

# **Correlation Between Mentors and Learners Perceptions of Mentors Behaviors in Completing Online Doctoral Dissertations**

**Kate Andrews  
University of Phoenix**

*The advent of completing doctoral dissertations in an online environment is a natural extension of the technological process changes in today's world. This study focused on determining the relationship between e-mentors and learners' perceptions of competencies utilizing Schichtel's theory of competency model. The need for the study is shown by low retention rates of 60-70% for doctoral students when completing their dissertations. The results indicate there is no relationship between e-mentors and learners' perception of competencies. The results help to explain major difficulties in understanding learners' satisfaction with the online dissertation process and the low retention rates of completing dissertations.*

## **INTRODUCTION**

As one scholar to another scholar, the completion of the dissertation signals the passing of the torch as learners today become mentors of tomorrow (Davidhizar, 1988). Through the process of completing a dissertation, learners advance to the state of understanding scholarship as the work of integration, application, and teaching (Boyer, 1990). As learners grasp the meaning of scholarship, they understand the significance of passing the torch from mentor to learner into the realm of scholarship (Irons, 2008).

Across the decades, from 30 to 40% of those who enter graduate school dropout before completing their degrees and these failure rates have been tracked to dissatisfaction with supervision rather than academic ability (Armstrong, 2004; Brill, Balcanoff, Land, Gogarty, & Turner, 2014; Cassuto, 2013; Mason, 2012). Researchers have found that the self-paced process of dissertation work is one of the issues related to dropout rates; whereas, the addition of intense facilitation through mentorship can help to increase the graduation rate to 73% (Ewing, Mathieson, Alexander, & Leafman, 2012). Therefore, the self-paced process should give way to a mentorship founded in collaboration between mentors and learners (Lee, 2011). In fact, the relationship that learners have with mentors is a vital component of a successful experience for the learner (Holley & Caldwell, 2012).

Researchers have detailed the categories of mentor and learner expectations with mentors in face-to-face campus dissertations. However, in an online environment, where mentors are known as e-mentors, the comparison of e-mentor competency and learners' ratings of importance had not been ascertained (Erwee, Albion, van Rensburg, & Malan, 2011; Florczak, Collins, & Schmidt, 2014; Radda, 2012). Before this study, little evidence had been gathered that measured the importance ratings of required competencies of e-mentors in an online environment (Anderson & Anderson, 2012; Andrew, 2012). Additionally, it was unclear if there was any disparity between e-mentors and learners' perceptions of e-mentors' core competencies.

There are numerous qualitative studies investigating the perceptions of learners and e-mentors in online educational doctoral programs in regards to expectations of e-mentors (Bolliger & Halupa, 2012; Combe, 2012; Kumar, Johnson, & Hardemon, 2013). However, there has been little quantitative research conducted in the narrower scope of identifying e-mentors and learners perceived importance ratings for e-mentor core competencies (Brill et al., 2014, Schichtel, 2010). The relationship that exists between e-mentors and learners' perceptions of importance ratings of core competencies of developmental, social, cognitive, teaching, communication, and managerial behaviors was determined in this study. A quantitative method with a correlational design was used in this study to examine such relationships. A purposeful sampling method was used to recruit e-mentors and doctoral learners who were working on their doctoral dissertations in an online setting.

### **Theoretical Framework**

Just as mentoring is being used on face-to-face campuses, mentoring is being used in online environments. What transpires as e-mentoring exists not only with asynchronous communication via discussion boards, email, message boards, and feedback but also synchronous communication (e.g., video conferencing, phone calls; Brill et al., 2014). There have been different definitions of e-mentoring. The definition used in this research is "a computer-mediated, mutually beneficial relationship between an [e-]mentor and a protégé [learner] that provides learning, advising, encouraging, promoting, and modeling, that is often boundaryless, egalitarian, and qualitatively different than traditional face-to-face" (Bierema & Merriam, 2002, p. 214). The term boundaryless applies to online learning in the sense of being without geographic and time boundaries. Egalitarian implies an environment that has open and free dialogue. The qualitative differences found between face-to-face and online education are that communication is primarily synchronous or asynchronous, with visual cues or without, and with immediate feedback or not.

