e-Sponsor Mentoring: Support for Students in Developmental Education

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Social media… has been found to help students increase social capital… and provide access to academic resources.

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Abstract: *Researchers investigated the use of two mentoring programs for students who were part of a support component of Fundamentals of Conceptual Understanding and Success (FOCUS), a comprehensive intervention grant for students enrolled in developmental mathematics coursework at a large public Texas university. The technology-based mentoring program, titled e-Sponsor Program, was compared to a campus-sponsored mentoring program. The programs differed in terms of mentor-types, mentor training, and use of technology. Results of an end-of-semester survey revealed no statistically significant difference between groups in terms of participants' quality interactions or perceived helpfulness of their e-Sponsor or mentor. The quantitative data confirmed that, regardless of group, more frequent quality interactions resulted in participants perceiving the interactions with mentor or e-Sponsor as very helpful. When participants' perception of helpfulness of the e-Sponsor and mentor was examined in terms of form of communication, the only statistically significant finding was face-to-face interactions. In the qualitative portion of the study, four categories of quality interactions emerged from participants: (a) receiving study and scheduling tips, (b) practicing to interact with professors by practicing with e-Sponsors, (c) receiving helpful advice that could generalize to other courses, and (d) learning to advocate for themselves in academic and practical situation.*

The formal study of academic mentoring has been traced back to the University of Michigan's engineering faculty in 1911 (Crisp & Cruz, 2009). Research has indicated positive outcomes from mentoring between college faculty and various student populations in regard to students' persistence and academic achievement (Coles, 2011). However, researchers identified there was a need for a more consistent definition of mentoring (Coles, 2011; Crisp & Cruz, 2009) and more empirical studies inclusive of women and minorities (Budge, 2006).

Institutions have implemented mentoring programs for various at-risk student populations. As Vivian (2005) stated, at-risk students "are often first-generation college students, may be educationally underprepared, have greater financial constraints, and have less social and familial support than other students" (p. 338). She suggested mentors be proactive in helping students determine their potential and ability for college. One such program was the Puente Project (n.d.), a California-based program that supported students of color with a mission to "increase the number of educationally underrepresented students who enroll in four-year colleges and universities, earn degrees, and return to their communities as leaders and mentors to future generations" (para. 1). Laden (1999) described the Puente Project, as a "Celebratory Socialization Model" (p. 55) that used mentors from the professional community along with other interventions. She reported that students demonstrated higher rates of retention and transfer rates to four-year institutions than non-Puente students. Another example was Mesa Community College's Connect for Success Program for students enrolled in developmental education courses. Felton and Moore (2013) reported increases in successful completion versus withdrawal rates of student participants in this program using faculty/staff mentors versus the withdrawal rates of nonparticipants. The participants attributed their success, in part, to the mentoring provided by the program.

Postsecondary peer-mentoring programs (students serving as mentors to other students) were also common, especially those supporting first-generation and minority populations such as those funded by TRiO grants (e.g., Edmonds Community College TRiO Student Support Services, 2013; Westfield State University TRiO Mentor Program, 2011). These programs incorporated a strong peer-mentoring component. Researchers have reported positive peer-mentoring outcomes such as facilitating the integration of students into college or university culture, environment, and social life as well as obtainment of educational goals (e.g., Colvin & Ashman, 2010; Glaser, Hall, & Halperin, 2006; Hall, 2007; Nora & Crisp, 2007-2008).

Peer mentor training has been found to increase the effectiveness of peer mentor programs (Coles, 2011; Sipe, 1996). The College Reading and Learning Association (CRLA) created support for postsecondary peer-mentoring with the International Mentor Training Program

Certification (IMTPC) in 1998 with three program certification levels: Certified, Advanced, and Master (CRLA, 2013). Most recently, the *Handbook for Training Peer Tutors and Mentors* (Agee & Hodges, 2012) with 111 modules by 106 authors was published by CRLA to support postsecondary mentor training.

