E-mentoring in Online Course Projects: Description of an E-Mentoring Scheme

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Abstract

This article describes the structure and process of an e-mentoring scheme designed as an applied learning component within a final curriculum course in an online Master's degree at a Midwestern U.S. University.   The e-mentoring-based course culminated the online degree program and was meant to encapsulate learning through subject matter skill application. Both the course and the e-mentoring took place in an electronic environment. In this final course, each student engaged in an individual project drawing upon skills and knowledge learned online and applied in a real world context. Student projects were individually designed, planned and executed outside of the electronic setting, within host organizations. E-mentors were paired with students to guide the progress of individual projects. The e-mentoring scheme utilized component parts found within the literature, and incorporated newly created component parts. Based on end-of-course indicators, student achievement, e-mentor retention, and course expansion were outcomes of the e-mentoring scheme. The e-mentoring scheme described in the current paper may serve to complement the development of best practices in online leaning or to serve as a benchmark for future e-mentoring designs in online learning environments and in other electronic educational settings.

Key words: E-mentoring, Design of E-mentoring, E-mentoring communication, Online learning

Introduction

E-mentoring has been described as a relationship (O'Neill, Weiler & Sha, 2005; Shrestha, May, Edirisingha, Burke & Linsey, 2009), a method or a process (Guest, 2000), a workforce strategy (Clutterbuck, 2001), and an organizational value related to relationships (Risquez, 2008). Within the current education and learning research, e-mentoring is presented as a developing concept with characteristics that differ from face-to-face mentoring (Bierema & Merriam, 2002; Perren, 2003; Risquez, 2008) and which evolve through various means of practice and application (Mullen, 2007). E-mentoring is less understood in applied work settings because of the varied constructs that can combine to frame an e-mentoring scheme within organizations (Hamilton & Scandura 2003; Headlam-Wells, Gosland & Craig, 2006).

The aim of this paper is to provide a detailed description of an e-mentoring scheme created for applied project work conducted by adult online students. It is hoped that the current paper contributes to the design of future e-mentoring schemes by explaining the design and implementation process of an e-mentoring scheme administered in an online degree program.   Specific outcomes for e-mentors within the culminating course are discussed in a separate article (Williams, Sunderman & Kim, 2011,

forthcoming), which presents evaluation findings of the course, including the methods, results and suggestions for practice.

Literature

Mentoring within Education

Mentoring has long been considered an effective technique for passing knowledge from a teacher to a student, or from a senior faculty member to a junior faculty member (Akin & Hilbun, 2007; Lee, 2009). Within the educational model, mentoring is the practice of transferring knowledge from an experienced person to a younger or more junior person, much like an apprenticeship (Allen, 2006; Clutterbuck, 2001). Mentoring in academic settings includes collaborative mentoring between a university faculty and school faculty to foster joint problem solving, research, and publishing (Mullen, 2000), or traditional advisor-student mentoring between senior faculty and graduate candidates in an attempt to foster doctoral education (Mullen, 2007). Shrestha et al. (2009) note that mentoring in educational settings can even take the form of instructor training, student-to-student knowledge transfer, and peer-assisted student development. In general, the word mentor has been used to refer to almost any kind of relationship in which a knowledgeable person aids a less knowledgeable person (O'Neill, Wagner & Gomez, 1996), regardless of age or status (Murphy & Ensher, 2006). Within educational contexts, mentoring has historically involved traditional practices of knowledge transmission through formal and informal meetings, and is understood to be a professional relationship between a knowing, experienced professional, and a protégé, or mentee, both of whom commit to an advisory relationship (Mullen, 2006).

Benefits of mentoring to the protégé include informational, psychosocial, and instrumental benefits (Single, 2004). Informational benefits refer to protégés obtaining knowledge and access to information deemed advantageous to the protégé (Single & Single, 2005). The information represents subject matter transfer (Single & Single, 2005) and is deemed useful for real world application (Yaw, 2007). Within education, Killeen (2001) reports that the mentoring program implemented at University of Michigan yielded student benefits that included academic competency, critical thinking, academic integration, and enhanced retention. Psychosocial benefits refer to self-esteem and confidence building in the protégé (Single & Single, 2005), and improvement in the professional identity of the protégé (Barton, 2001). Instrumental benefits refer to the evolution of the relationship into a sponsorship, which promotes protégés and provides protégés with opportunities for increased visibility and advancement (Single & Single, 2005), particularly within a profession or field of study (Mullen, 2006).