Through the egalitarian pattern of communication inherent in online higher education (Griffiths & Miller, 2005; Mueller, 2004), the e-mentoring of learners has been captured as requiring developmental learning competency, social competency, cognitive competency, teaching reflectively competency, communication competency, and managerial competency (Schichtel, 2010). Schichtel (2010) developed the first digest of the model consisting of behavioral competencies necessary for online e-mentors based upon analysis of research in 25 databases. Although Schichtel's results mentioned the competencies as necessary for medical educators, the analysis he used in deriving the competencies was in using a breadth of educational arenas not limited by medical education.

The competencies listed by Schichtel (2010) were the major theoretical foundation for this survey investigation of e-mentor and learner's perceptions of importance in the dissertation process. The developmental learning competence describes the level of the ongoing learning process that uses scaffolding to increase knowledge and skills. Timely and thorough feedback set precedents for scaffolding. Social competence is the level of building interpersonal relationships through a style of empathic understanding and establishing connections with others. The cognitive competence is the level of expert knowledge that is not only resident within the mentor but conveyed to the learner. Thoughtful self-analysis coupled with self-examination of teaching effectiveness is considered the competence of teaching reflectively. The ability to listen empathically and to hear others and use skills to reach mutually beneficial goals is the communication competence. One's level of being able to mobilize resources is the measurement of the managerial competence. Provided in Table 1 are definitions of the six competencies.

Because the measurement of learners' opinions of the importance of behaviors is essential to set the stage for measuring learner satisfaction, this study examined e-mentors' and learners' perceptions about the most important e-mentor competencies (Schichtel, 2010). If the learner perceives a different importance level than the e-mentor, then a disconnection occurs between what the e-mentor will exhibit and what is desired by the learner. The disconnect then affects learner satisfaction with the process of e-mentoring and perhaps the entire process of completing online dissertations.

**TABLE 1**  
**DEFINITIONS OF SIX COMPETENCIES**

Competency	Definition *
Developmental Learning	Ongoing learning process that uses scaffolding to increase knowledge and skills to the level of one's ability [includes timely feedback; critique for improvement; and suggestions to continue to enhance current knowledge and skills]
Social	Interpersonal relationships through a behavioral style of empathic understanding and connecting with others
Cognitive	Expert knowledge that can be conveyed to the learner
Teaching	Thoughtful self-analysis and self-examination of teaching effectiveness
Communication	Ability to listen empathically and to hear others and use skills to reach mutually beneficial goals
Managerial	Level of being able to mobilize resources

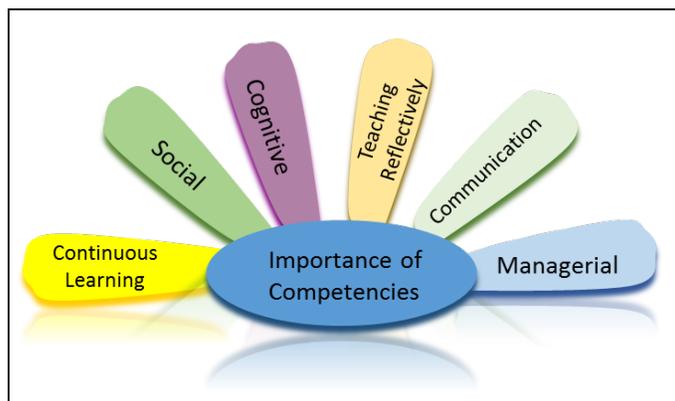
\* Adapted from Schichtel (2010).

