AC 2007-131: DISTANCE EDUCATION MBA PROJECT MANAGEMENT PROGRAM: A CASE STUDY

Kam Jugdev, Athabasca University

Dr. Kam Jugdev is an Associate Professor of Project Management and Strategy in the MBA program at Athabasca University in Alberta and an Adjunct Professor at the Schulich School of Engineering, University of Calgary, Alberta. Her specific areas of interest and research include project management as a source of competitive advantage, project lessons learned, project management maturity models, project success/failure, project management education, and distance education. Dr. Jugdev actively contributes to the advancement of academic and professional communities of management practice.

Distance Education MBA Project Management Program:
A Case Study

Abstract

With its roots in systems engineering, project management is a relatively new discipline taught in the fields of Engineering, Business, Information Technology/Management Information Systems, Computing Sciences, and Operations Management. Whereas in 1993 there were 7 universities offering master's-level degree programs in project management, these days there are over 59 worldwide, yet only 5 offer such programs in the distance education mode.

Distance education is no longer seen as a second-rate way of teaching; it is just different. Distance education addresses geographical, time, indirect cost, flexibility, and service needs for learners. Whereas naysayers challenge distance education on issues of student isolation, course time commitments, and program quality, strides in the field demonstrate that distance education programs do deliver high quality education. Academic teams address the isolation factor through engaging and interactive online discussions that develop a sense of community. They address the time factor by pacing students through courses, balancing the individual and team mark components, and ensuring that marks are allocated for participation. Program quality is assessed through formative and summative processes.

In this paper, we examine some of the main challenges and benefits in distance education. We focus on the four roles that faculty and course development staff collaboratively undertakes to deliver courses online: the pedagogical, management, technical, and social roles. In doing so, we focus on our four project management courses and some of the practices we use in our own university to address distance education issues. We conclude with some recommendations for effective program delivery practices.

Introduction

With its roots in systems engineering, project management is a relatively new discipline. Historically, project management originated in the construction, engineering, and technical fields, and it is now applied to various industries, including new product development, product innovation, and information technology [1]. As a reference discipline, project management is typically taught in Engineering, Business, Information Technology, Management Information Systems, Computing Sciences, and Operations Management departments [2].

The exponential increase in the use of project management in industry has resulted in an increased demand for project management training. Since changes often occur much faster in business than in education [3], we were interested in examining some of the benefits and challenges related to MBA project management programs delivered through distance education.

Academics that teach in both traditional and distance education modes constantly focus on course improvements. Project management curricula are interesting to develop and challenging because the field is so diverse in terms of the industries in which it is practiced, as well as the

1

breadth of topics that can be covered. In addition, although project management is an experiential discipline and many practitioners are technically competent [4], well-rounded project managers increasingly require training in cross-functional team management skills and leadership—in essence, the business skills. In this paper, we discuss our university's experience delivering project management courses in a distance education setting.

We begin this paper with a brief overview of trends in project management education and the benefits and challenges of distance education. We follow this with a discussion of project management competencies and relate this to curricula. Then we discuss the four roles that faculty and course development staff collaboratively undertake to deliver courses online: the pedagogical, management, technical, and social roles. Using examples from our university, we explain how we are addressing some of the challenges related to these roles. We conclude with some recommendations for project management program development.

Select Trends in Project Management Education

Master's degree programs in project management were offered in the United Kingdom 20 years ago but still remain relatively rare [5]. Worldwide in 1993, 7 universities offered master's degree programs in project management [1]. Today, this number has grown to over 59 (as per the Project Management Institute's® records), yet only 5 offer programs in the distance education mode [6]. Program duration varies from one to two years, or longer.

Several association-driven trends continue to impact the number, type, and caliber of project management programs and courses offered. The increasing use of project management in industry has heightened awareness of the discipline and the breadth of services offered by the professional associations supporting project management members. Although the Project Management Institute® (PMI®) is the dominant professional association for project managers, there are several other associations, such as the Association for Project Management and the International Project Management Association [2]. Whereas a small number of universities in North America offer degrees in project management and courses on the subject, these institutions compete with consulting firms, technical schools, and colleges to provide training and certificates that enable students achieve the Project Management Professional® (PMP®) designation offered by the PMI®. More recently, PMI® introduced the Certified Associate in Project Management and Program Management Professional designations [6]. Although the PMI® dominates the marketplace with a membership of 222,734 and 216,200 active PMPs® (as of November 2006) [6], other professional associations such as the Australian Institute of Project Management and the International Project Management Association [7] also provide such certifications [8, 5].

