A Place for Project Management in English Studies and Communication Studies Curricula

CONSTANCE KAMPF AND SUVI ISOHELLA

Abstract

In this paper, we argue for a place for project management in the English Studies and Communication Studies curricula, often the home of Technical Communication programs, in order to offer students an opportunity to apply their language, discourse analysis, analytical skills, and creativity in a transitional setting which can serve as a bridge between the classroom and the workplace. The perceptions of the need for project management are examined with respect to interviews of Finnish technical communication graduates, and an example of a project management course focused on the communication aspects inherent in project management tools and process from a Project Management course taught simultaneously at the Aarhus School of Business and the Helsinki School of Economics is described, including examples from Project Management assignments which correspond to problem-solving skills. In addition, some of the project management genres are briefly discussed and related to key skills emerging from English studies and Technical Communication curricula.

1.Introduction

In a weak economy, the need for traditionally accepted curricula such as English Studies and related fields (Technical Communication, Translation, Communication taught in English as a foreign language, etc.) to demonstrate direct relevance for both potential students and businesses hiring them at graduation increases. In order to attract students and assist them in finding professional jobs related to the skills learned in English and technical communication programs, we propose that the integration of courses such as Project Management be incorporated to help students explicitly connect some of the skills they learn in English language

and communication curricula to workplace practices. The addition of a course in Project Management with a communications and document driven focus given in English is one way to make the connection between English education and the workplace more explicit for both potential students and potential hiring agencies for our graduates.

Although Project Management has generally been placed in Management and Engineering curricula with a focus on structuring and controlling work, the Project Management tools and processes can also be understood from a communications perspective, and this focus falls within the realm of English language skills such as audience analysis, argumentation, visual communication, document design, and creativity in project conception. Teaching our students explicitly how to connect their skills with standard tools and processes used around the globe can "invite them into a professional identity" (Wenger 2008)[1] and ensure "an education that eases their transition into the world of business and industry" (Whiteside 2003: 303).

These project management skills are increasingly being sought after in the workplace, as Kampf (2006) explains:

> As corporate structures shift to include an increasing number of cross-functional projects, the demand for project management knowledge which prepares undergraduate students to function effectively in project environments increases as well. To address the issue of preparing students to function in a project-based environment, a communications approach to project management is defined as an approach focused on both genres for documentation used to manage projects and the situated-ness of project management documents in organizational structures, cultures, and knowledge management processes.

This definition of a communications approach to project management is the focus of our argument for the need for Project Management courses rooted in a language and communication

---

[1] Wenger, Etienne. 2008. "Personal Communication." Association of Internet Researchers 9.0 Conference, Roundtable Discussion on the Future of Education and Technology. Copenhagen, Denmark, October 18.

framework as part of English studies and cross-disciplinary program curricula. To demonstrate how Project Management from a communications perspective can enhance English studies technical communication curricula, this paper explores perceptions of the need for project management, and describes a project management course given to communication students in Denmark and Finland studying in English, with a focus on Project Management from a communications perspective. This course does not teach students to be project managers. Rather, it uses the document-based structures of project management to teach students about the basics of functioning in a professional workplace in which work is organized using projects.

2. Perceptions of the Need for Project Management

The practice of project management is expanding from unique one-time initiatives such as software systems installations and upgrades, large scale building projects, industry specific development projects (i.e. new drug development) into communication-based industries such as Marketing, where PM tools are increasingly used to manage client contracts (Eiler 2008).[2]

Project Management is already being integrated in some English and humanities oriented academic programs. Academic fields related to English Studies, such as Technical Communication in the U.S., include Project Management as a standard part of their curriculum (Society for Scientific and Technical Communication 2008). In Finland, as well, Technical Communication is modelled on the US curriculum and includes an option for an elective course in Project Management in the University of Vaasa program for Multimedia Systems and Technical Communication. This integration of Project Management courses is based on a perception of the need emerging from interactions between academia and industry.