### Background of Study

E-mentoring in online education, according to Suhonen and Sutinen (2014), can compensate for not having the typical face-to-face interaction between student and teacher. With effective e-mentoring, a student-centered approach intertwined with attention to faculty-centered philosophies in examining both learner and e-mentor needs and competencies are used (Brill et al., 2014). The benefits of e-mentoring are the lack of geographic and time boundaries, enhanced privacy (Knouse, 2001), stable accomplishment of student learning when compared to a face-to-face environment (Esgi, 2013), and improved psychosocial factors (Phinney et al., 2011). On the other hand, even though learners require feedback as part of the necessary formative assessment required for them to monitor their progress (Heinze & Heinze, 2009), Brace-Govan (2003) found an increased difficulty level for e-mentors to provide beneficial feedback in an online text-based communication system than in a face-to-face environment. Not only is there an increased difficulty in communication for e-mentors, but there are also additional characteristics of the doctoral dissertation process that are extremely new to the learner.

Effective e-mentoring encompasses specific competencies (Schichtel, 2010) as shown in Figure 1 that cover the characteristics that exist in the minds of learners. Schichtel (2010) included a competency of technical ability, but this is assumed to be present in an e-mentor who is approved to work in the dissertation process.

**FIGURE 1**  
**THE DEPICTION OF SIX COMPETENCIES REQUIRED OF E-MENTORS WHEN WORKING WITH STUDENTS COMPLETING DOCTORAL DISSERTATIONS**



In recognizing that age makes no difference in the desire or ability to learn, e-mentors are cognizant of the importance of continuous, developmental learning as a competency. They uphold the importance of bringing support to learners' fascination and passion with a research topic and recognize that support for learners during university years enhances their life-long learning (Bierema & Merriam, 2002).

Social competence is the facility for putting oneself in the presence of e-mentoring by sharing the e-mentor's full personality in projecting socially and emotionally through whatever communication style the e-mentor has chosen (Garrison, Anderson, & Archer, 2000). This social competence is about the overall level of interpersonal skills and is directly related to overall teaching effectiveness (Hassan, Jani, Som, Hamid, & Azizam, 2015). Therefore, the process capitalizes on personal potential (Schichtel, 2010). This social support includes serving as a link to the knowledge, people, and places where learners can excel (Gutierrez, 2012). These psychosocial needs of doctoral learners have a direct relationship to their motivation (Brondyk & Searby, 2013; Mason, 2012).

A competence that universities have recognized as essential in the e-mentoring of learners in the dissertation phase is cognitive competence, which is the ability to facilitate "the analysis, construction, and confirmation of meaning and understanding through sustained discourse and reflection" (Schichtel, 2010, p. e253). When a mentor has made a shift from mentoring to the idea of e-mentoring, he or she must accomplish the transference of expertise primarily through text-based communication. However, the use of text-based communication is being augmented with video and audio clips inserted adjacent to the text-based communication of both e-mentor and learner.

The use of reflective teaching methods is the fourth competence. Three techniques of teaching reflectively are modeling, coaching, and scaffolding, which are used to encourage reflective consideration of product, actions, and thoughts. Teaching reflectively is different from formal, didactic teaching and is an essential component of adult learning principles (Collison, Elbaum, Haavind, & Tinker, 2000). Inherent in asynchronous e-mentoring is the ability to think and to reflect before answering (Knouse, 2001).

Communication skills comprise the fifth competence. Salmon (2004) defined this competence as one having the ability to use communication skills to stimulate engagement between people in an online environment. E-mentors must provide the engagement in an individualist manner for a relationship heightened in excellence (Kuk & Banning, 2014).

E-mentors having managerial competence are concerned with structuring activities and expectations for synchronous and asynchronous communication, but with time lapses that will occur with asynchronous communication (Salmon, 2004). Additionally, e-mentors must maintain records in monitoring student progress, but as Lee (2011) reported "out of sight is out of mind" and, therefore, monitoring should be tracked openly to the learner. The managerial tasks include the development and maintenance of the structure of interactions (Kumar et al., 2013).