The international scope of the discipline results not only in differing professional designations, but also in some variation in the body of knowledge and terminology. Project management terms such as "promoter," "sponsor," and "champion" have different connotations in different countries. In Germany, there is no specific word for "scope"; and the United States and United Kingdom differ on what the term "budget" means [5]. These differences in knowledge and practice have become more apparent as the field has grown and have implications for curricula. For

example, such differences in terms can lead to confusion for students taking programs in other countries.

Select Trends in Distance Education

Distance education continues to grow in scale and delivery capacity [9], and the diffusion of technology has had a significant impact on its widespread adoption [10]. Distance education has its roots in the 19th century development of correspondence colleges [11, 12, 13], and has evolved from one-way to two-way communication through more sophisticated technologies [14]. Distance education *is* education [15]. Distance education is not the poor cousin of face-to-face delivery modes; it is simply different, especially in terms of the social context [9]. As Hamzaee (2005) observes, "Distance education can be as effective as traditional instruction when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and timely teacher-to-student feedback" [16, p. 216, 17].

Moore and Kearsley provide a holistic definition of distance education: "Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements" [18, p. 2]. The literature also abounds with synonyms for distance education [10], including but not limited to distance learning, distance teaching, online education, web-enabled education, distributed learning, computer conferencing, e-learning, asynchronous and synchronous learning/teaching/education, and asynchronous learning networks [11, 19].

Distance learners are not a homogeneous group, yet some studies indicate that they tend to be older and more experienced than college students [14]. Students also have different learning styles and backgrounds [14, 20]. Some of the trends influencing distance education environments include the rapid pace at which collaboration tools are developed, the use of personal broadcasting systems, and the impact of mobile computing technology [21]. We also continue to see a shift whereby distance education is more learner-centered than instructor-centered [17, 20].

Benefits of Distance Education

Distance education eliminates barriers of time and geography, and is often described as being available "anywhere and anytime." This form of education also reduces training time and costs, and participants can work at a self-paced schedule. Distance education involves interactive learning [17]. A number of papers cite the benefits and disadvantages of distance education by stakeholder group, with the key groups being students, faculty, and institutions. Advantages of distance education can be categorized using the following key headings:

- Time, place, and situational barriers/access [17, 16, 14], including economic and social barriers [16]
- Cost effectiveness and indirect savings [16, 17]
- Increased flexibility for participants [17, 20, 22]
- Lifestyle conveniences [14, 16]
- Access to information and faculty [17, 14, 20]

- Collaborative and interactive learning environment [17, 16]

Distance education is a learning-centered experience that allows participants to develop argumentation skills, increase their written communication and complex problem-solving skills, participate in reflective deliberation, and develop higher levels of learning and critical thinking [22]. The social environment changes in distance education. Some anonymity minimizes biases and the preconceived ideas of others, as well as enabling students to engage in the discussions more freely [9]. For example, participating in asynchronous or synchronous paced courses with threaded discussions and teleconferences, still gives students anonymity because they do not see their peers or faculty face-to-face. Such delivery formats also allow participants to reflect more on their thoughts before posting them online, than an institutional setting may allow.

Challenges of Distance Education

Students may experience isolation in distance education when they cannot interact face-to-face or receive immediate responses [14]; however, courses can be designed to encourage or require asynchronous and/or synchronous interactions to enhance learning experiences and social activities [23]. Students also worry about the time and effort required to complete courses, but this can be addressed through careful orientation [14].

Some raise quality issues as a disadvantage of distance education; efforts to focus on accreditation (e.g., American of Collegiate Schools of Business [AACSB] or Accreditation Board for Engineering and Technology [ABET]) help address this [16]. There is an increasing demand for structured, accredited programs in project management distance education [24]. In 2001, PMI® established its own accreditation for universities, entitled the Global Accreditation Centre for Project Management [6]. As of January 2007, PMI® had accredited 10 universities: 7 in the United States, 1 in Canada, and 2 in other countries. Of the 51 non-accredited universities providing graduate-level project management degrees, 26 were in the United States, 2 were in Canada, and 23 were in other countries [6].

In distance education, keeping up to date with technology can also be a challenge [20]. Students may feel under-supported when they encounter technology problems [10]. They may over-estimate their technical expertise [20]. When students have technology difficulties, they tend to attribute these problems to faculty, so it is important to ensure that course evaluations distinguish between faculty and technology issues [9].

