

The Nature, Perception, and Impact of e-Mentoring on Post-Professional Occupational Therapy Doctoral Students

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ABSTRACT. This retrospective study employed a descriptive, quantitative design to investigate the nature, perception, and impact of the e-mentoring experiences of 29 graduates of an online post-professional Doctor of Occupational Therapy (OTD) program. Study results highlight positive features of electronic mentoring (e-mentoring); how multi-modal e-mentoring supports the accessibility needs of participants; and students' preferences to engage in real-time e-mentoring communication by web camera or telephone, supplemented with e-mail. E-mentoring positively impacted the professional development of participants during and after the online OTD program. As online education continues to grow, a better understanding of e-mentoring will assist in providing exemplary education to meet the needs of adult learners.

KEYWORDS. Electronic mentoring, e-Mentoring, Online education, Professional, Support, Virtual

INTRODUCTION

Mentoring is both a relationship and process between at least two individuals who share and build knowledge, expertise, and support (Williams & Kim, 2011; Wright-Harp & Cole, 2008). It is one strategy for advancing the academic work of graduate students by providing instrumental (e.g., accessing university resources), psychosocial, and academic support (Grant-Vallone & Ensher, 2000). Traditionally, mentoring is a face-to-face, in-person experience. Barriers such as physical distance, transportation, scheduling, and differences in demographics or hierarchy of position, however, may prevent such mentoring (de Janasz & Godshalk, 2013; Pietsch, 2012; Stewart & Wootton, 2005). During the past decade, mentoring that occurs utilizing web-based electronic communication methods such as e-mail, discussion boards, instant messaging, and videoconferencing via web cameras (de Janasz & Godshalk, 2013; Stewart, 2006) has gained momentum. This form of mentoring is

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known as e-mentoring, virtual mentoring, online mentoring, cybermentoring, or telementoring.

In academic programs where students are at a physical distance from the university and learning in an online environment, structured or formal mentoring may be particularly helpful to ensure that students are accessing and receiving the resources they need and desire. The use of web cameras allows for face-to-face mentoring, thus, providing the added benefits of real-time conversation, non-verbal communication, and the ability to see body language during a mentoring interaction (Panopoulos & Sarri, 2013; Stewart, 2006; Stewart & Carpenter, 2009). Asynchronous mentoring may occur if mentoring participants are unable to meet in real time. Additionally, it has been posited that e-mentoring adds an important element to the wide array of pedagogical strategies that create a quality learning experience and establish a learning community among instructors and students (Doyle & Jacobs, 2012).

REVIEW OF THE E-MENTORING AND MENTORING LITERATURE

To date, studies on mentoring within the field of occupational therapy have focused on the prevalence of mentoring (Scheerer, 2007), definitions of mentoring (Milner & Bossers, 2004), and perceptions of group mentoring by mentors and mentees (Milner & Bossers, 2005). There are gaps in the occupational therapy literature regarding the nature, impact, and outcomes of mentoring or e-mentoring programs. Therefore, in order to effectively set the stage for our study, we expanded our literature review of traditional face-to-face mentoring and e-mentoring to other health-related professions as well as to the fields of education and business. We gathered and reviewed studies relevant to mentoring and e-mentoring in higher education as well as other settings and worked to integrate the research findings regarding both forms of mentoring to understand how these processes might apply to post-professional occupational therapy doctoral education. Key literature findings that informed our study included reports investigating the adoption of an e-mentoring approach, the nature of the experience, and the impact or outcomes of e-mentoring.