Mentors and organizations also benefit from the mentoring experience. Mentors gain an outlet to pass along wisdom (Murphy & Ensher, 2006), experience great satisfaction from helping another (Ensher & Murphy, 2007), and experience personal psychological benefits such as greater self-esteem and increased confidence (Shrestha et al., 2009). Gentry, Weber & Sardi (2008) found that individuals engaged as mentors in the workplace were perceived as better performing managers. Organizations have engaged in mentoring for broader benefits such as increasing the skills of members (Jossi, 1997) and developing intellectual capital (Watt, 2004).   Educational institutions have supported mentoring to develop faculty expertise, (Akin & Hilbun, 2007), support reciprocal learning (Mullen, 2000), and guide the transition of doctoral candidates to professional academic roles (Mullen, 2007).

Concept of E-mentoring

The advancement of technology, particularly improved electronic communication, has enabled the concept of mentoring to evolve without the face-to face element (Risquez, 2008; Single & Single,

2005). E-mentoring refers to the process of using electronic means as the primary channel of communication between mentor and protégé (Hamilton & Scandura, 2003), and involves the sharing of knowledge and skills between the parties while the mentor and protégé are not in physical proximity (Wong & Premkumar, 2007).

There is a myriad of definitions for e-mentoring. However, the current paper adopts Single and Muller's (2001) definition because this particular definition matches well the intent for learning, technical characteristics, and the nature of the relationship between the mentor and the protégé. Single and Muller (2001) define e-mentoring as:

> *A naturally occurring relationship or paired relationship within a program that is set up between a more senior/experienced individual (the mentor) and a lesser skilled individual (the protégé), primarily using electronic communication, and is intended to develop to   grow*
the skills, knowledge and confidence of the lesser skilled individual to help him or her   succeed
(p.108).

While e-mentoring is growing in use (Yaw, 2007), a fully developed concept of e-mentoring, complete with parameters, contexts and intention has not been fully explored (Headland-Wells, Gosland & Craig, 2006). E-mentoring is considered similar to traditional mentoring, although there is limited research directly comparing the two concepts (Knouse, 2001; Risquez, 2008). O'Neil, Harris, Cravens, and Neils (2002) noted that although e-mentoring schemes draw inspiration from traditional mentoring schemes, they develop differently and serve different needs.

In reviews of academic literature, the concept of e-mentoring appears to be under-developed. Neither Risquez (2008) nor Perren (2003), found evidence of a robust concept of e-mentoring, with Risquez (2008) noting that what is understood for mentoring is an "evasive notion" (p.61). While several E-mentoring programs were launched in the 1990s, these projects were developed with no structural plans or empirically tested models (Single & Single, 2005).   Thus the research on e-mentoring cites a limited number of broad projects applied in student settings (Shrestha et al., 2009; Single & Single, 2005; Wong & Premkumar, 2007), single case studies (Akin & Hilbun, 2007), specific discipline reviews (Lee, 2009; Perren, 2003), descriptions of specific e-mentoring tools (O'Neill et al., 2005), and varied practitioner reports of e-mentoring experiences (Jossi, 1997; Murray, 2001; Ragins & Cotton, 1993; Ragins & Cotton, 1999).

The literature has cited certain e-mentor benefits from the e-mentoring experience which include technological skills, professional assessment, social benefits, and psychological benefits (Homitz & Berge, 2008; Shrestha et al., 2009; Burke & Cooper, 2007; Eby & Lockwood, 2005).   Technological skills refer to Internet Communication Technology (ICT) skills learned by mentors as ideas, practices and techniques are shared (Homitz & Berge, 2008). The e-mentor gains ICT skills from technological support personnel and sometimes from the protégés (Homitz & Berge, 2008). Social e-mentor benefits refer to the opportunity to network (Shrestha et al., 2009), including a greater sense of teamwork and collegiality for the e-mentor (Yaw, 2007).   Psychological e-mentor benefits refer to personal satisfaction from offering support and advice to others (Murphy & Ensher, 2006; Shrestha et al., 2009; Yaw, 2007), from influencing the future of a field or profession (Lee, 2009; Yaw, 2007), or from knowing that knowledge and expertise are valued (Eby & Lockwood, 2005).

