the same organization.

Focus of This Paper

This paper identifies some of the problems that arise in the collaboration between academics, who are called Academic Subject Matter Experts (SMEs), and the design team at e-Learning companies. The data is based on interviews with members of the design team at three e-Learning companies in Singapore that worked with corporate as well as academic SMEs.

2. Roles in e-Learning

2.1 The e-Learning Team

At an e-Learning company, a course is developed by a team. The Instructional Designer (ID), who has a background in instructional design or education, designs the structure of the course and rewrites the content; graphics designers and programmers create images and animations, and program the course for the Learning Management System; the Project Manager oversees product delivery, optimizing resources (people, technology, and funds) and stepping in to resolve issues such as project over-runs and client interface.

2.2 The Subject Matter Expert (SME)

Since small organizations cannot afford in-house expertise in areas as diverse as insurance and aircraft maintenance, they rely on Subject Matter Experts (SMEs) for the content. When the client is a corporate organization, the SME is usually a trainer from the client's training department who handles their face-to-face training. The instructional designer works with the SME to gather the content and structure it so that it meets both client expectations as well as project deadlines.

The SME and ID work together to convert the course to an online format; in this process, the SME provides the content while the ID is responsible for the teaching expertise (Lee, 1994). The ID restructures the course so that it is shorter, consistent across the sections, and the material is self-instructional. For both parties, this interaction can be difficult (Lambe, 2000). Surveys in a close related field (namely, technical writing) found that SMEs have scant respect for the skills

of the technical writers they deal with (Walkowski, 1991) and are often hostile because they fear they will lose their jobs (Yancy, 1995). At the same time, technical writers complain that the SME is never available and lacks respect for the writer's work (Lee and Mehlenbacher, 2000).

E-Learning companies have worked out ways to work with corporate SMEs (usually by escalating the problem further up the hierarchy), but academic SMEs present a different set of problems. Some of the obvious differences between corporate and academic SMEs are listed below:

- **Expertise**. Corporate SMEs have both technical expertise and training experience in their field. The academic, on the other hand, is usually an international authority on the subject who has published research articles and books on the subject.
- **Teamwork**. Corporate SMEs are used to working as members of a team (usually within the training division of the company) but academics have greater autonomy at the university.
- **Professional Status**. Corporate SMEs view e-Learning with suspicion, often because they fear being replaced; academics have no such worries and are confident of their abilities.
- **Motivation**. Organizations expect their trainers to cooperate with the e-Learning company, so corporate SMEs are not given the option of refusing; academics, on the other hand, often work on e-Learning courses for the experience. As one academic SME told me, "This is the easiest way to find out what e-Learning is. After this course, I'm not creating another e-Learning course."

3. Sources of data

The data come from three e-Learning companies based in Singapore that were working with professors at different international business schools.

- Company 1, with a core team of 10 people, specializes in courses for financial institutions. It developed one academic e-Learning course at the request of a professor (SME 1) at a business school. In a semi-structured interview, the project manager discussed problems related to course development.
- Company 2, with 50 people, creates e-Learning courses for corporate training. Through a tie-up with an international MBA school, they created three MBA e-Learning courses for executives. When the management realized that project delays were due to problems with SME availability, I was asked to identify the problems. Accordingly, I conducted semi-structured interviews with 13 project managers and instructional designers who had worked with SMEs on both corporate and academic courses (SME 2 and SME 3) and obtained written feedback from one ID; in addition, I worked as the ID for two MBA courses, where over a period of four months I worked with two academic SMEs (SME 3 and SME 4).
- Company 3, with a core team of about 70 people, was preparing to launch an online MBA and were in the process of developing the courses. I was an observer at the first conference call between two teams from the organization and the SME (SME 5).

At these three sites, the academic SMEs had different degrees of autonomy; the academic in Company 1 had the greatest degree of autonomy because she paid the company to create her course; in Company 2, the courses were to be marketed under the professor's names; Company 3 gave the academic the least amount of autonomy, because he was to be paid for the content but would not be listed as the author of the course.

The Data

The data were collected when I was working with two of these organizations. As an insider, I was familiar with company procedures and concerns and did not face the problems, such as gaining access to institutions and information; at the same time, I was constrained by the confidential nature of this material. This meant that I could not tape conversations and discussions. Hence, the data presented here are notes taken during interviews and meetings, along with verbatim quotes from participants. Note that the data represent participants' perceptions of the situation rather than 'reality'.