Panopoulos and Sarri (2013) found that mentors were more likely to *adopt* e-mentoring if they saw a “relative advantage,” were personally innovative, had good computer self-efficacy, and encountered few obstacles to the technical aspects of e-mentoring. The majority of published literature on the *nature* of e-mentoring focuses on types of interactions that do not have a face-to-face component, and many are characterized by asynchronous communication such as email and discussion boards (DiRenzo et al., 2010). In e-mentoring programs utilizing face-to-face interactions, including web cameras, students reported that these interactions aided coursework, facilitated communication, and was preferred over email (Loureiro-Koechlin & Allan, 2010; Stewart & Carpenter, 2009). Particularly where e-mentoring partners were able to agree upon a structure (e.g., frequency of interactions, duration of interactions) and methods of communication (e.g., e-mail, discussion boards, chat rooms), mentees reported satisfaction with the mentoring experience (Loureiro-Koechlin & Allan, 2010). The importance of frequency in e-mentoring programs is consistent with the literature on frequency in traditional mentoring relationships (Eby et al., 2013; Grant-Vallone & Ensher, 2000).

Published research indicates many positive *impacts* of e-mentoring and traditional mentoring. Through a meta-analysis of the mentoring research, Eby et al. (2013) developed a process-oriented model of mentoring. They found that with inputs such as performance, motivation, experiential similarity, and deep-level similarity, the mentoring processes of instrumental support, psychosocial support, and relationship quality would result in improved performance and motivation, as well as attitudinal, behavioral, career-related, and health-related outcomes. In academic settings, deep-level similarities with mentors and longer mentoring relationships were particularly helpful in building stronger associations with positive perceptions of instrumental and psychosocial support and relationship quality (Eby et al., 2013).

In a study of e-mentoring with business school undergraduate and graduate students, de Janasz and Godshalk (2013) found that the mentoring function of instrumental support was positively associated with mentees' skill development, learning, and skill efficacy; psychosocial support was related to mentees' positive skill efficacy; and role modeling was positively related to mentees' application of course concepts. In a pilot study, two physical therapist mentees reported that e-mentoring helped them improve their clinical reasoning and their ability to translate knowledge into practice, as well as increase their confidence in clinical decision-making (Stewart & Carpenter, 2009).

METHODOLOGY

Study Design

This retrospective study employed a descriptive, quantitative design. Graduates of the online doctoral program completed an online survey and an interview conducted via a web-conferencing platform. Both tools explored the nature, perception, and impact of faculty-to-student and student-to-student (or peer-to-peer) e-mentoring during and after the post-professional doctoral program. Survey and interview questions were guided by the evidence about successful and satisfactory mentoring and e-mentoring experiences from Grant-Vallone and Ensher (2000), Di Renzo et al. (2010), and the first two authors' experiences with the online OTD program.

Participants

The participants included 29 graduates from the Boston University Sargent College distance education post-professional Doctor of Occupational Therapy (OTD) program. There was 100% participation of graduates at the time of the study. The participants included 28 females (96.6%) and 1 male (3.4%) with an average age of 44.90 years ($SD = 10.26$). The average length of time in the program was 1.83 years ($SD = .71$) and the number of years since graduation ranged from 1 to 5 years with a mean of 3.24 years ($SD = 1.30$). All participants were assigned a faculty mentor in the program and 28 of the 29 were assigned at least one peer mentor.

The Boston University Institutional Review Board (IRB) approved the study procedures and the letter of consent presented to participants. Study participants were recruited through e-mail including a recruitment letter and consent form. Consent was obtained as part of the online survey and prior to beginning the survey.

Measures

Online Survey: The researchers created a 48-item online survey to evaluate the nature, perception, and impact of the e-mentoring experience during the program and post-graduation. Five demographic questions were included at the beginning of the survey. The remaining questions utilized either a Likert-scale or multiple-choice format with some offering an option for open-ended responses. Survey questions examined frequency and length of meetings, technology used, leadership within the mentoring dyad, and length of mentoring relationship. The set of questions was identical for the faculty-to-student e-mentoring and the peer-to-peer e-mentoring experiences. Sample questions include “What technology did you typically use to interact with your faculty mentor?” and “Did you complete mentoring agreements with your peer mentor?” The survey was created and distributed using Qualtrics[®] Research Suite platform (Qualtrics, 2014).