Structural Components of E-mentoring

While there is a considerable amount of literature on the constructs and features of e-mentoring, the literature on the design of an e-mentoring system is rather scarce. There are some studies that investigated a particular online information systems designed for specific e-mentoring programs (see O'Neil, et al., 2005; and Santos, Couchet & Boticario, 2009, for examples), but there is very little evidence-based discussion or recommendations on the comprehensive structural components of an overall e-mentoring scheme. The current article is intended to contribute to filling this gap in the literature. A synthesis of currently existing research is presented in Table 1.

Table 1: *Synthesis of Existing Research on the Components of an E-mentoring Scheme*

Authors (Year)	Identified Components of a Sound E-mentoring Scheme
Akin & Hilbun (2007)	- Basic Components - Structure - Mentor-mentee pairing - Duration of mentoring - Scheduled communication - Learning Objectives - Technical Support - Communication tools - Training, Coaching, and Support - Training on building expectations - Supporting materials for maintaining safety, confidentiality, and non-judgmental attitude - Assessment - Formative evaluation on the degree to which the learning objectives are met
Headlam-Wells, Gosland & Craig (2006)	- E-mentoring Design Structure - E-mentoring site structure - Communication Media - Synchronous - Asynchronous - Mentoring Resources - Guidance and help materials - Internal e-mail system for discussions and meetings - Operational Aspects - Ensuring compatibility across different computer operating systems and other specifications - Mentor-Mentee Pairing - Monitoring E-mentoring Usage
Wong & Prekumar (2007)	- Purpose and Long-term Plan - Incorporation of Elements of Successful mentoring Practice into E-mentoring Situations - Determination on Technology Tools - Technology Implementation Strategy - Recruitment Plan for Mentors and Mentees - Eligibility Screening for Mentors and Mentees - Strategy for Matching Mentors and Mentees - Orientation for Both Mentors and Mentees

	• Training Curriculum for All Mentors and Mentees
	• Monitoring Process
	• Support, Recognition, and Retention Strategy
	• Decision on Steps for Closure
	• Establish Strategies for Program Evaluation
Shrestha et al. (2009)	• Combining E-mentoring and Face-to-Face Mentoring
	• Mentor-Mentee Pairing
	• Training E-mentors
	• Supporting E-mentors
	o Support materials
	o Coaching

The components presented in Table 1 provided a basis for the design of the subject e-mentoring scheme. Additionally, the subject e-mentoring scheme included further components, specifically ongoing coaching for e-mentors, in-person e-mentor gatherings, and an evaluation of the e-mentor experience itself.

Description of the E-mentoring Context

The subject e-mentoring scheme was a critical component of the final course within an online graduate program in which external professionals (e-mentors) supported adult students as protégés (student and protégé will be used interchangeably hereafter). The course was designed as a culminating experience in which students applied prior course subject material to real-world settings by conducting independent field projects. The field projects took place within host organizations engaged by the students, with the host organization generally represented by the student's employer. The e-mentor was intended to act as a guide for the student in planning, executing and analyzing the field project and in reporting project results.

53 students and 18 e-mentors participated in the course. The students and the external professionals (e-mentors) were both temporally and geographically distanced such that the use of electronic media was the primary method of communication. Forms of communication included e-mail, synchronous audio/video class conversations, asynchronous chat discussions, telephone conversations and fax. Specific communication methods were not prescribed in the scheme; rather, preferred communication methods were determined by each e-mentor-protégé pair. Thus, an e-mentoring context was created wherein electronic communication vehicles were flexible (specific computer-based communication tools are described later herein). The e-mentoring relationship extended over a six-month duration which was also the duration of the online course.

Course requirements were for students to both execute an individual project aided by an e-mentor through phased stages of: project idea generation; project proposal; project plan; project implementation; project report; and, personal reflection. Course requirements mirrored the progressive phases of the course design with assignments generally due at the completion of each phase. Faculty instruction involved monthly synchronous sessions, which topically complemented the phases of project management work required of the students. E-mentors provided support in the execution of each phase subsequent to idea generation, offering students individualized strategies for host organization implementation.

While the e-mentors served as the guide for the protégés in the conduct of individual projects, there was one primary instructor for the course who conducted monthly live class sessions in a virtual classroom. The course instructor also served as main point of contact for the e-mentor and the university, facilitated the E-mentor to protégé pairing, and promoted e-mentor to e-mentor communications. E-mentors were not required to attend synchronous class sessions, although some of them volunteered to participate in the live discussions, providing their insights real-time.

E-mentoring Scheme

Because of the considerable overlap of design components found in the literature (see Table 1) the subject scheme relied primarily upon the components depicted in Akin & Hilbun (2007) as a foundational structure.