During the interviews, the participants talked about their concerns. The data will be discussed in terms of four recurring issues that they raised: differing priorities, the multi-modal nature of e-Learning, pedagogical knowledge, and ownership of the course.

4. 1 Differing Priorities

In line with the research literature, the major problem for all the instructional designers was gaining access to the SME. All the 11 instructional designers working with corporate SMEs cited this as the main problem.

> ID 1: "[The SME was] too busy to meet me and I was very frustrated…the whole experience was very frustrating." She tried many strategies based on the advice of her colleagues but none of them seemed to work.
>
> ID 2: Payments to the SME were stopped "until he delivered what he owed."

The challenge is even greater for instructional designers who work with academic SMEs. SME 4 told me, "I've given you the course reader and you've attended my lectures. You should be able to develop a course from this. What more do you want from me?"

Describing his interaction with academic SMEs, ID 2 wrote about SME 2:

> "[The SME] provided basic course content but did not involve himself during design or development. His attitude was 'here is the material, do with it what you want.' Did not respond to emails nor was available for phone calls. Course was developed entirely by [me]."

The ID continued as follows:

> "[The SMEs] non-involvement could have been disastrous if the project had ground to a halt due to disorganized materials or the difficulty of the topic."

About SME 3, ID 2 wrote:

> "[The SME] provided basic course content, and was meant to co-develop new materials as needed. [I] met [the SME] for an initial 3-day f2f period, which helped them select and outline the e-course from the existing [university] course. After an initial giving of materials and development discussion, [the SME] seemed to be unavailable, thus causing a delay in production. The [course] materials could be difficult and turgid, and the distance did not help in this regard."

Here the ID presents the case diplomatically; in actual fact, the course stalled for six months because the professor was unavailable. ID 3, who took over the course, said of a central component that was missing from the content, "I put in tremendous effort trying to find copies of it…this is a matter of one to two hours for the SME."

Although SME availability and content extraction is a problem with all SMEs, the problem is exacerbated in the case of academics because the e-Learning course is low on their list of priorities. The professors assumed that their role was over once they handed over the reading package of case studies and research articles; they were unprepared for long discussions with the ID who wanted to fill in content gaps and get the SME to articulate tacit knowledge about the subject.

4.2 Multi-modal nature of e-Learning

E-Learning courses place a high premium on interactivity in order to involve the learner. One technique is the use of multiple modalities -- text, graphics, animation, and sound – to engage students in the learning process. Although multi-modality is a common feature of everyday life, it is underemphasized in traditional learning situations where the written text dominates (Kress, 2003, 2005).

In talking about their corporate SMEs, the IDs talked about the need to "educate" them about the special nature of e-Learning. In describing two successful courses, ID2 wrote that the SMEs were "shown e-learning examples at the start, and [were] excited by the possibilities." In contrast, a third SME "was a difficult SME to work with. He was given e-course sites to look at but neglected to look at them or to discuss the needs of e-learning development, despite repeated requests."

Curiously, none of the IDs said that their academic SMEs needed to be "educated" about e-Learning although the reasons for this omission are not clear. Given that academics spend most of their time reading and writing purely textual material, one would have thought that they needed this exposure to e-Learning samples. In fact, the courses developed by many academics

tend to be text-heavy with few, if any, illustrations (Guri-Rosenblit, 2003). At Company 3, several MBA courses that were developed by university faculty consisted of long stretches of text and, based on student feedback, had to be re-assigned to a second author. However, there was no discussion with the SME about the mismatch with e-Learning standards; the project manager found it easier to quietly drop the SME, thereby avoiding a confrontation.

At the same time, academic SMEs are quick to pick up on the potential of the media. When I showed SME 4 one example of a 'drag-and-drop' exercise, he suggested various points in the course where similar exercises could be incorporated. He was able to suggest a display technique for an exercise that had not occurred to the design team.

4.3 Pedagogical Knowledge

One assumes that university professors know how to teach, since they spend much of their time teaching students, often at different levels. However, instructional designers had a different perception of academics. During the interviews, the instructional designers made repeated comments that the SME does not know how to teach. ID 4 said of her corporate SME, "The SME is not an educator." While one could accept that corporate trainers may not know how to teach, it is less easy to understand this comment when it refers to teachers such as business school professors. Yet, ID 3 said of her academic SME: "The SME loses sight of the learner."

At the same time, the instructional designers admitted that although the SME often did not articulate facts, they had a very good grasp of the field and level of knowledge of learners.