Technology-mediated mentoring has been used to foster communication in a growing number of mentoring programs, but rigorous empirical research on the effectiveness of such programs is sparse (Ensher, Heun, & Blanchard, 2003). For example, a study that compared electronic mentoring to face-to-face mentoring found protégés in the face-to-face mentoring received more psychosocial and career support. It was also found that male mentors condensed their statements to a significantly greater degree in the electronic chat condition relative to the face-to-face condition when compared to female mentors (Smith-Jentsch, Scielzo, Yarbrough, & Rosopa, 2008). However, web-based training to facilitate better e-mentoring for a large scale undergraduate mentoring program exhibited improved outcomes (Kasprisin, Single, Single, & Muller, 2003). Also, social media such as Twitter, Facebook, and MySpace has been found to help students increase social capital in general and provide access to academic resources among other benefits (McEwan, 2011). The present study addresses a critical gap in the research by investigating the use of technology as the primary mode of communication with mentoring for students enrolled in developmental education.

Two Mentoring Programs

The study was a support component of Fundamentals of Conceptual Understanding and Success (FOCUS), a comprehensive intervention for students enrolled in developmental coursework at a large Texas emerging research university with a diverse population of 36,000 students (42% ethnic minorities). The institution was deemed an official Hispanic Serving Institution by the U.S. Department of Education in 2011. One of the FOCUS contractual mandates required participants to engage in at least monthly mentoring sessions. The study addressed the following questions:

RQ1: Did the e-Sponsors have increased quality interactions with protégés in comparison to the campus-sponsored mentor/mentee relationship?

RQ2: After participating in the e-Sponsor program, how did the protégé students view the helpfulness of their e-Sponsors in comparison to the students with campus mentors?

The e-Sponsor Program

The e-Sponsor program was a technology-based mentoring program designed especially for FOCUS students (protégés) enrolled in developmental mathematics in Spring 2012. The program's mission was to provide systematic and comprehensive semester-long mentoring support using at least twice-per-month contact with the protégé. The e-Sponsors were solicited via email to participate from a diverse pool that consisted of faculty members, graduate students in the College of Education, campus advisors, and learning specialists from the learning center. The e-Sponsor coordinator and assistant were responsible for matching the e-Sponsors (mentors) to protégés (students) using an information sheet filled out by both the e-Sponsors and protégés. The program strongly encouraged the use of electronic interactions (email, texting, social media, use of telephones, etc.) as the primary communication between protégés and e-Sponsors. However, the program did not limit communication to only technology.

Once selected, e-Sponsors were provided with support and training that involved a mandatory 1.5-hour training orientation that focused on the

> *e-Sponsors not attending had to schedule an individual training session.*

e-Sponsor's role, the use of goals for mentoring, and the appropriate techniques for effective electronic communication. Those e-Sponsors not attending had to schedule an individual training session with the coordinator. The e-Sponsors were also provided with three electronic support modules sent via email throughout the semester for ongoing training. Additional support resources were posted on a web-based support site, using the institutions' course management system (modules and resources available from the authors by request).

Campus Mentoring Program

The Division of Student Affairs established the campus-mentoring program in the early 1990s to support first- and second-year students. The program's mission was to increase freshmen and transfer students' retention by assigning these students (mentees) to a volunteer faculty member, staff, or peer and encouraging twice a month contact. Face-to-face interactions were the primary mode of contact; however, electronic communication was allowed (Parker, 2011). Mentors were solicited from the campus community through many of the campus organizations with student volunteers targeted to serve as mentors. A student affairs specialist was responsible for marketing the program during orientation, obtaining mentor volunteers, and matching the mentors to the mentees though information sheets completed by both mentors and mentees (T. Parker, personal communication, January 17, 2014).