---

[2] Eiler, Timothy, Certified Project Management Professional, Project Management Institute, USA. 2008. Interview, University of Minnesota, Minneapolis. October 1.

A Place for Project Management in English Studies and
Communication Studies Curricula

Understanding how Project Management can be seen as relevant for humanities students and industry recruiters comes from studies of graduates experiences adapting to the workplace and survey responses. For example, Whiteside (2003) examined recent graduates, managers, and curricula in the humanities- influenced field of Technical Communication in order to build a picture of the skills recent graduates need. One of the areas that recent graduates felt needed to change was Project Management (Whiteside 2003: 311). Both recent graduates and managers agreed that one of the four key areas in which technical communicators need more preparation was Project Management (Whiteside 2003: 313). Fifty-nine percent of Managers, and thirty-three percent of recent graduates surveyed identified Project Management as an area where incoming technical communicators were deficient. (Whiteside 2003: 313).

In Finland, technical communication education at the university level is fairly recent: the first programme, Multimedia Systems and Technical Communication started in 1996 at the University of Vaasa. In addition to the program in Vaasa, the University of Tampere has delivered technical communication education since 1997: in Tampere there is a two-year programme at the School of Modern Languages and Translation Studies. The University of Oulu has delivered a study program (25 ECTS) primarily for students of English Philology since 2001. In addition to these programs, many educational institutes offer individual courses on technical communication. The emphasis of technical communication education in Finland is "on improving the communication and tools skills of the students, whereas it is considered the employer's responsibility to train them in the special field in question." (Abdallah, Haanpää, Hill, Ilveskallio, Orispää and Suojanen 2005). In the same way, an understanding of Project Management Tools and Processes would give English studies students a basic understanding to enable them to link their education with work place training.

3. Multimedia Systems and Technical Communication at the University of Vaasa

One of the major roots of the Vaasa program in Technical Communication lies firmly in applied linguistics as a discipline. The curriculum and context for project management from this program is included to demonstrate how Project Management might fit into and help link English education in cross disciplinary programs. Multimedia Systems and Technical Communication is an interdisciplinary programme launched by the Department of Communication Studies, Faculty of Humanities, and Department of Computer Science, Faculty of Technology. Although the program is mainly in Finnish, two of the required courses are taught in English.

The first students were accepted to the programme at the beginning of fall semester 1996. At the beginning of every academic year, 30 students join the programme. Half of the students will graduate from the Department of Communication Studies (Bachelor of Arts / Master of Arts), and the other half from the Department of Computer Science (Bachelor of Science in Economics and Business Administration / Master of Science in Economics and Business Administration).

The general studies, subject studies and advanced studies (see Table 1) in the programme are divided between the two departments. However, the course modules chosen for the programme support one another. During their studies, the students will participate in numerous projects with the businesses of Vaasa. This gives them up-to-date knowledge of the practices of the field and gives the students possibilities to put the theoretical background into practical u

Table 1. Common studies (basic studies, subject studies and advanced studies) in Multimedia Systems and Technical Communication.

> **Basic studies:**
> Introduction to Terminology Science (3 ECTS)
> Introduction to Multimedia and Hypertext (3 ECTS)
> Technical Communication I (4 ECTS)
> Introduction to WWW-Publishing or Introduction to Publishing (5 ECTS)
> Programming (5 ECTS)
> Development of Information System (5 ECTS)
> Electronic Commerce (5 ECTS)

A Place for Project Management in English Studies and
Communication Studies Curricula

Subject studies:
Concept Analysis (3 ECTS)
Structured Text (4 ECTS)
Literature Course in Multimedia Communication (3 ECTS)
Software Engineering (5 ECTS)
Database Design (5 ECTS)
+ 15 ECTS from the following courses:
Tools and Methods of Technical Communication (4 ECTS)
Structured Publishing (5 ECTS)
Communication Applications of Multimedia (6 ECTS)
Object Modeling (5 ECTS)
Object Oriented Programming (5 ECTS)
Data Structures (5 ECTS)
Information Security (5 ECTS)
Web Based Technologies (5 ECTS)
Construction of Information System (5 ECTS)
Management Information Systems (5 ECTS)
Operating Systems (5 ECTS)
Exercises in Object-oriented Programming (5 ECTS)
Advanced Spreadsheet Systems (5 ECTS)