Universities must not make decisions based on technological capabilities, but universities must determine decisions on learner needs and educational principles (Schichtel, 2010). The competencies required are known through Schichtel's (2010) model, but which competencies are more closely related to the learners' perceived level of importance is unknown. In the same way, what specific qualifications and abilities associated with these e-mentor competencies are considered important by the learner is unknown. Measuring the importance of competencies has been elusive in the culmination of the doctoral work, the dissertation process. The relationship between e-mentors and learners' perceptions of the importance of competencies has been unknown (Schichtel, 2010). In this study, the premise was that there would be a correlation between e-mentors and learners' perceptions of the importance rating for each specific competency. Additionally, what core competencies were the most important for e-mentors and learners was not known, and this study sought to answer that unknown.

## **Research Methodology**

There are numerous qualitative studies investigating the perceptions of learners and e-mentors in online educational doctoral programs in regards to learner approval (Bolliger & Halupa, 2012; Combe, 2012; Kumar et al., 2013). However, no information had been obtained from quantitative methodological

methods focusing on the dissertation aspect of the doctoral process in investigating the relationship of importance and a core set of e-mentor competencies. Thus, a study with a quantitative method and correlation design was proposed to identify e-mentors and learners' ratings of the importance of essential e-mentoring core competencies (Brondyk & Searby, 2013) as well as the correlation of importance ratings between e-mentors and learners' perceptions of e-mentoring competencies. A correlation design was used because the desire was to show the relationship of agreement between e-mentors and learners.

### *Sample*

A purposeful sampling method was used to recruit e-mentors who were leading doctoral students working on their doctoral dissertations and doctoral students who were working on their doctoral dissertations in the United States. A total sample size of e-mentors and learners of 68 was calculated from G\*power 3.1.9.2 calculator software with an effect size of 0.3, power of 0.80, and alpha set at 0.05 (Cohen, 1992). University e-mentors who were teaching in the dissertation process and learners who were presently enrolled in the doctoral dissertation process were asked to participate through the posting of invitations using social media methods.

### *Instruments*

As there is no instrument developed measuring Schichtel's (2010) e-mentor competencies, a subject matter expert and a methodology expert developed a survey of competency questions they created from Schichtel's operational descriptions of the competency sets. The final survey had three behavioral descriptions for each competency based upon the operational definitions provided by Schichtel. Two forms of the survey were created. One form was for the e-mentors assessing the importance of behaviors associated with each competency. The other form was for the learners assessing the level of importance of e-mentor behaviors following the definitions of each competency. The final surveys were adjusted based on feedback and responses from a pilot group of participants. A Cronbach alpha was used to calculate inter-item correlation as a form of reliability for the survey. The direct connection between Schichtel's (2010) operational definitions of the competencies and the survey components secured the validity of the survey. Schichtel was contacted to review the survey components for validity with his theoretical competencies, and he gave his sanction to the components of the survey.

### *Process*

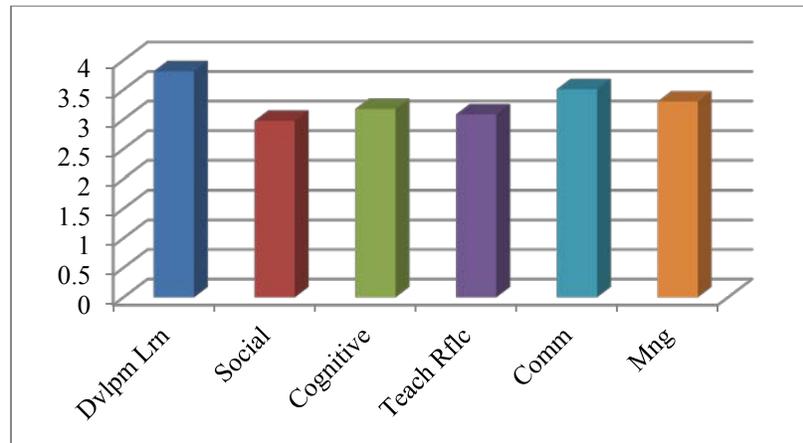
Distribution of the survey occurred via an online survey host. Participants completed the survey according to whether they were an e-mentor or a learner enrolled in an online dissertation process. Potential relationships between learner ratings of the importance of competencies and e-mentor ratings were ascertained. There were no predictor variables identified in the study as all variables were analyzed computing the relationship of e-mentor to learner reported importance. Percentages of importance ratings by e-mentors and learners were used to determine the most important e-mentor and learner's competencies. Spearman's rho, a nonparametric measure of relationship, was used to investigate the relationships of mentor and learner ratings of the importance of competencies.