> ID 3: "The material seemed too difficult for learners. I asked a friend who has done his MBA … the SME was correct."
>
> ID 3: "We are not experts in the field."
>
> When I asked ID 3 if one can bypass the SME by using other resources, she said that this is possible "where basic facts are concerned" but "[the SME] has the vision. He is very up-to-date through the consultancies he does." and "[The SME] refused to budge on certain points—the ones he considers cutting edge."

How does one reconcile these apparently contradictory perceptions the SMEs' pedagogical knowledge? In the area of science education, Schwab (1978) pointed out that 'knowing' a subject does not merely mean knowing the content but involves knowledge of the structures of a discipline. Schwab identified two structures that underlie expertise in a disciplinary field--substantive structures, such as paradigms, and syntactic structures (or modes of valid inquiry) in the field. These structures are acquired as part of training and socialization into the discipline. These substantive and syntactic structures may never be explicitly discussed or addressed at the undergraduate level but at higher levels of coursework, they guide disciplinary inquiry. Investigations of the subject matter knowledge of teachers find a marked difference between those who hold only a general undergraduate degree and those who have done graduate-level

work where the substantive and syntactic structures of a discipline are discussed (Grossman, 1991; Grossman, Wilson, & Shulman, 1989; Shulman, 1987).

University professors work within the substantive and syntactic structures of their discipline, allowing them to identify what is worth teaching, linkages in the field, etc. In contrast, instructional designers, who do not have these disciplinary structures, draw on general theories of learning in educational psychology that emphasize behaviorist principles such as learning objectives and learnability. The ID's knowledge does not, in any way, capture the depth and complexity of the expert's grasp of the field and the IDs frankly admitted this by acknowledging that the SME has "the vision". This can be seen in the interactions between an ID and SME 4 below:

> ID: Should I include this information from your PowerPoint slides?
> SME 4: No, this is a four hour course!
>
> ID: I have enough material for a four-hour course.
> SME 4: But this bit is critical to the organic structure of the whole.
>
> ID: Do you get asked questions on this point?
> SME: No. It's obvious. Everyone knows about resource utilization. For completeness we need to include some information, but don't belabor the point.
>
> ID: Should I include market research techniques?
> SME: No! That's heading away from the point I'm trying to make.

When IDs say that the SME does not know how teach, they are referring to the self-instructional aspect of the course. The content has to be explicit so that learners can study it on their own; in many cases, IDs have to make SMEs articulate knowledge that is tacit as can be seen below:

> ID: This page represents 18 years of your thinking. It is a summary. The student needs some background to get to this point.

To sum up, IDs draw on general pedagogical knowledge whereas the SME has subject matter pedagogical knowledge.

4. 4 Ownership of the course

Given that academics place course development low on their list of priorities, one expects them to take little interest in 'ownership' of the course. When I asked IDs whether they could have replaced their non-cooperative academics with other SMEs, they said they had tried this strategy but met with resistance from the professor.

> ID 3: "I even asked the SME for an alternate SME but he refused as he wanted to retain control."

The experience with my academic SME was similar. When the SME went to Europe for two months, I suggested that I could get input from one of his colleagues in the administrative division. The SME rejected the suggestion saying, "He doesn't know the material—he is only an MBA. He doesn't have a Ph.D."

This strong sense of ownership comes from the fact that the courses are marketed under the professor's name. Unlike corporate SMEs who work as part of a team and have little sense of ownership of the material, academic SMEs feel that their professional standing is at stake. This manifests itself in a focus on content accuracy.

> SME 1: In this graph, this line should go up slightly more. A little higher…
> SME 1: The text is fine but I would add the word 'perhaps' …

During the re-development of a course, SME 2 was too busy to respond to queries from the ID. When the ID pointed out a possible error in an equation in his slides, he called the ID immediately to discuss the equation.

Since e-Learning projects are driven by tight deadlines, the team tries to contain the scope of the course. With corporate clients, the e-Learning courses are often based on existing courses that have well-established content. In contrast, courses involving academic SMEs encounter "scope creep" because they make frequent changes to the content based on new insights or a research article they have read. At Company 1, course development dragged on for six months because the academic (SME 1) kept adding content as she read new research articles. SME 4 changed the answers to a quiz after the test had been created; he defended this change, saying, "I'm allowed to—I'm an academic!"

Who controls the content of the course and makes the final decisions? The obvious answer would be that the SME has the final say because s/he is the expert in this area. However, in order to meet project deadlines, SMEs may be forced to compromise over issues that are less important to them. In cases where academics feel that they have little control over the content of the course, they try to opt out of the project (which is described in the next section).