Advanced studies:
Colloquium on Multimedia Communication (3 ECTS)
Practicum in Technical Communication (7 ECTS)
Web Publishing Standards (3 ECTS)
Hypermedia Production (7 ECTS) or Advanced Course in Multimedia (7 ECTS)
+ 20 ECTS from the following courses:
Analysis and Design of Human Computer Interaction (5 ECTS)
Computer Graphics (5 ECTS)
Information Society (5 ECTS)
Selected Topics in Computer Science (5 ECTS)
Special Course in E-Commerce (5 ECTS)
Management of the ICT function (5 ECTS)

The curriculum consists of technical communication and terminology, multimedia communication (with emphasis on computer-mediated communication), and computer science. Professionally, the students will have many alternatives to choose from after they graduate. As is the case with many English studies program graduates, they could become technical writers, multimedia system designers and authors, journalists and information officers in

the technical field, interface designers, experts in technical documentation and terminology, etc.

During the first years of the program, a project management course was included into the curriculum. This basic studies course was offered by the Department of Production. Nowadays project management is in the curriculum of two departments at the University of Vaasa: the Department of Production and the Department of Management. In the Department of Production, the project management course is a basic course (3 ECTS). The emphasis of the course is on project planning and project management, i.e. the knowledge areas, skills and methods that are needed for managing single projects successfully. The students of Multimedia Systems and Technical Communication can include this course either as optional studies or as minor studies (of production). The project management course in the Department of Management is primarily for students of management. It is a 5 ECTS course and the aim is to

"provide the students with a broad understanding about different topics related to project management. Topics that will be covered during the course are among others the management of quality, time and costs within projects. Moreover project planning and different tools for managing projects will be covered. Projects will also be analyzed from an international perspective. From a human perspective, issues related to the project manager and the project teams are also included in the course." (Study Guide 2008)

4. The importance of project management in graduates´ work

The aim of Suvi Isohella's ongoing PhD research is to explore how technical communication graduates see the requirements of working life. In 2008, a survey of technical communication graduates 3 was conducted and they were asked about the requirements of working life. The focus of this research is on qualification requirements of

---

[3] Multimedia Systems and Technical Communication programme at the University of Vaasa.

working life; however, additional information, for example, the importance of project management in the graduates´ work was also gathered. The 75 graduates of Multimedia Systems and Technical Communication programme who graduated before February 2007 were contacted by email and asked to fill out an online questionnaire. Of the 75 emails sent, 41 submitted the online questionnaire, for a 55 % response rate. Of the 41 questionnaires submitted, 1 respondent was unemployed. Isohella's analysis was limited to the 40 working respondents for a 53 % response rate. The graduates were asked to rate the importance of areas that are, according to research findings and literature, relevant in technical communication. The students rated each area on a scale "very important", "somewhat important" or "no importance". One of these areas in question was project management, the focus of this paper.

A total of 22 (55 %) of the respondents (40) worked in technical communication or in a technical communication-related field, 6 worked as communication specialists, 5 worked in journalism and 7 worked in other fields (for example in the education sector). The majority of the respondents (24) regarded project management as very important, 11 respondents regarded it as somewhat important and 5 regarded project management as having no importance in their work (see table 2).

Table 2. The importance of project management / all respondents

Very important	24	60 %
Somewhat important	11	27.5 %
No importance	5	12.5 %
Total	40	100 %

When looking at the answers of those working in a technical communication-related field, a total of 15 of the 22 respondents regarded project management as very important and 6 regarded it as somewhat important. One respondent regarded project management as having no importance. (See Table 3).

Table 3. The importance of project management / respondents working in a technical communication-related field.