Course development is another issue, since an online course can take longer to develop. Some estimate that as much as 150% more time is required to develop a distance education course compared to a face-to-face course [10, 25]. What constitutes a normal teaching load or an overload situation in distance education may need reconsideration; faculty and course development staff may raise issues related to how labor-intensive these courses are to prepare and administer [25].

Some faculty may also raise concerns about centralized decision making and service provision in distance education programs [22]; these can be seen as limiting flexibility and autonomy. Some faculty feel a loss of full control over the course when others are involved in the course development process [9]; faculty may feel stifled when they cannot prepare a course at their own

pace and have to adhere to a course development schedule. Still others may perceive that their academic freedom is in question (deprofessionalized), if course production/editorial staff offer input or suggestions on their courses [22]. Proponents of distance education argue that an academic's identity (in terms of power and knowledge) is not impacted negatively because even in courses taught face-to-face, students draw information from the textbooks as well as the professor; others, however, raise the issue of course commodification [26]. There are also issues around managing intellectual property, digital rights, and digital assets [21]. Faculty experienced in teaching in face-to-face environments are accustomed to owning their own course material, but in the distance education environment, the courses are typically "owned" by the university [9, 26]. Some take the approach that ownership is shared—faculty owns the courseware and the university owns the instructional design aspects [25].

In addition to course development, workloads also increase as faculty respond to students in groups and on a one-to-one basis online, and interact with other departments involved in the course [26, 25]. Workload issues can be addressed by setting standards, providing guidance, using a computer-based classroom management system, planning courses with the appropriate infrastructure in place, and ensuring that faculty receive formal training in distance education methods and technology [20].

Considerable research has focused on assessing distance education practices, and a number of publications have examined this topic in terms of what faculty can do to improve the educational experience for students: "What determines the success of distance teaching is the extent to which the institution and the individual instructor are able to provide the appropriate opportunity for, and quality of, dialogue between teacher and learner, as well as appropriately structured learning materials" [15, p. 6]. However, tension can also exist between faculty and instructional design personnel. Whereas the ideal relationship would be one of collaboration and teamwork [20, 9], some faculty may feel threatened as they perceive a loss of control and influence over the course design and development schedules [27]. Many distance education institutions have separate course design or educational and media development departments. Since these services are integral to the courses developed and the academic is ultimately responsible for the course preparation, the most successful distance education faculties develop strong collaborative relationships with course development departments. A benefit of such collaborations is that course development staff is frequently familiar with distance education technology and can thus help deal with the technical aspects of development efficiently.

Next we turn to a brief overview of competencies and discuss them in the context of project management courses.

Project Management Competencies

Competencies are "the sum of our experiences and the knowledge, skills, values, and attitudes we have acquired during our lifetime" [28, p. 103]. Skills are specific expertise that can be taught and applied at work [29], and a capability is the ability to apply skills and other competences in a context perceived to add value. Competency models focus either on input-based criteria such as personal characteristics, behaviors, competencies, and skills that one brings to the job, or on output-based criteria such as individual performance levels [30].

In the United States, PMI® has developed the *Project Management Body of Knowledge® Guide* (time management, cost management, scope management, quality management, risk management, communication management, procurement management, and integration management) [31]. In the United Kingdom, the Association of Project Management has developed its own Body of Knowledge. There is also the Japanese Project Management Forum's Body of Knowledge. Of the various bodies of knowledge, only the ones developed in the United Kingdom and Switzerland recognize the importance of behavioral characteristics. The American *PMBOK® Guide* implicitly embeds competencies into each knowledge area. For example, the human resources knowledge area involves competencies related to developing the team to enhance project performance.

Whereas the human resources field is well known for its research on competencies, and several project management competency standards are being developed, we did not find that literature discussing program curricula was based on these standards. Instead, what we do have to draw from are the project management bodies of knowledge that are not theoretically based (Author). For example, the International Project Management Association (IPMA, 2002) produced the International Competency Baseline and National Competency Baseline, and defined competencies as encompassing knowledge, experience, and personal attitude [7]. PMI® has a project management competency development framework that is based on knowledge, skills, and performance [6]. However, the Association for Project Management, PMI®, and other organizations that publish bodies of knowledge "do not easily relate [those bodies of knowledge] to either learning outcomes or competencies" [24, p. 417]. Furthermore, industry, academia, and the bodies of knowledge do not agree on the right competencies, learning outcomes, or knowledge sets. Since the *PMBOK® Guide* does not address behavioral competencies, it is disappointing to see that a professional association with such a worldwide reach has not updated its body of knowledge to align it with its new competency framework.