The student affairs specialist provided a voluntary face-to-face mentor training session lasting about an hour; this training was offered several times during the beginning of the semester. Training topics covered a definition of mentoring, mentor and mentee responsibilities, benefits for mentors and mentees, mentoring tips, and campus resources (training resources available from the authors). Beyond this initial training, no other on-going training was provided for the campus-mentoring program (T. Parker, personal communication, January 17, 2014).

Methodology

The quantitative portion of this study compared FOCUS student perceptions of the e-Sponsor mentoring program (treatment group), based on end-of-semester survey responses, to a similar group of FOCUS students supported by the campus-sponsored mentoring program (control group). Because six tests of difference were used to address the research questions and other expected findings, a Sidak correction was used to adjust the significance level to 0.0090 to account for the increased possibility of both type-I and type-II error. Therefore, due to a small sample size, effect sizes were reported and interpreted. In addition, the researchers conducted qualitative interviews to further investigate the effects of the e-Sponsor mentor program from the protégés' perspective.

Participants

All students in the developmental mathematics FOCUS sections were selected from applications. To be selected students had to agree to participate in mandatory mentoring, tutoring, supplemental review sessions, and counseling workshops. A small stipend was given to each student completing the mandatory support components and for staying enrolled in the course.

At the beginning of the Spring 2012 semester, students enrolled in two of the FOCUS developmental mathematics class sections were selected to participate in the study ($N=60$) with 31 students randomly assigned to an e-Sponsor mentoring (treatment group) and 29 randomly assigned to the campus-mentor program (control group). Of these 60 students, 50% were female and 50% were male. In regard to ethnicity, 40% ($n=24$) were White, non-Hispanic; 33% ($n=20$) were Hispanic; 13% ($n=8$) were Black, non-Hispanic; 5% ($n=3$) were Asian/Pacific Islander/Native Hawaiian; and 8% ($n=5$) unknown. Participants' ages ranged from 18-52 with a mean age of 26.7. Of these initial participants, 25 members of the treatment group and 13 members of the control group completed an end of semester survey for a total of 38 study participants. Attrition of the sample size was a result of some

students selecting not to participate in the survey while others had dropped from the program.

Instruments

The short 5-question survey, piloted the previous semester and then minimally revised, incorporated 3- and 4-point ordinal scale questions to ascertain participants' experiences and one multiple response question concerning the types of media used when interacting with the participant's mentor. The multiple response categories were treated as individual dichotomous data. The other data collected was ordinal in nature and treated with nonparametric tests (survey available from the authors by request).

As a follow-up to the survey, 6 students who had participated in the treatment group (protégés) were solicited to take part in a 1-hour long interview to ascertain additional insights from their e-Sponsor experience. A 23-question interview protocol was developed and divided into four categories: (a) previous experiences with mentoring, (b) primary method of communication used with their e-Sponsor, (c) nature of the e-Sponsor relationship as it developed over the semester, and (d) self-awareness and reflection of their e-Sponsor experience (interview questions available from the authors by request).

A research team of four trained graduate students conducted the qualitative interviews over a 3-day period during the last week of the semester. The research team taped all sessions with participants' permission. After the interviews, the data were processed for transcription. The data were coded thematically by a team of one faculty member and one doctoral student in the Graduate Program in Developmental Education.

The results from the end-of-semester survey are presented first followed by the interview. The combined effects of the survey and interview results are described in the discussion section.

Findings: Survey Interpretation

In response to RQ1, there was no statistically significant difference (n=38, χ^2=.570; p=.027, M_c=1.92, M_t=2.60, σ_c=1.038, σ_t=1.000, Cohen's d=-0.667) between the control and treatment groups in terms of the amount of participants' quality interactions (n=38, M=2.37, σ=1.051, see Table 1). However, participants in the control group reported very few quality interactions compared with participants in the treatment group with the exception of two participants.