Very important	15	68 %
Somewhat important	6	27 %
No importance	1	5 %
Total	22	100 %

The results of these recent graduate surveys demonstrate the importance of project management – also in a field outside technical communication. These results also support other studies suggesting that project management should be integrated into technical communication curricula and could also be useful for related English studies curricula. It is time to reconsider integrating project management into the curriculum of Multimedia Systems and Technical Communication program. To successfully integrate it, cooperation with other departments (i.e. Department of production and Department of management) is needed. Thus, project management offers technical communication students cross-disciplinary experiences in addition to the course content, helping to prepare students for the cross-disciplinary teams they will encounter in industry.

5. Anatomy of a Communications-focused Project Management Course

In order to envision Project Management as having a place in a humanities-based English studies program, we will now describe the curriculum of a communication-focused project management course which was taught simultaneously in Denmark and Finland during Spring semester 2008. The Finnish students were M.A. students in International Business Communication located in a department rooted in the English and language studies traditions. The Danish students were B.A. students in Marketing and Management

Communication located in a department of language and business
communication, also rooted in English and language studies
traditions. The view of the anatomy of the communications focus,
inherent in the course, offers an example of how Project
Management practices connect with skills that English studies and
related communication programs cultivate such as problem solving,
document design, writing, visual communication, etc. The course
will be described from three perspectives – understanding Project
Management as a set of tools for problem-solving, and a collection
of documentation practices.

6. Project Management as a set of tools for problem-solving

Although most Project Management textbooks define Project
Management in terms of project characteristics (Mantel et al. 2001;
Gardiner 2005; etc.), the communications focus to project
management defines projects as solving problems for people. Each
problem includes both previously experienced aspects as well as new
aspects unique to the combination of circumstances in which the
problem is situated. Thus, key skills that come out of English
education, such as audience analysis, creativity and problem-solving,
and document design and language choice can be leveraged to help
students articulate and explain problems which, in turn can be
connected to project goals and objectives. This combination of skills
can be leveraged to help English studies students connect project
management documentation practices to small knowledge projects,
such as their own BA or MA thesis, as well as use clients for
developing small scale project plans. In using Project Management
tools for solving problems directly relevant to their experience,
English studies students have the opportunity to apply their problem-
solving skills and reflect on how their institutional context can
correlate to workplace contexts through audience analysis and
discussion of how to write for a complex audience.
    In the Danish/ Finnish Project Management class, students were
able to use either their BA thesis projects or the class client. Our
client was Carolina Islas-Sedano, a computer science PhD student
from the University of Joensuu Computer Science department. She

and her colleagues developed a mobile phone game which students were asked to situate in the context of a museum in Helsinki or Aarhus. The act of situating this technology drew on students' skills in understanding audiences and perceiving the technology as a problem-solving device. As Whiteside (2003) recommended classroom-workplace collaborations as a transitional experience for students, this client offered communication students the ability to apply their communication skills through real-world contexts. Through transitional experiences, students are exposed to situations in which "know what" or knowledge of the material is not necessarily enough. But rather, they are pushed to both "know what" and to begin to "know how" in the context of solving real problems. This transitional experience challenged the students to synthesize theory about knowledge management and knowledge communication with their understanding of complex audiences, and offered them the chance to work iteratively with problem solving visualizations related to project management tools.

Students in Helsinki choose different museums and visited them to do their audience analysis, observing museum goers, and in some cases, meeting with the museum staff to better analyze their audience. Through their work in project concept, and their growing understanding of Project Management as a problem solving process, they were able to iteratively move towards viable and interesting project charters which argued for the project as solving a problem for their clients.