Georgia State has one of the largest Information Systems programs in the United States. To assess graduate project management courses as compared to the *PMBOK® Guide* knowledge areas, they conducted a web-based survey of 206 institutions (53% response rate) [32]. These authors found that most programs emphasized hard skills, such as scope and cost, quite evenly. The courses covered work breakdown structures, estimation, and network diagrams. However, there was less emphasis on soft skills, such as human resources, communication skills, and procurement. Soft skills topics that were not well covered included project charters and dealing with vendors. Numerous project management textbooks focused on normative advice on planning and managing projects [33, 34]. This helped create a normative and rationalistic body of knowledge. A scientometric (word association) review of 3,565 North American project management publications (1987-2001) supports the view that the emphasis in project management is on operations research, cost engineering, business process reengineering, and infrastructure studies [35]. Since PMI® promotes the *PMBOK® Guide* so widely, it comes as no surprise that universities offering project management courses tend to focus on the knowledge areas alone [4], and not on soft skills.

Technical skills are important but appear to have the least influence on a project manager's performance. Project managers need to be diplomatic in their approaches and have heightened organizational awareness, as well as political astuteness [30]. Project managers need to develop

their social and intrapersonal skills [29]. A project manager, then, can be described as a multifaceted facilitator, coordinator, motivator, and politician [30]. These requirements are worth bearing in mind in developing curricula, yet we lack project management competency models upon which to develop program curricula.

Some universities use graduate program competencies in their course design. Common MBA program competencies include strategic perception, decision making, board management, systems thinking, giving vision, meaning and focus to the organization, leveraging internal and external resources, planning and monitoring budgets, forecasting costs and revenues, cutting costs, mapping strategies, evaluating performance, and organizing reports [29]. At our university, we focus on helping students with specific core competencies: students learn to develop a strategic organizational perspective, foster critical thinking, and effective decision-making abilities, enhance change management skills, explore new directions in management thinking and practice, and build leadership and related personal skills. Because the techniques for measuring education program performance and the potential of such techniques to help professional and individual development are not well elucidated [5], we use the MBA program competencies (as an output model) to develop our project management courses, and we assess students through the comprehensive exam.

The Academic's Roles in Collaborative Courses in Distance Education

Distance education academics assume a variety of roles. One framework discusses four key roles: pedagogical, managerial, technical, and social [23, 36, 37].

- The *pedagogical role* involves activities to support and inspire the learning process: providing feedback and instructions, giving information, offering opinions and advice, questioning students, fostering reflection or self-awareness, facilitating discussions, prompting elaboration on postings, encouraging students, summarizing contributions to capture the essence of the discussions, and refocusing students as needed.
- The *managerial role* involves activities to ensure that the administration of the course runs smoothly or group of students, and that administrative course functions are covered.
- The *technical role* involves addressing software and systems requirements so that students have a productive experience in the course.
- The *social role* involves the use of tools and techniques to ensure that empathy, humor, and interpersonal skills are used to develop the virtual community of learners.

Whereas academics typically undertake these roles in any teaching situation, distance education courses are ideally developed in collaboration with course production staff, and the course development team shares the four roles. We focus on each role in the next section and discuss the role in the context of our project management courses. These practices help us address distance education and program delivery issues related to student isolation, program quality, and technology issues.

Athabasca University's Project Management MBA Program

Launched in 1994, Athabasca University's online Executive MBA program is now Canada's largest executive MBA. Delivered via a Lotus Notes® learning platform, the rich, collaborative learning environment fosters a high level of interaction among students and academic coaches, and facilitates discussions that are thoughtful, reasoned, and reflective. The project management program was established in 2002. Following the first six MBA courses, students complete four courses in project management. Each course is completed over an eight-week period in the paced, asynchronous environment. This means that students post their assignments and participate in threaded discussions through Lotus Notes® databases. The fourth course is followed by an integrative comprehensive exam. We developed all four courses using four textbooks and a set of academic readings. The textbooks are as follows:

- Hartman, F. T. (2000). Hartman, F. T. (2000). *Don't park your brain outside: A practical guide to improving shareholder value with SMART project management* (1st ed.). Upper Darby, PA: Project Management Institute.
- Kerzner, H. (2001). *Project management: A systems approach to planning, scheduling, and controlling* (7th Ed.). New York, NY: John Wiley & Sons, Inc.
- Kezsbom, D. S., & Edward, K. A. (2001). *The new dynamic project management: Winning through the competitive advantage* (2nd ed. Vol. 1). Toronto, ON: John Wiley & Son.
- Project Management Institute, I. (2004). *A guide to the project management body of knowledge (PMBOK Guide)* (Vol. 1). Newtown Square, PA.