The e-mentoring scheme utilized the components of Structure (including time period, pairing, and a statement of purpose for the e-mentoring relationship), Learning Objectives, Administrative Support, Technical Support, Communication Tools, E-mentor Training, E-mentor Coaching Support, In-person e-mentor gatherings, and E-mentor Evaluation. The last three constructs, in particular, represent a unique aspect of the subject e-mentoring scheme. While other constructs are often recommended in existing literature, E-mentor Training and Coaching Support, In-person gatherings, and E-mentor evaluation were uniquely added to the current e-mentoring scheme in order to enhance the mentoring process and the e-mentor experience.

Structure

Mihram (2004) indicates that successful e-mentoring relationships should have a formal structure. The degree of structure, or mentoring formality, needs to be based on the purpose of the mentoring program, the learning objectives, and what the sponsoring department expects as results (Akin & Hilbun, 2007). Structure also suggests a time period be attached to the mentoring scheme, the duration of which might follow a project length, or an arbitrary number-of-months.

The structure of the subject e-mentoring scheme included a defined time frame, familiarity of the actual people involved, formal e-mentor-protégé pairing, rationale for the mentoring, learning objectives and a planned assessment. This structure represents a similar, but expanded version of the structure considerations of Akin & Hilbun (2007).

A six-month time frame was established for the duration of the mentoring relationship, which corresponded with the duration of the online course. E-mentors and protégés were formally paired based upon the nature of the protégé-selected project, disclosed at the idea generation phase, and the e-mentor's respective profession or experience. Pairings were hierarchical in nature (Eby & Lockwood, 2005), and neither party resided in the same organization. Each e-mentor was paired with 2-3 online adult students as protégés.

E-mentors were recruited primarily by the instructor based upon historical professional association, association with the hosting university (i.e. alumni), or familiarity with the existing online program. All e-mentors were familiarized with one another in several formal meetings, such that each was familiar with the actual people involved as instructor, as support personnel, and as e-mentors. The literature suggests instituting a system to recruit, train and create the mentor pairs (Dahle, 1998; Single & Muller, 2009; O'Neil et al., 2005).

The reason for the e-mentoring was directly related to the course learning objective. The overall learning objective was "*to plan and deliver a comprehensive work project within an applied organizational setting, and to reflect upon knowledge or skills developed as a result of the project work experience*" (Mentor Packet 2008, Department of Human Resource Education, College of Education, University of Illinois at Urbana-Champaign). This objective was made known to all e-mentors during mentor recruitment. An e-mentor goal for assisting in the learning objective, by advising students in the planning and delivery of comprehensive work projects was established.

Learning Objectives

Learning objectives set the overall goals that the primary instructor and the hosting department wanted the online students to accomplish (Akin & Hilbun, 2007). The objectives, as presented in the course syllabus, were for the students to:

- Apply theoretical and prior course based-knowledge in a comprehensive manner;
- Plan a project from idea generation through execution;
- Deliver and/or conduct a project within an unfamiliar environment
  (execute the project within a host organization);
- Report on experience and/or findings to relevant audiences; and
- Reflect upon knowledge gained and/or skills developed as a result of managing a project.
  (Mentor Packet, 2008, Department of Human Resource Education, College of Education,
  University of Illinois at Urbana-Champaign).

The planning and delivery of a field project by the online students were the primary tasks associated with the learning objectives. The delivery of the field project, whether accomplished as planned, or completed in an alternate end-state, was deemed successful project delivery. Thus, the e-mentor's role of helping the protégé to succeed, as described in the e-mentoring definition, complemented the learning objectives.

E-mentors were informed during recruitment, at orientation, during training, and in initial e-mentor meetings, of the course learning objectives and the designed e-mentor role of assisting in project success in order to guide e-mentor understanding and e-mentor-protégé communications. Several critical documents, including: Statement of Purpose; Course Description; Course Structure; Role of Mentors; and, Expectations for Students were provided to all e-mentors to assist their understanding of the expected learning experience, the critical aspect of the e-mentoring feature to the course design, and the anticipated outcomes of the e-mentoring scheme (Mentor Packet 2008, Department of Human Resource Education, College of Education, University of Illinois at Urbana-Champaign). Electronic versions of all documents were made available to the e-mentors for reference.

Administrative Support

Administrative support has been indicated as a crucial element for the success of e-mentoring (Akin & Hilbun, 2007). During the subject course, the administrative staff engaged in a wide range of activities, facilitating the implementation of the e-mentoring scheme, and contributing to the administration of the program.