Interview: The researchers created a semi-structured interview with questions about the nature, quality, and benefits or drawbacks of the e-mentoring experiences within and beyond the OTD program. The questions were identical for both the faculty-to-student and peer-to-peer mentoring experiences. The final portion of the interview offered participants the opportunity to share any additional information or anecdotes related to their e-mentoring experiences. Interviews were conducted using the Adobe[®] Connect[™] platform, a web-based conferencing platform used for eLearning (Adobe, 2014).

Procedures

Participants were recruited by e-mail and directed to the online survey using an URL link included in the recruitment letter. Consent to participate was obtained through response to a question at the beginning of the survey. Only participants who gave consent were able to continue with the survey. After completion of the survey, participants were contacted to schedule a 30 minute interview. Interviews were conducted and recorded by the researchers utilizing the Adobe[®] Connect[™] platform. Participants who were unable to access this platform completed the interview by telephone ($n = 3$).

Data Analysis

Descriptive statistics were calculated for the survey results including demographic characteristics and frequencies for survey responses. This provided quantitative information about the nature, perception, and impact of the e-mentoring experiences for the study participants. For the interview portion of the study, recordings of the interviews were transcribed using a word processing program. Interview responses provided additional descriptive information about the nature, perception, and impact of these two mentoring experiences for participants.

RESULTS

Survey Results

Survey responses provided good detail about the *nature* of e-mentoring in this online OTD program (see Table 1). Participants typically met at least every 2 weeks

TABLE 1. Online Survey: Nature of Mentoring Experience

	Percentage of Sample	
	Faculty e-Mentoring Experience	Peer e-Mentoring Experience
Frequency of meeting		
Less than once a month	3	4
Once a month	17	8
2–3 times per month	21	11
Every 2 weeks	17	14
Every week	38*	43*
More than once a week	3	21
Length of meeting		
0–15 minutes	0	0
15–30 minutes	21	19
30–45 minutes	31	33*
45–60 minutes	41*	30
More than 1 hour	7	19
Technology used for mentoring interaction		
Web camera	52	71
Telephone	79*	82*
Typed live chat	28	39
Asynchronous message board	17	18
E-mail	69	79
Content of typical interaction		
OTD project	100*	89*
Coursework	24	61
Professional goals	21	14
Professional networking	3	4
Scheduling of assignments	21	7
Editing of written assignments or OTD project components	59	57
Discussion about what elements of mentoring relationship are working	7	0
Discussion about what would be helpful to add to mentoring experience	14	0
Accessing university or other resources	10	0
Problem-solving online course or chat technology	0	0
Emotional or psychosocial support	24	57
Professional publications	3	0
Other	0	4
Dynamic of mentoring interactions		
Led by faculty member	14	4
Led by student	3	4
Led equally by both	52*	89*
Dynamic changed over time	31	4
Length of relationship with mentor		
First semester only	0	7
Until completion of doctoral project	24	15
Duration of OTD program	76*	67*
Other	0	11
Completion of mentoring agreements		
Yes	76*	82*
No	24	18
Frequency of completion of mentoring agreements		
Just once, at beginning of OTD program	27	27
Every semester	68*	73*
Every year	0	0
Other	5	0

(Continued on next page)

TABLE 1. Online Survey: Nature of Mentoring Experience (Continued)

	Percentage of Sample	
	Faculty e-Mentoring Experience	Peer e-Mentoring Experience
Content of mentoring agreements		
Specific plans for assignment review	95*	95*
Specific plans for regular mentoring meetings	77	86
Deadlines for providing minutes from mentoring meeting	41	32
Additional professional goals or projects	45	55
Additional personal goals or projects	9	50
Other	5	5
Completion of mentoring evaluations		
Yes	66*	78*
No	34	22
Frequency of completion of mentoring evaluations		
Just once, at beginning of OTD program	11	14
Every semester	61*	67*
Every year	6	5
Other	22	14

*Indicates mode.

with both types of mentors (i.e., faculty and peer) for at least 30 minutes, utilizing telephone, web camera, and e-mail technologies. All mentoring parties led the majority of meetings equally; nearly one-third of faculty-to-student mentoring had a dynamic that changed over time (e.g., were faculty-led at the beginning of the OTD program and became more student-led over time). Mentoring relationships were structured with written mentoring agreements and evaluations that were typically completed each semester. Mentoring agreements included such items as plans for assignment reviews or regular mentoring meetings to help structure the mentoring relationship. The content of the peer-to-peer mentoring interactions included discussion of students' OTD projects, and coursework, editing of written assignments or OTD project components, and emotional or psychosocial support. Faculty-to-student mentoring interactions most commonly covered OTD projects, editing of written assignments, or OTD project components.