### *Results*

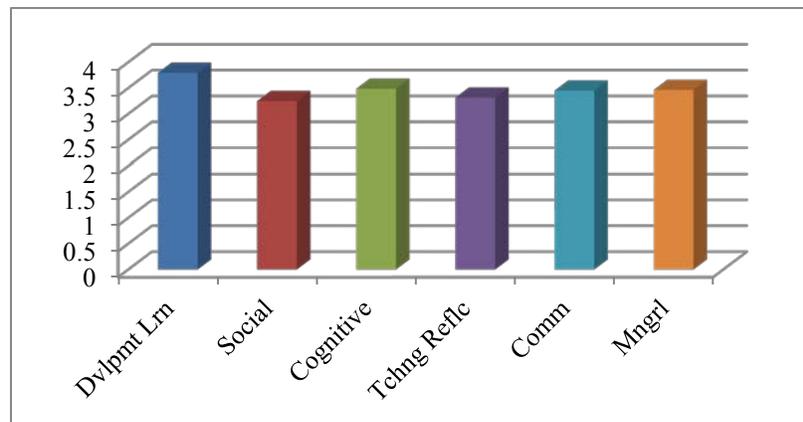
The calculation of the importance of the competencies in the perception of the mentors indicates that developmental learning was of higher importance than the other competencies. Learners agreed with the mentors in that developmental learning was the most important in their understanding of the competencies. Figures 2, 3, and 4 illustrate the differences between mentor and learner's importance ratings of competencies. Mentors and learners had the same perception that the social competence of the mentor was the least important among the competencies. Mentors reported more importance with four out of the six competencies than learners reported. The competencies that were perceived to be more important by mentors than learners perceived to be important were social competence, cognitive competence, teaching reflectively, and managerial competence. Learners perceived greater importance

than mentors in the competencies of developmental learning and communication. However, the ratings of mentors and learners for these competencies were nearly the same.

**FIGURE 2**  
**GRAPHICAL REPRESENTATION OF LEARNERS' IMPORTANCE RATINGS OF COMPETENCIES**



**FIGURE 3**  
**GRAPHICAL REPRESENTATION OF MENTORS' IMPORTANCE RATINGS OF COMPETENCIES**



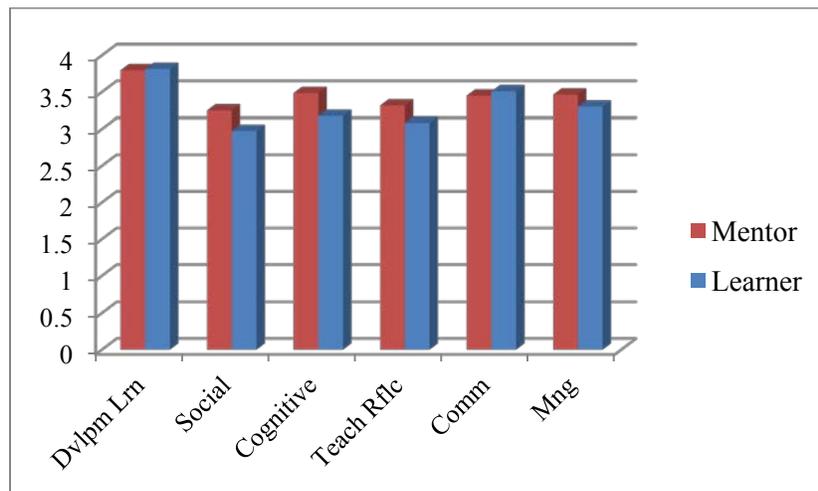
In conducting the data analysis and calculating the independence of the two variables, the use of parametric statistics was not possible due to the lack of normalcy. Therefore, the non-parametric statistic, Spearman's rho test was conducted, because of the monotonic relationship between the paired data. Based on the results of the research, mentor opinion of the importance of competencies and learner opinion of the importance of competencies are not statistically significantly correlated but are independent of each other  $r_3 = -122, p > 0.5$ .