In figure 1, an example of a ven diagram used by communication students to describe and define their problem, the students demonstrated the ability to creatively address the generic problem given to them (*Situate the cell phone game in a museum)* by reframing a cell phone store as a museum because the store was decorated using a museum model. This student group from Finland used visualization to creatively communicate the connection between the problem and solution.
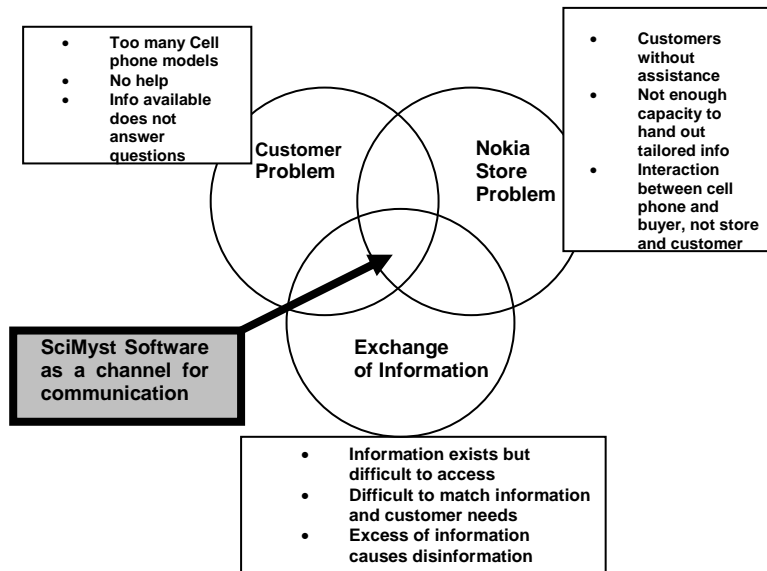
Figure 1. Interrelated customer-store problems at the Nokia Store

Figure 1: Example of a problem emerging from student observation

Some of the students found defining the problem more difficult than the group who produced Figure 1. Table 4 demonstrates iterations in other student projects from the Helsinki School of Economics (Kampf 2009), as they work towards defining a project that truly solves a problem for people.

Table 4. Iterations in defining goals and objectives as a problem-solving process

Project Title	Iteration 1 Goal	Iteration 1 Objectives	Iteration 2 Goal	Iteration 2 Objectives
Heureka SciMyst (Science Mystery)	To make the science exhibits of Heureka Science center	• Create a reciprocal relationship between Heureka	To enhance knowledge communication by connecting learners, the	• Evaluate the effectiveness of Heureka Museum in terms of linking

Constance Kampf and Suvi Isohella

	communication knowledge that supports curriculum by using channels familiar to elementary school students from 8-12 years old.	Science Museum and the Ministry of Education • Help students catch more details in the exhibitions and encourage them to learn. • Make learning more fun by using channels familiar to the target audience • Adapt SciMyst for long term usage	science exhibits of Heureka, and the public school curriculum while using channels familiar to elementary students from 8-12 years old.	the information provided in exhibitions to the curriculum • Help elementary school students catch more details in Heureka's exhibitions and encourage them to learn in a fun way by using a phone quiz game. • Develop Phone quiz game guided paths to help the teachers link a learning goal to a specific path
Art as equipment for living	To provide senior high school students educational and stimulating experiences with modern art at EMMA which will enhance their learning and inspire them to understand and appreciate art	• Enhance interaction and cooperation between EMMA and educational institutes • Ensure that the game is suitable and acceptable • Provide a contemporary and education channel to introduce students to modern arts and enhance their learning via inspiring experiences	To enable elementary school teachers using the integrated curriculum to build a community of practice around the use of modern art in classroom activities	• Connect elementary school teachers facing the challenge of the integrated curriculum, and facilitate sharing materials based in modern art exhibitions at EMMA. • Offer museum support for teachers developing and sharing materials for classroom use through the ArtMyst game.