Survey questions related to participants' *perception* of the e-mentoring experiences asked about satisfaction and success (see Table 2). The majority of participants reported being satisfied or very satisfied with the peer-to-peer e-mentoring and faculty-to-student e-mentoring. Over three-quarters of participants reported that their mentoring experiences were successful or very successful for both types of e-mentoring. The majority of respondents also perceived that mentoring interactions were just right—neither too short or infrequent nor too long or too frequent.

Survey questions focusing on the *impact* of the e-mentoring experiences asked participants about how their e-mentoring interactions affected their academic and professional development while they were OTD students and after graduation (see Table 3). During the program, respondents felt that the faculty-to-student and peer-to-peer e-mentoring not only helped them complete their OTD project (the main focus of the e-mentoring experiences), but also encouraged them to give a

TABLE 2. Online Survey: Perception of Mentoring Experience

	Percentage of Sample	
	Faculty e-Mentoring Experience	Peer e-Mentoring Experience
Perception of mentoring interactions		
Too short	3	4
Too infrequent	14	11
Just right	86*	85*
Too long	0	4
Too frequent	0	4
Satisfaction with mentoring experience		
Very unsatisfied	17	7
Unsatisfied	3	7
Neutral	3	7
Satisfied	14	21
Very satisfied	62*	57*
Success of mentoring experience		
Very unsuccessful	10	11
Unsuccessful	3	4
Neutral	3	7
Successful	17	29
Very successful	66*	50*

*Indicates mode.

professional presentation, conduct research activities, and publish professionally. Participants felt that peer-to-peer mentoring also helped make job changes. Respondents felt that their faculty-to-student and peer-to-peer e-mentoring experiences during the program had helped them become more willing to ask questions of others, provide presentations, seek out other mentors, take on professional association roles or responsibilities, engage in clinical research, and author professional publications after graduation.

It is interesting to note that more than half of faculty-to-student and peer-to-peer mentoring relationships continued post-graduation. The majority of these relationships continue to the present day, and interaction is at least quarterly. The content of the continued faculty-to-student and peer-to-peer mentoring relationships focuses on professional networking, professional publications, academic role mentoring, and research role mentoring. Additionally, the content of continued peer-to-peer mentoring relationships includes clinical skill and professional association role mentoring.

Interview Results

Participants reported specifically that the peer-to-peer e-mentoring relationship offered general psychosocial and personal support throughout the program. The relationship appears to offer a connection to a peer that leads to the opportunity to share ideas, discuss problems, and help each other on a personal level. For example, a participant shared: “There was that mutual support that went on throughout our time together through the program and I also felt that our relationship and our peer mentoring was really addressing the psychosocial part of participating in the program and I think that was really valuable.” Participants frequently discussed the