Briefly, the following outlines the topics covered. In each course, we strive to have students understand the importance of key deliverables.

Initiating the Project: Deliverable—develop the business case and project plan
- Lesson 1: Strategic Project Management
- Lesson 2: Negotiating Project Scope and Success in the Context of the Project and Product Life Cycles
- Lesson 3: Selecting the Project Manager and Managing Key Stakeholders
- Lesson 4: Initiating Communication Strategies
- Lesson 5: Developing Decisions Strategies and Identifying Project Management Methodologies
- Lesson 6: Strategies for Identifying Human Resource Requirements
- Lesson 7: Risk Identification and Preliminary Procurement and Contracting Strategies
- Lesson 8: The Project Charter

Planning the Project: Deliverable—develop the project plan
- Lesson 1: Scope Planning and Stakeholder Assessment
- Lesson 2: Planning for the Project Team
- Lesson 3: Planning to Communicate
- Lesson 4: Estimating and Budgeting
- Lesson 5: Scheduling the Work
- Lesson 6: Planning for Risks
- Lesson 7: Planning for Contracting
- Lesson 8: Developing and Consolidating the Project Plan

Executing the Project: Deliverable—develop the execution plan
- Lesson 1: The Juggler
- Lesson 2: Controlling the Project
- Lesson 3: Leadership Safari
- Lesson 4: Power and Politics
- Lesson 5: People on Projects
- Lesson 6: Conflict and Negotiations
- Lesson 7: Dealing with the Media, Public, and Other Stakeholders
- Lesson 8: Escalation and De-Escalation of Commitment

Closing the Project: Deliverable—develop the lessons learned
- Lesson 1: Administrative and Contract Closure
- Lesson 2: Lessons Learned
- Lesson 3: Project Closure for the Team
- Lesson 4: Team Member Performance Management
- Lesson 5: Dispute Resolution Trends
- Lesson 6: Project Manager: Know Thyself, Heal Thyself
- Lesson 7: Project Closure Best Practices
- Lesson 8: Future of Project Management

This set of topics and materials allows us to cover the knowledge areas and then extend graduate-level discussions into the technical aspects of project management (Kerzner), the more interpersonal aspects of the discipline (Kezsbom & Edward), and the sometimes humorous side (Hartman) of the discipline. However, the use of four textbooks and project phase approach come with some challenges. We find ourselves revising all four courses more often than not as new textbook editions are made available. With the phased approach, we cover stakeholder management, for example, in all four courses, stakeholders are identified in the initiation phase, but managed in the implementation phase. Further course details, including syllabi, are available upon request.

Pedagogical Role

Appropriate course activities contribute to learning effectiveness, and critical thinking is vital in discussing real time issues [14]. Critical thinking is "the acquisition of deep and meaningful understanding as well as content-specific critical inquiry abilities, skills, and dispositions" [38, p. 4, 19]. Weekly discussion forums can be associated with low levels of participation and little development of collaborative meaning making [19] in distance education; assigning a participation mark encourages more active engagement, and students are provided with guidance on the types of responses that help develop deeper group insights. Since the courses progress at a rapid pace, we guide students through each week by instructing them to post their formal responses to weekly discussion question by Wednesday in the Discussion database forum. This allows the academic to assess each student's contribution. Thereafter, the groups of 8 to 10 students spend the rest of the week engaging in discussions on each student's posting. We also instruct students to post a weekly "nugget," which we define as the key points, concepts, or ideas that were most meaningful to them. This allows the academic coach to assess the students' integrative and

synthesizing abilities. We stress the importance of participating in the discussion database forums by setting the participation pass mark at 60%; students have to pass the participation component to pass the course. Issues related to lack of spontaneity can be addressed with timely coaching and assistance from academics [39]. Our academics engage in the discussions and respond to queries within 24 hours: "Being silent in an online classroom is equivalent to being invisible" [40]. This emphasis on students' engagement and active response helps develop critical thinking and responsiveness.