5. The Experienced SME

The sections above discussed interactions where the SME was a novice at e-Learning. This section looks at the interaction with a SME who had already created one e-Learning course and thus cannot be considered a novice.

The interaction took place through a conference call between the SME (who was in Australia), the project management team in Singapore (3 people), and the design team in Europe (5 people). The purpose of the call was "SME training" Before the conference call, relevant documents were dispatched to the concerned parties; these included the agenda, a scope document, a PowerPoint file describing instructional design, and flow diagrams of the development process (3 pages). According to the agenda, the purpose of the meeting was to clarify the roles and responsibilities of each member of the three teams and to familiarize the SME with the design process,

instructional design principles, and his responsibilities. The problem was that the SME was not a novice at e-Learning—he had already created an e-Learning course for another company. Accordingly, he had a very good idea of what is involved and had a clear idea of what he wanted to incorporate in the course

The call lasted for 90 minutes. Since it was a conference call, only one person could speak at any given time. Each team member was given a fixed amount of time to describe his or her responsibilities, but there was no time slot for the SME since it was assumed that he would ask questions when he needed clarifications. Below, I have summarized the events during the call, since I could not tape the conversation.

i. **Introductions and roles (5 minutes)**
All nine people briefly recite their names and job titles.

ii. **Library support (5 minutes)**
The librarian informs the SME that she has already identified readings for the course. The SME asks whether he is expected to incorporate all these articles and says he may not want to include her readings in the course.

iii. **Process overview (15 minutes)**
The 5-member team describes the development process in project management and e-Learning terms, such as deliverables and media developers; these terms are not explained.

iv. **Content Quality Assurance (5 minutes)**
The editor describes the development process, which is laid out in three pages of flow diagrams. The SME interrupts several times, saying that these steps have been completed.

v. **Instructional Design (30 minutes)**
The Instructional Designer goes through a PowerPoint presentation that covers the basics of instructional design. The SME interrupts frequently, to make suggestions or to disagree. On several occasions, the e-Learning teams had come to decisions, but did not inform the SME, resulting in wasted effort.

> *Interactive learning objects.* The SME interrupts the description of interactive learning objects. He suggests that they create pop-ups using math for students who are more comfortable with math.
>
> *Case Studies.* When the ID states that the SME should include six case studies, the SME interrupts saying that six is too much for a course at this level. The Project Manager intervenes, saying, "We would like you to include six case studies per topic..." The SME asks in surprise 'Per topic?' The development team backtracks and tells the SME to use his discretion.

Animations. (a) The SME says that he would like to use video clips, but the design team tells him that video clips will not be used in the course. (b) The SME says that he is interested in animations that deal with math graphs and "not the cartoons and people moving around." (c) The SME says that he has gone through the existing course and selected animations that will work well without any re-development. However, the project management team wants to re-develop all the animations to reduce file sizes and change the look-and-feel

Self-assessment. SME wants to use Interactive Learning Objects for self-assessment. The design team has already decided to use a multiple-choice test, but has not informed the SME.

vi. Wrap-up (5 minutes)

The project management team tells the SME that they plan to talk with him twice a week "monitor progress". The SME says he cannot spare so much time.

At this point, the conference call ended. The SME sent an email message to the Dean (who had identified, persuaded, and signed him up as the SME) to say that he was withdrawing from the course. He explained that he had seen it as an opportunity to create an innovative course but found that it was too rigid; in addition, the project management team wanted him to commit a lot of time to discussions instead of allowing him to design the course as he saw fit.

From the outline of the call above, the SME clearly felt that he knew more than the e-Learning team about designing an online MBA course; he also found he had little freedom to implement his ideas. Since he felt that his expertise was undervalued, he opted out of creating the course.

6. Conclusion

This paper described some of the difficulties in the interaction between academics and organizations in the sphere of e-Learning. Because of their differing priorities, the two parties focus on different aspects during the collaboration. The academic's interest lies in experimenting with and learning about a new area. The organization, on the other hand, is focused on efficiency and so they try to ensure rapid development and minimal changes during development. In trying to meet its objectives, the organization stresses the importance of deadlines, uses templates for the courses, and assigns tasks to a team rather than a single person. This does not work with many academics who have no interest in the development process and do not realize the importance of deadlines; they feel constrained by the templates that do not allow them to innovate. In addition, they have to deal with several different members of the team during course development, which they find confusing. Since e-Learning companies are increasingly trying to work with academic SMEs, they need to adapt their processes to work smoothly with academic SMEs.

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Colophon

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