TABLE 3. Online Survey: Impact of Mentoring Experience

	Percentage of Sample	
	Faculty e-Mentoring Experience	Peer e-Mentoring Experience
Impact of mentoring while in program beyond OTD project		
Encouraged you to publish professionally	59	32
Encouraged you to give professional presentation	76*	46*
Encouraged you to conduct research activities	62	36
Encouraged you to write a grant	17	7
Encouraged you to make a job change	17	39
Helped you take on a new professional role in professional association	21	25
Other	17	32
Impact of mentoring post-graduation		
More willing to ask questions of others	62*	73*
More willing to seek out other mentors	59	54
More willing to take on professional association roles or responsibilities	52	31
More willing to engage in clinical research	52	54
More willing to provide presentations	62*	54
More willing to write publications	38	27
Other	21	19
Continuation of mentoring relationship post-graduation		
Yes	52*	67*
No	48	33
Length of relationship post-graduation		
0–3 months	7	6
3–6 months	7	0
6–12 months	0	0
1–2 years	0	6
To present day	87*	89*
Frequency of interaction post-graduation		
Once per year	20	11
3–4 times per year	47*	61*
Every 2 months	13	11
Every month	7	11
Every week	0	0
Other	13	6
Nature of mentoring experience post-graduation		
Clinical skills	0	33
Professional publications	47	28
Professional networking	67*	94*
Mentoring for professional association role	7	22
Mentoring for academic role	33	50
Mentoring for research role	20	11
Other	33	33

*Indicates mode.

benefit of having a peer mentor who was experiencing similar challenges, which led to a greater understanding between peers. This was especially important for participants due to the online nature of the program as demonstrated by the following statement: “understanding that we were all going through the same thing really helped make it easier because doing this online was different than the classroom.

In the classroom you get to see your friends and you get to see the frustration but online you don't so it's a different connection." Multiple participants were involved in larger peer mentoring groups during the program for various reasons, however it was consistently reported that a single peer mentor led to a higher quality relationship. For example, one participant stated: "When we split off I think actually it was a lot more enriching for me because I think I connected with my peer mentor."

Participants often reported that the faculty relationship helped to establish a focus, especially in regards to identifying a doctoral project. This guidance was also reported to be beneficial when navigating the program and for achieving the participants' goals during and after the program. One participant described the relationship as being "very effective at helping me understand why we were doing what we were doing and the impact that it would have down the line."

Participants often reported that the peer-to-peer and faculty-to-student e-mentoring relationships had multiple levels and this contributed to a stronger relationship. In regards to the faculty to student relationship one participant stated: "I think she was supportive not only academically, but personally supportive and I don't think you would get that kind of personal support in many graduate programs."

Many participants discussed the structure they used, whether with peer or faculty mentors, to establish and successfully engage in the mentoring relationship. One participant stated: "every time something changed we made a contract with each other, we took notes, we sent them to each other to make sure we were both on the same track." Structure looked at the formal processes used to facilitate the mentoring such as mentoring contracts, regularly scheduled meetings, written goals for the mentoring relationship, and regularity of interaction or feedback on written work.

Participants commonly described how peer or faculty mentors helped them to connect or network with other professionals during or after the program. For example, one participant described how mentoring from a faculty member helped her network with another researcher. This participant said: "For years I had always known his name but had been too scared to have ever reached out to him and she connected me with him. It was one of the first things that she did. We've published two studies together now and he's been a research mentor for me in a couple studies I've done at work."

Participants described that their mentoring relationships included commitment, accountability, trust, accessibility, dedication, and integrity. This is how one participant described it: "Everyone was so committed. We showed up, we weren't late. If they had something come up, everyone did their work and assignment and we stayed connected. That type of dedication really made you want to be a better mentor for the person you were working with."

DISCUSSION

The nature, perception, and impact of e-mentoring was seen by study participants as a positive experience that enhanced the learning opportunities in their OTD program and influenced their future professional development and engagement.

While in the OTD program, e-mentoring was frequent, multi-modal, and had an impact on the professional activities of students during and after completing the OTD program. Consistent with other research, frequency of mentoring interactions seems to impact the success of the relationships (DiRenzo et al., 2010; Eby et al., 2013; Grant-Vallone & Ensher, 2000).

In this study, participants had the opportunity to use a variety of tools for mentoring such as asynchronous e-mail as well as synchronous conversation by telephone or web camera. In previous studies, students who had the opportunity for face-to-face interactions whether in-person or by web camera felt this benefited their coursework (Loureiro-Koechlin & Allan 2010; Stewart & Carpenter, 2009). The majority of participants in our study used telephone, e-mail, and web cameras to communicate with peer and faculty mentors. It is interesting to note that two of these options were synchronous, where mentoring dyads met in real time for their mentoring interactions.