We also use a Case Preparation database where students interact online with each other to work on group assignments. Our academics monitor this database but only interject on an as-needed basis or upon request from students. Case studies and problem-based learning activities are associated with high levels of interactive participation and knowledge co-construction [19]. To foster learning that relates theory to practice, we use *Harvard Business Review* cases for group assignments. However, we found few cases specific to project management. We followed up with PMI®, but the cases they have available are not available in an electronic format at present.

We have also introduced an online debate encourage student thinking about viewpoints or positions that they may not typically support. For example, two debate topics we have used include "Be it resolved that a project Lessons Learned has no value and neither time nor money should be wasted on them" and "Be it resolved that project team related issues (performance, discipline) are the sole responsibility of the functional manager to whom the team member reports, and not the project manager." The debates are very well received and student feedback on course evaluations regularly indicates how much they enjoyed this variation in the use of case studies.

Peer evaluation is also used in each of our project management courses, allowing each student to assess the contributions of his or her colleagues in group activities. Only the academic coach and course manager can view the evaluations. The academic coach uses these evaluations to provide each student with feedback to help them improve their group participation as needed.

Managerial Role

In order to ensure that each course runs smoothly and that administrative questions are covered consistently, we provide our MBA students with an online Student Handbook that covers policies and procedures. We also use a Coaches' Corner database and provide students with a work plan that portrays the topics covered each week, the required readings, and assignment due dates. In this database, students receive all correspondence from the coaches, including academic announcements, assignment instructions, and supplemental material. Students post questions of an academic nature in this database. At the beginning of the MBA program, all students complete a week-long online orientation that covers the Lotus Notes® environment, databases, processes, referencing, library resources, and casework. From a managerial perspective, we also use a Coach Talk database that enables the academic manager of the course to engage in discussions with the academics teaching each course concurrently, to ensure that, where necessary, consistent pedagogical and managerial matters are addressed and then conveyed to students.

Technical Role

The technical role enables us to ensure that the courses run smoothly and that students are not having any difficulties. We find that since students are taking the project management courses later in the MBA program, they rarely experience technical issues that the academic has to intervene in. Furthermore, the team approach to distance courses enables us to have technical staff deal with such matters. We ensure that students receive their databases and textbooks a few weeks before each course starts so that they can address technical matters early. Our Help Desk is available to students for extended hours, six days a week. In the project management course, we typically use up to 25 readings per course. We use a Digital Reading Room and provide students with persistent URLs for each reading. We also provide students with these readings in a hard copy format. The Digital Reading Room is extremely well received as it allows students to take their readings with them on their laptops even though the textbooks are not provided electronically.

Social Role

The social role involves rapport building [23, 36], and instructors need to develop a strong sense of community among students [41]. For each of our project management courses, we use a Round Table database as an open forum for students to discuss various non-course-related issues. While the onus is on the students to introduce topics and carry the conversation, the academic coach may also choose to participate. In our project management courses, we use the Round Table database to share announcements on discipline-specific scholarships and grants, to provide guidance on preparing for the PMP® exam, and to share best practices in the discipline as found at specific project management websites. We also exchange project management jokes in this database. Since the project management program is a new specialization with small cohorts, we deemed it important to help develop a more inclusive sense of camaraderie for the project management students at the start of their MBA. We have been working on the content of an online Project Management Forum to help build this virtual community.

Conclusion

In this paper, we examined some trends in project management education and noted that few graduate-level programs in project management are offered online. We then examined some trends in distance education along with benefits and challenges, and discussed project management competencies. Our literature review indicated that there is a dearth of publications on project management competencies in curricula development for the field. Most of the programs that do exist focus on the *PMBOK*® *Guide* content. Thereafter, we discussed the four roles that faculty and course development staff collaboratively undertake to deliver courses online: pedagogical, management, technical, and social roles. Using examples from our university, we explained how we are addressing some of the challenges related to these roles.

This brings us to several recommendations for consideration. Teaching in a distance education environment can involve a steep learning curve for faculty that have experience in face-to-face environments and are new to this mode of course delivery. Orientations are an excellent way to help them understand what their roles in distance education involve, and how courses are

developed collaboratively. We believe that it is important to acknowledge the tension that can exist between faculty and course production staff. It helps if the course production team understands and appreciates the strengths that both faculty and production staff bring to the table so that a collaborative effort can be made. Since developing distance education courses can be very time consuming, savings can be achieved by drawing on the expertise of others.