When a recruited e-mentor agreed to serve, departmental administration officiated an adjunct faculty position at the host university to each e-mentor. Personal authorization to the host university's

online resources was established by the administrative staff. This authorization provided the e-mentors access to web resources exclusive to the university, such as personal accounts for university e-mail, access to the online delivery hub, and access to course software and the virtual classroom

Additionally, the staff helped with the production of the e-mentor packet, a reference handbook which included hard copy assignment samples, assignment instructions, a grading rubric, essential technological instructions, and general course information.

Technical Support

Technical support established for e-mentors was based upon prior research, which recommended a degree of online facilitation and support as necessary (Akin & Hilbun, 2007; Bierema & Merriam, 2002). It was expected that both the e-mentor and the protégé would need support in utilizing course web locations, email sites, course communication tools, and online course delivery ware.

Technical support during the subject course was provided by 4 graduate assistants, consisting of one Teaching Assistant (TA), two Course Assistants (CA), and one Development Assistant (DA). A careful delineation of the roles and responsibilities of each TA, CA, and DA function in course facilitation and support tasks was created. The TA functioned as communication support and primary coordinator for the instructor, e-mentors and students.   This included e-mentor-to-protégé contact coordination, relationship coaching, and interpretation of instructor and. e-mentor guidance. The TA also provided interpretation and instruction on project suitability, project appropriateness in meeting course requirements, needed project changes, project re-direction, and skill needs for protégés in meeting course objectives. Detailed interpretive assistance regarding host organization communication, confidentiality, proprietary host organization data, the use of corporate aliases, and human subject protection was also the responsibility of the TA. The CAs provided technical assistance on issues related to the learning management system, the virtual classroom, and other general technologies. Detailed technical assistance regarding broadcast communications, recorded session access, archived material, and information retrieval was the responsibility of the CAs. The DA functioned as a developer of the customized learning management system for the course, working closely with the instructor and the TA in order to place course content in accordance with the instructional needs. In all roles, support and facilitation was provided to E-mentors and protégés alike.

Online technical activities of all support personnel during the delivery of the course included arranging online meetings for paired e-mentor-protégé conversations, sending course-related email announcements, trouble-shooting technical access issues related to synchronous class sessions, and providing participant phone assistance for those who wished to call into the synchronous sessions.

Collectively, technical support personnel served key coaching roles to e-mentors and protégés, and assisted in ongoing conversations between the e-mentors and protégés. Such technical assistance activities had been identified as key determinants of success in other e-mentoring programs (Bierema & Merriam, 2002),

Communication Tools

Both synchronous and asynchronous communication tools are recommended for effective e-mentoring dialogue because the richness associated with face-to-face conversation is known to diminish with the use of electronic media (Akin & Hilbun, 2007, Brennan & Lockridge, 2006). Ensher, Heun and Blanchard (2003) classified e-mentoring communication into three categories depending upon the degree to which dialogue relies on computer mediated communication (CMC). These include: CMC-only

(mentoring is executed via web-based methods such as email, websites, instant chat, etc.); CMC-primary (more than half of the interaction occurs via CMC, but some communication may be supplemented by face-to-face conversations or phone calls; and, CMC-supplemental (the majority of mentoring is done in person, yet the relationship is supplemented via emails, instant messaging, chat-rooms, websites, and so forth). Based upon this particular typology, the subject e-mentoring scheme can be characterized as a combination of CMC-only and CMC–primary. This scheme utilized a wide variety of communication tools and modes that relate to the two types.

There was a wide range of communication tools used for different purposes. Collectively, these communication tools provided the mechanism for delivery of instruction, for protégé progress monitoring, and for group communication.

Communication for course delivery. The two major communication tools used as courseware were Moodle and Elluminate®. Moodle, an open source course management system, was used as a course website, in which the delivery of the majority of the learning content occurred asynchronously. It consisted of a master course schedule, segmented learning content, assignment instructions, narrated Power Point sides, instructional audio/video files, a grade book, and assignment instruction and submission areas.

Elluminate®, a virtual class environment, was used for live class meetings. According to Wong and Premkumar (2007), Elluminate® allows for innovative communication between a mentor and the protégé. This Java-based web application allows for a rich virtual classroom experience that simulates all activities one can expect in a physical classroom. Up to 6 people can talk and transmit webcam feeds simultaneously; participants can raise their hands to speak, or to hold a communication cue while another person is speaking; a whiteboard allows for additional placement of objects, slides and texts on an existing slide; instant chat areas exist where participants can exchange comments, questions, and answers as the lecture is occurring. Elluminate® brought both students and e-mentors from many different geographical locations together for monthly live class sessions.