### Discussion

There being no significant relationship found between mentors' and learners' importance ratings of competencies indicates there are major difficulties in having learners experience satisfaction with the

online dissertation process. This finding may help explain low retention rates in online learning for doctoral programs. Perhaps it is important to consider the competencies where mentors perceived there was a higher importance than learners; so that universities may put less emphasis on those areas in training and performance expectations of mentors. For example, universities could put less weight on developing rapport (social competence). However, it is important to complement the findings of this research with findings on learner satisfaction and retention and to provide balanced training with performance expectations. The results may indicate learners see suggestions to current work improvement more important than demonstrating mentors' areas of expertise.

**FIGURE 4**  
**COMPARISON OF MENTORS' AND LEARNERS' IMPORTANCE RATINGS OF COMPETENCIES**



Without further analysis, the change in training and expectations with communication would be delving into an area where there may be no difference in mentor and learner perception of importance. For example, there may not be a need to change the communication priorities and developmental learning concerns of mentors as they may coincide with learners' perception of importance. A further caution is that mentor perception of importance may not equate to mentor expertise or willingness to provide those areas for learners.

In just the same way, the results may indicate that universities should have less stress on social togetherness in building a sense of community within the virtual classrooms and more emphasis on developmental learning through enhancing current knowledge. There may also be an importance in communicating through training and performance expectations where the factors involved in developmental learning could be enhanced. For example, learners reported participating in consistent and engaging online communication and providing timely feedback being important.

Future research may provide for more controlled studies for specific universities as learners' characteristics vary from university to university. Researchers might have as a goal to investigate how they can develop an actual set of global competencies encompassing all fields and all types of educational environments. The survey's validation could be more structured to see if each component in the survey of a proposed competency adequately captures an important facet of the competency. Furthermore, the components of the competencies could be examined individually to see if there are differences in ratings of importance within singular competencies.

In summary, although the findings did not confirm the hypotheses, the findings do provide substantial information beneficial to university faculty training departments and human resource departments who set

training goals and standards of performance. Because both e-mentors and learners agreed that developmental learning competency was more important than other competencies, those responsible for training might focus training goals on developmental learning competency through engaging in consistent online communication and providing timely feedback. Additionally, social competency was the least important for both e-mentors and learners so that developing rapport is stressed less. However, the importance of providing balanced training and performance expectations to increase learners' satisfaction and retention in completing online doctoral dissertations cannot be overstressed.

When mentors agree in the importance of a competency, the mentors may be more willing to learn to strive for higher levels of excellence than when they do not perceive a high importance in the competency. Additionally, learner ratings of importance may be related to satisfaction and retention rates. Thus, for the fastest change in learners' satisfaction and retention, universities may need to provide balanced training and performance expectations where mentor and learner ratings of importance coincide.