Support services, including information technology, should not be short-changed in distance education. It is important to invest in help-desk services that support both students and faculty in a timely manner. This can help reduce student anxieties and problems as they start courses, and help the course development team as they become familiar with new technology. In addition, with the burgeoning amount of technology available to deliver courses, such support services are helpful in enabling online programs to remain competitive and innovative.

Best practices to facilitate learning as a collaborative and cooperative process are important, but the "sage on the stage" approach does not work in synchronous or asynchronous environments [42]. Clearly, it is not easy to wear multiple hats as a distance education academic. Adequate time spent on developing the courseware up front, with a focus on student learning objectives and outcomes for each week, can help guide the course content as it evolves.

We beseech the project management associations to ensure that their competency frameworks are theoretically based, as these frameworks reach a broad audience. We hope that our call for action in this regard is heard and supported by others, as we have made a similar call for action for theoretically based project management research in the past (Author). We are currently working on a study to survey North American universities to obtain a snapshot of the various topics covered in project management, and the results will be published by 2008.

To summarize, it is both challenging and rewarding to teach project management courses, especially in distance education. We look forward to advances in project management education that will allow us to continue to improve our courses for the benefit of students.

Bibliography
1.   A. D. Smith, *Surveying practicing project managers on curricular aspects of project management programs: A resource-based view*, Project Management Journal **34** (2003), no. 2, 26-33.
2.   G. Maples, A. Greco, R. Heady and J. Ranner, *Teaching project management and cost engineering*, AACE International Transactions (2005), DEV.05.01-DEV.05.04.
3.   H. Moshkovich, A. Mechitov and D. Olson, *Infusion of electronic commerce into the information systems curriculum*, The Journal of Computer Information Systems **46** (2005), 1-8.
4.   T. A. Carbone and S. Gholston, *Project management skills development: A survey of programs and practitioners*, Engineering Management Journal **16** (2004), no. 3, 10-16.

5. J. R. Turner and M. M. Huemann, *Formal education in project management: Current and future trends*, Project Management Institute Annual Seminars & Symposium, Project Management Institute, 2000, p.^pp. 1-6.

6. PMI, "Project Management Institute," vol. 2007, Project Management Institute, 2007.

7. IPMA, "IPMA certification," vol. 2007, International Project Management Association, 2007.

8. I. Australian Institute of Project Management, "National competency standards for project management," Australian Institute of Project Management, 2007.

9. E. Banas, J and W. F. Emory, *History and issues of distance learning*, Public Administration Quarterly **22** (1998), no. 3, 365-383.

10. S. M. Bryant, J. B. Kahle and B. A. Schafer, *Distance education: A review of the contemporary literature*, Issues in Accounting Education **20** (2005), no. 3, 255-272.

11. D. Hanson, N. J. Maushak, C. A. Schlosser, M. L. Anderson, C. Sorenson and M. Simonson, "Distance education: Review of the literature," *Association for educational communications and technology*, Washington, DC, 1997.

12. R. Phipps and J. Merisotis, "What's the difference: A review of contemporary research on the effectiveness of distance learning in higher education," Institute for Higher Education Policy (Editor), vol. 2006, Washington, DC, 1999.

13. P. Williams, D. Nicholas and B. Gunter, *E-learning: What the literature tells us about distance education*, Aslib Proceedings: New Information Perspectives **57** (2005), no. 2, 109-122.

14. C. Tham, Meng and J. M. Werner, *Designing and evaluating e-learning in higher education: A review and recommendations* Journal of Leadership and Organizational Studies **11** (2005), no. 2, 15-25.

15. M. Moore, *Editorial: Distance education theory*, The American Journal of Distance Education **5** (1991), no. 3, 1-6.

16. R. Hamzaee, A, *A survey and theoretical model of distance education programs*, International Advances in Economic Research **11** (2005), no. 2, 215-229.

17. D. Zhang and J. Nunamaker, F, *Powering e-learning in the new millennium: An overview of e-learning and enabling technology*, Information Systems Frontiers **5** (2003), no. 2, 207-218.