In Table 4, two of the Helsinki projects iterations of goals and objectives are included. The first iteration of both goals presented students with a challenge due to vagueness in their goal and objectives. When students tried to break down the work into smaller tasks, their choices of vague language and inappropriate audiences made it difficult for them to envision a project in which their audiences would want to participate. This challenge led them to refine their understanding of the problem and develop a second iteration of more precise goal and objective statements. For example, the in "Art as equipment for living" project, the students realized that their goal was too vague, and that defining "stimulating experiences with modern art" for high school students didn't really solve a problem at all. This led to the students looking more carefully at the context and realizing that another group, the elementary school teachers using the integrated curriculum, might benefit more from the cellular phone game. They used the notion of "communities of practice" from Etienne Wenger's work to rearticulate a project that they could explain more precisely. Thus, the use of project management tools helped them to refine their understanding of the problems they expected their projects to solve and ways in which the technology of the cell phone game helped solve problems for people in need.

The skills of articulating and analyzing problems are part of project management, but often in the background when it is taught from a business or accounting perspective. However, this skill of articulating problems clearly is useful and emerges naturally from the English studies curriculum through the students' prior work in analyzing literature, signs, symbols and their effects on audience(s), rhetoric, and connections between language and power. Thus, project management offers English studies students the opportunity to contextualize and apply their skills through tools commonly used in the workplace.

7. Project Management as a collection of documentation practices

English studies is also connected to genre analysis—and students learn about genre forms for proposals, letters, different types of poetry, short stories, etc. Discourse analysis techniques applied to understanding genres can also be applied to the genres involved in project management documentation practices. Genres involved in project management include both document structures similar to the proposal, and visualizations which help produce knowledge about the project in order to complete it. Examples of these genres can be seen in documentation practices for Project Management which include the Project Charter, Work Breakdown Structure, Network Diagram and Gantt chart.

7.1 Project Charter

The project charter can be understood as a more detailed response to a proposal. The project charter not only includes an explanation of the problem to be solved and a description of the solution with goals and objectives, but it often also includes information on project stakeholders and may, in many cases, be signed by all the direct stakeholders involved in the project. Project charters function to define and explain the project, and function as a reminder of the big picture during project implementation. The project charter may include appendices, such as requirements documents which specifically define outcomes of the project, and it often responds to other documentation such as the Statement of Work written by a project client. The combination of documents which affect and are iteratively entwined with the project charter can be understood as a genre ecology (Spinuzzi 2002). Spinuzzi defines genre ecologies as "how people use multiple artefacts—such as documentation, interfaces and annotations—to mediate their work activities." The experience in working with a set of documents and software interfaces that shape Project Management work activities can help students begin to mediate the transition between the classroom and the workplace by working with documents that are used by clients and make up genre ecologies.

7.2 Work break-down structure (WBS)

The work break-down structure can be seen as a visualization of the work based the project objectives. It consists of an outline of the work to be done and delimits the scope of the project. The work is broken down into tasks and subtasks which provide detail about the nature of the work to be accomplished in order to achieve the project objectives. These tasks and subtasks, together with the project objectives, work not only to describe and delimit the work, but can also be persuasive by including information which connects the project methods and results back to the project outcomes. The WBS may be presented as either a numbered outline of objectives, tasks and subtasks or a hierarchical diagram. The WBS contents are used in both the Network Diagram and the Gantt chart.

7.3 Network Diagram

The Network diagram demonstrates the tasks from the WBS in sequence, laying out options for the final scheduling done in the Gantt chart. The visualization process in this step allows writers to think the project through in sequence, and determine the relationships between tasks which should be taken into consideration in the schedule. The Network diagram helps the writer produce knowledge about the project and convey it in a flow chart. At this stage, the duration of tasks is usually estimated and the longest path through the project calculated to determine the expected project duration. In addition, tasks which may be performed simultaneously can be identified. When the network diagram is used to think through the relationships between tasks and estimate their length, it helps lay out decision points for the Gantt chart. Visual communication skills are useful and valued in the Network diagram.

7.4 Gantt Chart

"A Gantt chart is a visual representation of a schedule that uses a bar graph to show the length of tasks and how they precede, follow, coincide, or overlap with each other…The Gantt chart was named after its developer, Henry Gantt (1861-1919), who developed the chart s a visual tool for tracking multiple tasks simultaneously." (Mikelonis, Betsinger & Kampf 2004: 241). The Gantt chart can be used iteratively with the network diagram and WBS to delimit the scope, timeline and resources allocated to a project. These documents work together to shape work practice by communicating the scope, sequence, and duration of the work in a given project.