Communication for E-mentor support. Communication to e-mentors from the technical assistants occurred primarily via email. Important announcements, reminders and course-related requests from the sponsoring department were all delivered via email. However, when e-mentors initiated communication either with questions regarding their role as an e-mentor or with technical difficulties, e-mentors utilized different communication tools to reach the sponsoring department. Some made phone calls to the instructor or to technical support personnel. Others used email as their primary communication mode. Few used the asynchronous course management system to post inquiries for technical support.

Communications for E-mentor-protégé conversations: Effective communication between e-mentor and protégé was critical for the success of the protégés' independent field projects. E-mentor-protégé pairs developed communication methods that worked most effectively in their own contexts, and utilized available resources. One of the heaviest uses of the e-mentor-protégé communication was to share in-process work documents, and to converse about the same. Email was the most pervasive communication tool used for these purposes. Conversationally, other forms of communication were initiated by the e-mentor-protégé pairs independent of the course or the course's communication tools. These alternate forms of communication included Skype meetings, direct phone calls, or scheduled online meetings via Elluminate®.

E-mentor Training

Previous research on e-mentoring strongly emphasized the importance of e-mentor training (Bierema & Merriam, 2002; Shrestha et al., 2009). In particular, the lack of training for e-mentors has been suggested to be a failure factor in previous e-mentoring attempts (Kasprisin, Single, Single & Muller, 2003; Single & Muller, 2009; Single & Single, 2005). The subject e-mentoring scheme designed and provided initial training for the e-mentors in a face-to-face environment.

During recruitment, careful inquiry was made of each recruited e-mentor regarding electronic media literacy and comfort in the use of technology. Prior to the beginning of the actual course, all e-mentors were invited to the host department for full day orientation/training on course content, and technology use. Individual e-mentors who were not able to physically attend this training were able to participate online via Elluminate®.

The e-mentor training largely consisted of two parts: course content training, and technology training. Course content training included the course objectives, field project concepts, assignment sequences, detailed explanation of the assignment instructions, assignment samples, grading rubric, protégé expectations, e-mentoring relationship management, and communication options. E-mentor training specifically included the role of the e-mentor, and expectations of the e-mentoring experience. E-mentoring training topics included 'working with adult protégés, 'online student characteristics', 'potential student concerns', 'alleviating students concerns', 'communicating' and 'approaches to consider' (Mentor Packet 2008, Department of Human Resource Education, College of Education, University of Illinois at Urbana-Champaign).

Technology training was designed to ensure a comfort level of the e-mentors in using the technologies employed by the course. Technology training included navigating through the course management systems and utilizing the features of the course website (Moodle) and virtual classroom (*Elluminate®*). During the technology training, each e-mentor was provided a personal computer in the sponsoring institution's computer lab so that each could gain a hands-on experience with all of the technologies being employed for the course. Installation and utilization of the microphone and the webcam, trouble shooting audio problems, and entering text chat were all crucial skills covered during training. Individualized assistance was offered during the technology training session to ensure that all mentors fully understood and could demonstrate a level of proficiency using the course website and other communication tools.

E-mentor Coaching Support

Despite the comprehensiveness of the initial training, it was not assumed that a single 3-hour training session would fully address instructional and technology issues that e-mentors might encounter when working with the protégés. Therefore, a continuing, tailored coaching function was established to provide ongoing assistance to e-mentors on an as needed basis. The primary instructor in the course and the TA served as coaches for e-mentors. It was foreseen that communicating with protégés, assigning grades, and clarifications on assignment expectations would all be part of the instructional difficulties that e-mentors might experience. To address these challenges, the primary course instructor was personally approachable and electronically accessible for any e-mentors. The primary instructor made continuous efforts to provide course progress reports, student learning achievements and personal encouragement to e-mentors to alleviate e-mentor concerns.