18. M. Moore and G. Kearsley, *Distance education: A systems view*, Thompson Wadsworth, Belmont, CA, 2005.

19. L. Rourke and H. Kanuka, "Computer conferencing and distance learning " *The handbook of computer networks*, H. Bidgoli (Editor), vol. 1, John Wiley & Sons Inc., New York, NY, 2007, in press.

20. H. Perreault, L. Waldman, M. Alexander and J. Zhao, *Overcoming barriers to successful delivery of distance-learning courses*, Journal of Education for Business **77** (2002), no. 6, 313-318.

21. B. I. Dewey and P. B. DeBlois, *Top-10 it issues 2006*, EDUCAUSE Review **41** (2006), no. 3, 48-79.

22. H. Kanuka and D. Conrad, "Towards understanding technology-in-practice in higher education. Invited keynote," *Campus Saskatchewan*, Campus Saskatchewan, Regina, SK, 2005.

23. X. Liu, C. J. Bonk, R. J. Magjuka, S. H. Lee and B. Su, *Exploring four dimensions of online instructor roles: A program level case study*, Journal of Asynchronous Learning Networks **9** (2005), no. 4, 1-22.

24. A. Gale and M. Brown, *Project management professional development: An industry led programme*, The Journal of Management Development **22** (2002), no. 5/6, 410-425.

25. D. Folkers, A, *Competing in the marketplace: Incorporating online education into higher education - an organizational perspective*, Information Resources Management Journal **18** (2005), no. 1, 61-77.

26. M. Wallace, *Managing and developing online education: Issues of change and identity*, Journal of Workplace Learning **14** (2002), no. 5/6, 198-208.

27. D. Lemak, J, S. Shin, Jae, R. Reed and J. C. Montgomery, *Technology, transactional distance, and instructor effectiveness: An empirical investigation*, Academy of Management Learning and Education **4** (2005), no. 2, 150-159.

28. L. Pickett, *Competencies and managerial effectiveness: Putting competencies to work*, Public Personnel Management **27** (1998), no. 1, 103-115.

29. R. Viitala, *Perceived development needs of managers compared to an integrated management competency model*, Journal of Workplace Learning **17** (2005), no. 7, 436-451.

30. A. Dainty, M.-I. Cheng and D. Moore, *A comparison of the behavioral competencies of client-focused and production-focused project managers in the construction sector*, Project Management Journal **36** (2005), no. 2, 39-48.

31. PMI, *A guide to the project management body of knowledge (PMBOK® Guide, 2004)*, vol. 1, Project Management Institute, Newtown Square, PA, 2004.

32.   S. M. Du, R. D. Johnson and M. Keil, *Project management courses taught in is graduate programs: What is being taught?*, Journal of Information Systems Education **15** (2004), no. 2, 181-187.

33.   P. W. G. Morris, "Science, objective knowledge, and the theory of project management," *The Bartlett: ICE James Forrest Lectures*, London, England, 2001, pp. 1-22.

34.   J. Söderlund, *Building theories of project management: Past research, questions for the future*, International Journal of Project Management **22** (2003), no. 3, 183-191.

35.   B. Ulri and D. Ulri, *Project management in North America: Stability of the concepts*, Project Management Journal **31** (2000), no. 3, 33-43.

36.   Z. L. Berge, *Facilitating computer conferencing: Recommendations from the field*, Educational Technology **35** (1995), no. 1, 22-30.

37.   L. Teles, S. Ashton, T. Roberts and I. Tzoneva, *The role of the instructor in e-learning collaborative environments*, TechKnowLogia **May/June** (2001), 46-50.

38.   D. R. Garrison, T. Anderson and W. Archer, *Critical thinking, cognitive presence and computer conferencing in distance education*, American Journal of Distance Education **15** (2001), no. 1, 7-23.

39.   C. S. Lee, D. Tan, Tiong, Hok and W. S. Goh, *The next generation of e-learning: Strategies for media rich online teaching and engaged learning*, Journal of Distance Education Technologies **2** (2004), no. 4, 1-17.

40.   A. S. Blignaut and S. R. Trollip, *Measuring faculty participation in asynchronous discussion forums*, Journal of Education for Business **78** (2003), no. 6, 347-353.

41.   D. Bubna-Litic and S. Benn, *The MBA at the crossroads: Design issues for the future*, Journal of the Australian and New Zealand Academy of Management **9** (2003), no. 3, 25-36.

42.   C. C. Schifter, *Certification for distance education faculty*, Information Technology Newsletter **17** (2006), no. 1, 10-11.