Helpfulness of e-Sponsors/Mentors

In response to RQ2, there was no statistically significant difference (χ^2=.486; p = .044, M_c=1.69, M_t=2.16, σ_c=0.630, σ_t=0.800, Cohen's d=-0.653) between the control and treatment group in terms of participants' perceived helpfulness (ph) of their mentor or e-Sponsor (n=38, M=2.00, σ=0.771, see Table 2). However, only one participant from the control group (8%) found his mentor to be very helpful as opposed to 10 participants from the treatment group (40%).

Other Findings

Regardless of group (control or treatment), the data confirmed that more quality interactions (qi) resulted in participants perceiving the interactions with mentor or e-Sponsor as very helpful (ph) (n=38, χ^2=16.253, df=6, p=0.012, M_{qi}=2.37, M_{ph}=2.00, σ_{qi}=1.051, σ_{ph}=0.771, Cohen's d=0.401). However, quality interactions did not seem to be affected by any particular form of communication as no statistical significant differences were discovered when investigated.

Interestingly, when participants' perception of helpfulness (ph) of the e-Sponsor and mentor was examined in terms of form of communication, the only statistically significant finding was related to face-to-face (ff) interactions (n=38, χ^2=9.689, df=3, p=0.008, M_{ph}=2.00, M_{ff}=0.45, σ_{ph}=0.771, σ_{ff}=.504, Cohen's d= 2.380). Participants in both groups indicated that face-face communication was helpful. Because the effect size was very large, this finding should be considered substantively important. In other words, regardless of the initial focus of the mentoring relationship, face-to-face interactions are perceived as the most helpful.

Qualitative Results

Of the six participants in the interviews, all had experiences with e-Sponsors in the FOCUS project but three previously had mentors external to the university mentoring program and three reported having no prior mentoring experiences. The qualitative interview data, therefore, addressed the FOCUS students' perceptions of the quality of interactions and the quality of the relationships between the e-Sponsor and the protégé. The interview data were robust in regard to the student's satisfaction with their relationships with the e-Sponsors. In particular, the protégés spoke at length about the ways in which their e-Sponsors helped them navigate the challenges they faced as students at the university. Working the data–by

Table 1
Quality Interactions

Number	Control Group (Students with Mentors)	Treatment Group (Protégés with e-Sponsors)
No real quality interactions	5 (71.4%)	2 (28.7%)
One or two quality interactions	6 (31.6%)	13 (68.4%)
Three or four quality interactions	0 (0.0%)	3 (100.0%)
Five or more quality interactions	2 (22.2%)	7 (78.8%)
TOTAL	13 (34.0%)	25 (66.0%)

Note. Gamma Chi-Square Ordinal Data indicated no significant difference with mentor/e-Sponsor involvement with students (n=38, χ^2=.570; p=.027) over multiple interactions between the e-Sponsors and their protégés.

Table 2
Perceived Helpfulness of e-Sponsor/Mentor

Level	Control Group (Mentor)	Treatment Group (e-Sponsors)
Not Helpful	5 (45.5%)	6 (54.5%)
Helpful	7 (43.8%)	9 (56.2%)
Very Helpful	1 (9.1%)	10 (90.9%)
TOTAL	13 (34.0%)	25 (66.0%)

Note. The Gamma Chi Square Ordinal data indicated no significant difference in how students viewed their mentor/e-Sponsor as helpful (n=38, χ^2=.486; p = .044).

reviewing and coding–allowed generalization of several types of quality interactions. Based on the interview data, the e-Sponsors served as study and scheduling strategy advisors, advocates (both for the student and in teaching the students to self-advocate), goal setting coaches, meeting-with-professors coaches, and providers of advice that generalized to other classes and work. The interviewees specifically spoke to the ways in which they were able to generalize advice from e-Sponsors to other contexts outside the FOCUS program.