## REFERENCES

- Andrew, M. (2012). Supervising doctorates as a distance: Three trans-Tasman stories. *Quality Assurance in Education: An International Perspective* 20(1), 42-53. doi:10.1108/09684881211198239
- Anderson, S., & Anderson, B. (2012). Preparation and socialization of the education professoriate: Narratives of doctoral student-instructors. *International Journal of Teaching and Learning in Higher Education*, 24(2), 239-251. Retrieved from <http://www.isetl.org/ijtlhe/pdf/IJTLHE1279.pdf>
- Armstrong, S. J. (2004). The impact of supervisors' cognitive styles on the quality of research supervision in management education. *British Journal of Educational Psychology*, 74, 599-616. doi:10.1348/0007099042376436
- Bierema, L. L., & Merriam, S. B. (2002). E-mentoring: using computer-mediated communication to enhance the mentoring process. *Innovation in Higher Education*, 26, 211-27. doi:10.1023/A:1017921023103
- Brace-Govan, J. (2003). A method to track discussion forum activity: The moderators' assessment matrix. *Internet and Higher Education*, 6, 303-325. doi:10.1016/j.iheduc.2003.08.003
- Bolliger, D. U., & Halupa, C. (2012). Student perceptions of satisfaction and anxiety in an online doctoral program. *Distance Education*, 33(1), 81-98. doi:10.1080/01587919.2012.667961
- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. Stanford, CA: Carnegie Foundation for Advancement of Education.
- Brondyk, S., & Searby, L. (2013). Best practices in mentoring: Complexities and possibilities. *International Journal of Mentoring and Coaching in Education*, 2(3), 189-203. doi:10.1108/IJMCE-07-2013-0400
- Brill, J. L., Balcanoff, K. K., Land, D., Gogarty, M. M., & Turner, F. (2014). Best practices in doctoral retention: Mentoring. *Higher Learning Research Communication*, 4(2), 26-37. Retrieved from <http://journals.sfu.ca/liu/index.php/HLRC>
- Cassuto, L. (2013). Ph.D. attrition: How much is too much? *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/PhD-Attrition-How-Much-Is/140045/>
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112(1), 155-159. doi:10.1037/0033-2909.112.1.155
- Collison, G., Elbaum, B., Haavind, S., & Tinker, R. (2000). *Facilitating online learning: Effective strategies for moderators*. Madison, WI: Atwood.
- Combe, C. (2012). Developing and implementing an online doctoral programme. *International Journal of Educational Management*, 19(2), 118-127. doi:10.1108/09513540510582417
- Davidhizar, R. E. (1988). Mentoring in doctoral education. *Journal of Advanced Nursing*, 13, 775-781. doi:10.1111/j.1365-2648.1988.tb00569.x