In addition to e-mentor coaching by the instructor and the TA, ongoing technical support and coaching by the CAs was established to address technology concerns or issues. A variety of communication channels were made available to the e-mentors, including a specific e-mail address and a dedicated phone line to enable the e-mentors to reach the technical support personnel (CAs) whenever needed. Simple and quick solutions were provided to the e-mentors for minor technical issues. At times, however, the technical assistance was beyond the mere simple technical support and addressed processes for which the e-mentors needed to learn new skills. Some examples of such processes include retrieving uploaded student assignments, entering student feedback into the course website, and logging into the virtual classroom. Since these processes represented the most frequent web activities that e-mentors were expected to do, the CAs assumed a coaching role whenever e-mentors expressed unfamiliarity or difficulty. In these situations, the CAs provided step-by-step guidance by demonstrating and explaining each action to help the e-mentors achieve technological autonomy in critical skill areas.

In-person E-mentor Gatherings

In addition to the technical assistance provided to the e-mentors, a unique form of ongoing support was also made available to ensure that the e-mentors were feeling comfortable, confident, and valued in the program. Such support involved in-person e-mentor gatherings with the course instructor and course personnel.

After e-mentors had reviewed the first two assignments submitted by their protégé(s), the course instructor offered an initial opportunity for the e-mentors to meet together. This initial in person gathering occurred at a mid-semester point in time. The purpose of the gathering was for the e-mentors to share their experiences, challenges, and practices so that they might learn from each other. The gathering was intentionally scheduled after the e-mentors had 1) acquainted themselves with their protégés, 2) had some hands-on experience of serving as an e-mentor, which included providing guidance to their protégés; and, 3) had some experiences utilizing a variety of technologies required to serve as an e-mentor, which included logging onto the course website and using the virtual classroom. The rationale behind this gathering was that the collective experiences of the e-mentors could provide some grounds for later sharing in unstructured mentor-to-mentor discussions (Brennan & Lockridge, 2006). The gathering was also chronologically scheduled so that the e-mentors would have opportunities to use the information gained during the gathering for personal reference over the remainder of the course term.

A second e-mentor in-person gathering was organized at the end of the course. The purpose of this gathering was two fold: 1) to recognize e-mentors for their personal efforts in providing guidance to their protégés such that projects could be completed successfully; and 2) to bring the first iteration of the mentoring program to closure on a positive and celebratory note. A formal e-mentor thank-you from the course instructor kicked off this get-together, which was followed by open discussion among the e-mentors. The e-mentors talked with each other, sharing their original expectations and their personal learning experiences as mentors. They also commented on the design of the e-mentoring program, the various types of support relied upon, the process of the protégés' learning, and the outcomes of the protégés' projects. Although informal, the comments made by the e-mentors during this gathering pointed out both strengths and areas of future improvements. These e-mentor comments, along with the formal evaluation data (Williams et al., 2011, under review), served as rich source of revisions to subsequent iterations of the e-mentoring scheme. Wong and Premkumar (2007) recommend e-mentor recognition, support, and retention by way of sending out newsletters and other communications. The current design scheme recognized e-mentor appreciation as a formal part of its design component and

provided an opportunity for the e-mentors to gather together to socialize, learn from each other, feel comfortable with their role, and valued for their expertise.

E-mentor Evaluation

Simultaneous with the e-mentoring scheme design was the commissioning of a formal evaluation conducted by three individuals who were external to the online course (Sunderman, Son & Greene, 2009). This evaluation included a specific examination of the e-mentoring experience as a structural component of the course. Thus, a specific assessment of the e-mentor experience was a built-in feature to the e-mentoring scheme. The evaluation sought to understand various aspects of the culmination course. A mixed method approach was taken to draw upon different perspectives related to the E-mentors. Data sources included interviews, surveys, observations and commentary at the end-of-the-semester e-mentor gathering. A full e-mentor outcome evaluation is reported in Williams and colleagues (2011, under review).

Limitations

The current manuscript is highly descriptive in nature, which means that it is different from a report of empirical data. Such lack of empirical support may invite questions as to evidence of the positive outcomes of the subject e-mentoring design and its scheme. However, as stated, the intention of this article is to provide a detailed description of an e-mentoring scheme, which was actually implemented and evaluated as part of an online degree program and online course, in hopes that the subject scheme might aid as a benchmark for future e-mentoring program designs. Further, a separate article (Williams et al., 2011, under review) discussing this same e-mentoring design contains evaluation findings and may serve as indirect empirical support for the current article.

Outcome Indicators

The positive results of the subject course, per se, may be deemed an indirect indicator of the outcome of the subject e-mentoring scheme. Positive results of the course are indicated by three factors: 1) project completion by all of the student protégés; 2) 100% e-mentor retention and continuation into a second year, and; 3) course expansion. There was not one student protégé who failed to complete the project journey, even though student protégés could have chosen to drop the course, or take an incomplete grade to complete the course in the subsequent year. No student made such a choice; rather, each student persisted through the set duration of the course, completed all assignments, and implemented an individual project. Further, a few protégés earned promotions within their host organizations, partially due to the practicality and relevance of their projects. All 53 enrolled students successfully completed the course with the guidance from their e-mentors and supervision from the course instructor.