The analysis skills that English studies students learn can help them see the connections between the project management tools (WBS; Network diagram, and Gantt chart) and the triple constraint of the project. The Triple constraint is a standard project management concept referring to balance the cost, timeline, and scope of a given project.

8. Conclusion

Project Management can be understood as a way of thinking shaped by iteratively moving through the project management genres to produce knowledge about a project in order to complete it. The documentation processes involved affect work practices and demonstrate the power of writing, creativity and analysis—key skills from the English studies curriculum—to shape workplace practices. Thus, integrating communication focused project management courses into English studies offers a manner of inviting students into a professional identity and giving them the experience in not only analyzing genre and writing, but also in mediating genre ecologies in order to solve problems for real world clients.

We suggest that project management for English studies and communication students be taught as a situated problem-solving experience in real world situations—a set of problem solving tools which enable the analytical user to produce knowledge about a project in order to complete it. As teachers in English and communication studies, we are not necessarily training our students

to be project managers, but rather to understand how to function in project environments and how to apply their skills in creativity, analysis and problem-solving in a communication-centered setting, using the standard project management documentation genres.

Possible contexts for project management courses could include courses with small business clients in the knowledge economy, grant proposal writing courses which use project management tools to shape the proposal, or cross-disciplinary courses—team taught to include both a communications and software, engineering, finance, etc. approach to project management tools. In any case, English studies students would gain valuable experience applying their analysis and creativity which has been cultivated in other areas of the curriculum. In addition, a project management component to the curricula would give English, technical communication, and cross-disciplinary communication students the opportunity to gain valuable work experience in both applying their skills and learning how to work in cross disciplinary teams or with real clients.

References

Abdallah, Kristiina, Timo Haanpää, Nicholas Hill, Sari Ilveskallio, Kristian Orispää and Tytti Suojanen. 2005. "Technical Documentation in Finland." *Technical Communication – international. Today and in the Future.* Eds. Jörg Hennig and Marita Tjarks-Sobhani. tekom Schriften zur Technischen Kommunikation. Lübeck: Schmidt-Römhild. 77-89.

Gardiner, Paul D. 2005. *Project Management: A Strategic Planning Approach.* Hampshire: Palgrave MacMillan.

Kampf, Constance. 2006. "The Future of Project Management in Technical Communication: Incorporating a Communications Approach." *IEEE International Professional Communication Conference Proceedings,* Saratoga, New York, October 22-25.

Kampf, Constance. 2009. "Extending Sociotechnical Design to Project Conception: Knowledge Communication Processes for Situating Technology." *International Journal of Socio-Technology and Knowledge Development* 1(2): 48-62.

Mantel, Samuel J., Jack R. Meredith, Scott M. Shafer and Margaret M. Sutton (2001). *Project Management in Practice.* New York: Wiley.

Mikelonis, Victoria, Signe T. Betsinger and Constance E. Kampf. 2004. "Chapter 9: Using Software Tools to Enhance your Proposal" *Grantseeking in an Electronic Age.* 228-250.

Spinuzzi, Clay. 2002. "Modeling Genre Ecologies." *ACM Special Interest Group for Design of Communication, Proceedings of The 20th Annual International Conference on Computer Documentation.* Toronto, Ontario, Canada. 200-207.

Study Guide. 2008. Faculty of Business Studies. University of Vaasa, Finland.

Wenger, Etienne. 1998. *Communities of Practice: Learning, Meaning, Identity.* Cambridge University Press.

Whiteside, Aimee. 2003. "The Skills that Technical Communicators Need: An Investigation of Technical Communication Granduates, Managers, and Curricula." *Journal of Technical Writing and Communication.* 33(4): 303-318.