- Erwee, R., Albion, P., van Rensburg, H., & Malan, R. (2011). Dealing with doctoral students: Tips from the trenches. *Southern African Journal of Higher Education*, 25(5), 889-901. Retrieved from <http://eric.ed.gov/?id=EJ967776>
- Esgi, N. (2013). Comparison of effects of e-learning types designed according to the expository teaching method on student opinions. *International Journal of Academic Research Part B*, 5(5), 443-450. doi:10.7813/2075-4124.2013/5-5/B.69
- Ewing, H., Mathieson, K., Alexander, J. L., & Leafman, J. (2012). Enhancing the acquisition of research skills in online doctoral programs: The Ewing model. *MERLOT Journal of Online Learning and Teaching*, 8(1), 34-44. Retrieved from [http://jolt.merlot.org/vol8no1/ewing\\_0312.htm](http://jolt.merlot.org/vol8no1/ewing_0312.htm)
- Finch, J. K., & Fernandez, C. (2012). Mentoring graduate students in teaching: The FCCIC Model. *Teaching Sociology*, 42(1), 69-74. doi:10.1177/0092055X135007781
- Florczak, K. L., Collins, E., & Schmidt, L. (2014). The mentor-mentee relationship: An intricate dance. *Nursing Science Quarterly*, 27(2), 103-107. doi:10.1177/0894318414522660
- Garrison, D. R., & Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet Higher Education*, 2, 87-105. doi:10.1016/S1096-7516(00)00016-6
- Griffiths, M. D., & Miller, H. M. (2005). E-mentoring in schools: A brief review. *Education and Health*, 23, 5-8. Retrieved from <http://sheu.org.uk/content/page/education-and-health-journal>
- Gutierrez, L. M. (2012). Recognizing and valuing our roles as mentors. *Journal of Social Work Education*, 48(1), 1-4. doi:10.5175/JSWE2012.334800001
- Hassan, N., Jani, S. H. M., Som, R. M., Hamid, N. Z. A., & Azizam, N. A. (2015). The relationship between emotional intelligence and teaching effectiveness among lecturers at Universiti Teknologi MARA, Puncak Alam, Malaysia. *International Journal of Social Science and Humanity*, 5(1), 1-5. doi:10.1111/j.1467-8535.2008.00923.x
- Heinze, A., & Heinze, B. (2009). Blended e-learning skeleton of conversation: Improving formative assessment in undergraduate dissertation supervision. *British Journal of Educational Technology*, 40(3), 294-305. doi:10.1111/j.1467-8535.2008.00923.x
- Holley, K. A., & Caldwell, M. L. (2012). The challenges of designing and implementing a doctoral student mentoring program. *Innovative Higher Education*, 37, 243-253. doi:10.1007/s10755-011-9203-y
- Irons, J. G., & Buskist, W. (2008). The scholarships of teaching and pedagogy: Time to abandon the distinction? *Teaching of Psychology*, 35, 353-356. doi:10.1080/00986280802373957
- Knouse, S. B. (2001). Virtual mentors: Mentoring on the Internet. *Journal of Employment Counseling*, 38(4), 162-170. doi:10.1002/j.2161-1920.2001.tb00498.x
- Kuk, L., & Banning, J. H. (2014). A higher education leadership distance Ph.D. program: An assessment using Blocher's Ecological Learning Theory. *Creative Education*, 5, 701-712. doi:10.4236/ce.2014.59082
- Kumar, S., Johnson, M., & Hardemon, T. (2013). Dissertations at a distance: Students' perceptions of online mentoring in a doctoral program. *Journal of Distance Education*, 27(1), 1-11. Retrieved from <http://www.ijede.ca/index.php/jde/article/view/835>
- Lee, K. P. W. (2011). Making a success of a self-directed study: Tackling the dissertation. *British Journal of Midwifery*, 19(3), 195-197. doi:10.12968/bjom.2011.19.3.195
- Mason, M. M. (2012). Motivation, satisfaction, and innate psychological needs. *International Journal of Doctoral Studies*, 7, 259-277. Retrieved from <http://ijds.org/Volume7/IJDSv7p259-277Mason0345.pdf>
- Mueller, S. (2004). Electronic mentoring as an example for the information and communications technology in engineering education. *European Journal of Engineering Education*, 29(1), 53-63. doi:10.1080/0304379032000129304
- Phinney, J. S., Campos, T., Cidhinnia, M., Kallemeyn, P., Delia, M., & Kim, C. (2011). Processes and outcomes of a mentoring program for Latino college freshmen. *Journal of Social Issues*, 67(3), 599-621. doi:10.1111/j.1540-4560.2011.01716.x

- Radda, H. (2012). From theory to practice to experience: Building scholarly learning communities in nontraditional doctoral programs. *InSight: A Journal of Scholarly Teaching*, 7, 50-53. Retrieved from <http://files.eric.ed.gov/fulltext/EJ980170.pdf>
- Salmon, G. (2004). *E-moderating: The key to teaching and learning online* (2nd ed.). London, England, Kogan. doi:10.4324/9780203465424
- Schichtel, M. (2010). Core-competence skills in e-mentoring for medical educators: A conceptual exploration. *Medical Teacher*, 32(7), e248-e262. doi:10.3109/0142159X.2010.489126
- Suhonen, J., & Sutinen, E. (2014). The four pillar model - Analysing the sustainability of online doctoral programmes. *TechTrends*, 58(4), 81-88. doi:10.1007/s11528-014-0772-3

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