Secondly, the fact that all of the 18 recruited e-mentors returned as e-mentors for the following year is considered a positive indicator of the results of the e-mentoring scheme. As the formal evaluation revealed (Williams, et al., 2011, under review), the e-mentors had a very positive experience with the program, specifically with the technical and personal support and coaching provided to them.

One e-mentor summarized her experience in an e-mail to the primary instructor as:

I thought I'd extend some comments on my experience as a mentor via this note. First off I would like to thank you and your staff for conducting just about the most organized class I've ever been

involved in ... and I calculate I've taken at least 55 graduate classes...(lots of post graduate prior to starting my doctorate). Your materials, communication, lists, dates, follow-ups...all make a mentor's job more privilege than burden. So congratulations to you for orchestrating a top notch program!!

Secondly, from a personal standpoint, I found myself appreciating the ability to drum up some prior learned material and realizing its value now for other students. Sometimes we forget we were once involved in scholarly arenas...and it feels GOOD to be a player once again! So, again thank you for providing me the opportunity to put to use and give value to some earlier lessons!!

Thirdly, this 'helpline through mentors' must be an incredible relief to students who are floundering with questions about their projects. Given the grief I had with advisors (4 in as many years due to quitting and retirement, not because of me...I never got to know any of them very well) it would have been so helpful to have someone to key into for help. As a commuter/cohort student you could say we mentored each other...or rather stumbled around together. But, networking definitely has merit as at least one of us had contact with at least one advisor at some point and most of us shared to the rest of the group! Character building! But with online students, it is even harder to gain understanding about details, much less collaborate with fellow students. From a (recent) student's point of view, I'd say you have a gem of a solution in this mentoring program! (Emily (Alias), 2008, personal e-mail conversation)

The fact that the course retained all e-mentors from the first year also indicates that the protégés in the second iteration of the program were being guided by more experienced e-mentors. From the sponsoring department's perspective, the e-mentor retention also meant that less investment in the initial mentor training and on-going e-mentor support/coaching was needed during the second year. E-mentor training can be costly since it requires a considerable amount of investigation and dedication of resources.

As a third indicator, the e-mentoring program became extended to the University's on-campus students by demand. Although the e-mentoring program was originally designed as exclusive to online graduate students, the on-campus graduate students felt that the project experience and e-mentoring guidance would be beneficial for them, as well. Such a demand was received well by the department, and it was later determined that the e-mentoring would be extended to on-campus Master's students, optionally.

Conclusion

This article presented a description of one scheme for e-mentoring. The e-mentoring scheme was utilized within an educational context where professionals served as e-mentors to guide graduate students as protégés in the execution of projects. Importantly, both the online course instruction and the e-mentoring occurred in an electronic context. Thus the combined e-mentoring scheme and the electronic education context represent a hybrid of designs previously reported in the literature. As such, this description and its outcomes are not directly comparable to prior studies.

The e-mentoring scheme described herein included all of the constructs recommended in the literature for effective e-mentoring functions (Akin & Hilbun, 2007) such as structure, learning objectives, administrative support, technical support, and communication tools. The described scheme also addressed key determinants of e-mentoring success found in prior studies, such as e-mentor training

and ongoing e-mentor coaching (Bierema & Merriam, 2002; Headlam-Wells, Gosland & Craig, 2006; Risquez, 2008). In addition to the design components found in the literature, the described e-mentoring scheme included three additional components, which differentiated it from prior designs. These additional components included ongoing coaching of the e-mentors on course expectations and technology, multiple e-mentor gatherings, and the pre-planned formal evaluation, part which focused specifically on the e-mentor experience.

It is the authors' belief that this unique e-mentoring scheme promotes the use and expansion of theoretical frameworks previously depicted (Aiken & Hilbun, 2007). It is hoped that this detailed description of the e-mentoring scheme, as delivered, might begin the development of best practices in e-mentoring. The full depiction of the scheme may contribute to the design, development, and implementation of other e-mentoring schemes for use in higher education and other electronic learning contexts. Ultimately, the quality of e-mentoring that graduate students experience might be improved through continued development of the scheme in alternate curricula.

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