Additional details about the nature of e-mentoring in this OTD program included that mentoring relationships generally lasted the duration of a student's entire OTD program, were structured with relationship agreements and evaluations of mentorship each semester of the program, and the majority of faculty-to-student and peer-to-peer mentoring relationships were led equally by all parties involved. These findings are consistent with previous studies where mentees benefited from structured mentoring relationships (Loureiro-Koechlin & Allan, 2010) and longer academic mentoring relationships (Eby et al., 2013).

Consistent with the literature we reviewed about perceptions of mentoring and e-mentoring (Eby et al., 2013; Kammeyer-Mueller & Judge, 2008; Milner & Bossers, 2005; Stewart, 2006), our study found that participants viewed their mentoring experiences positively. Over three-quarters of study participants were satisfied or very satisfied with both their peer-to-peer and faculty-to-student e-mentoring experiences. The majority of participants also felt that their mentoring relationships were successful and their interactions were just right, not to either extreme of frequency or length.

The impact of e-mentoring relationships, as measured by survey data in this study, was positive during and after the OTD program. In this study, we focused on items of professional development as measures of impact. During the program, participants indicated that faculty-to-student e-mentoring and peer-to-peer e-mentoring most often facilitated doctoral projects; these relationships most often encouraged professional presentations following the OTD program.

The participant interviews provided additional qualitative information about the impact of peer-to-peer and faculty-to-student e-mentoring experiences. Peer-to-peer e-mentoring was characterized by positive experiences with psychosocial support, consistent with the Webb et al. (2009) study, and the benefits of shared experience. It is also interesting to note students' preferences for a one-on-one rather than small group peer mentoring experience, contrary to the positive experiences occupational therapy students had in small-group mentoring in the Milner and Bossers (2004) study. One possible difference is that the small groups in this study were peer-to-peer mentoring, whereas the Milner and Bossers study had a faculty leading the mentoring group.

Faculty-to-student e-mentoring experiences provided academic guidance and direction. This is consistent with the findings that students prefer faculty to provide instrumental support (Milner & Bossers, 2004; Webb et al., 2009). In particular, this guidance was helpful in creating, managing, and completing the doctoral project component of the online OTD program.

Survey results indicate that faculty provided more instrumental than psychosocial support and peers provided a more equal dose of both types of support. Nevertheless, the interviews indicated that students perceived that both e-mentoring experiences were enhanced by personal and professional support. Participants noted that these multiple layers of a mentoring relationship were helpful in supporting the whole student through the OTD program. Some students even indicated that they believed this combination of personal and professional support would be rare in most other faculty-to-student mentoring settings, and really valued this particular e-mentoring experience.

This study only evaluated students' perspectives. The authors are in the process of conducting a study that will investigate the faculty's perspective on the nature, perception, and impact of e-mentoring in this online post-professional occupational therapy doctorate program and will then compare results to those of this study.

LIMITATIONS

The authors have identified several limitations to this study. First, the small sample size ($n = 29$) may limit generalizability to other students and online programs in different disciplines. Second, the first researcher conducted the majority of the interviews and was well known to all participants. Her participation may have introduced bias to the participants' responses. Third, since the online survey required retrospective self-reporting of responses, the participants who were recent graduates may have had better recall of the OTD program, but less perspective on the impact of the program after graduation and vice versa for participants who were graduates from earlier years.

CONCLUSION

Overall, the results of this study support the positive experience and aspects of e-mentoring relationships in an online post-professional occupational therapy doctorate program. It provides additional details about the nature of the e-mentoring relationships, which may guide others in developing structured, supportive mentoring relationships. The study describes how e-mentoring may be multi-modal to support the accessibility needs of mentoring participants, and the multiple strategies that students frequently employ to engage in real-time e-mentoring. Finally, it indicates that students are satisfied with their e-mentoring experiences and that these relationships positively impact the professional development of occupational therapy post-professional students both during and after an online OTD program. The study underscores the potential contributions of e-mentoring to OT research and education.

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