Quality Interactions Between Protégé and e-Sponsor

Did the protégés experience high quality interactions with their e-Sponsors? The first task in answering RQ1 was to define the essence of a "quality interaction." Because the term was not defined prior to data collection, it was necessary to determine the definition during the data analysis phase; this is a reasonable strategy in qualitative research (Spindler & Spindler, 1987). The two most efficient means of assigning meaning were to (a) review the data for positive adjectives and adverbs describing interactions, and (b) scan for examples of positive or useful interactions that produced results for the students.

Using the modifier language and examples from the interviews, the data pointed to quality interactions for all protégés. Protégés referred to their e-Sponsors as "helpful," "understanding," "a good listener," "encouraging," and a "good role model." Each of the six interviewees had a distinct type of relationship with his or her e-Sponsor.

Scanning the interview transcriptions for examples of positive or useful interactions that

Participants' perception of helpfulness…was examined in terms of form of communication.

yielded results for the students produced a robust data set. The data revealed quality interactions as described in the students' own words in the following sections.

Study and scheduling strategies. Students described specific study strategies recommended by their e-Sponsors that helped them manage their time and effort. Most of the students who commented on study strategies they learned focused on more traditional strategies: "definitely learning

to use the study habits that I had and was able to make study question cards or, um, flash cards highlighting things that are important. Reading back over the chapter and trying to use my time more wisely."

At least one protégé reported using a combination of time management and study strategies to be successful in coursework: "I would say (my e-Sponsor taught me about) learning to use my time wisely in studying and how to, uh, he gave me a sheet that had seven study habits to apply… like using the questions that the end of the chapter may have."

Students also spoke about getting helpful advice from e-Sponsors about long-term schedule building that allowed them to gain control over planning their semesters. One student in particular had an e-Sponsor who was also an academic advisor: "(She) knew my degree plan, so she knew what I was gonna be dealing with coming up. And she gave me ideas, you know, how to schedule my semesters that were left here and how to keep my course load from being too heavy."

Advocate and self-advocate. Because the e-Sponsors were chosen for their knowledge of the university policies and procedures, they were either able to advocate for their protégés or teach their protégés to self-advocate. In a couple of cases, the e-Sponsors intervened for the students: "She

(the e-Sponsor) works at SLAC (Student Learning Assistance Center)…and she would advocate for me…introducing me to other (SLAC) staff members." The student went on to describe how the mentor intervened with the residence hall staff to arrange housing when a spring break trip the student had planned did not work out, and the student had no place to stay over the break.

Likewise, students reported that e-Sponsors helped by setting up appointments: "He (the e-Sponsor) called my advisor and set up an appointment for me….set up counseling for me." Although the e-Sponsor's action of setting appointments for the protégé might seem to take unnecessary ownership of the student's responsibilities, in this instance the student seemed genuinely grateful for the intervention.

One e-Sponsor successfully coached the student to advocate for himself:

Um, there was an incident that I had at school. One of the teachers made a mistake in putting my test grade in – one of my grades from last semester. I was, like, "I don't know what to do." So he said "Go back to your advisor, talk with her and see if y'all could try to talk with the department to get your grade where it should be." I was like, "Okay." So I talked to my advisor and that worked.

Goal setting. The e-Sponsors had specific instructions to help their protégés learn to become more skilled at setting academic and personal goals during their FOCUS program participation. Several of the e-Sponsors helped with articulating goals and breaking them into manageable chunks.

One student articulated the goal setting help as: "When I went in, I had set goals for myself, and I explained what my goals were, and he just helped me find the detail for my goals." Although there seemed to be general agreement among the protégés that they understood the value of goal setting, most spoke of the benefit of talking through the specifics of achieving the goals.

A second student described the e-Sponsor's help in focusing on small objectives:

He (the e-Sponsor) kind of helped clarify, like in the first email that we had I was like, "You know this will be my last semester here, see if I can get on the 4.0 deans' list one more time." And he goes "Alright that's a good goal, but maybe, you know, break it down and go by test." 'Cause the test, you know, were pretty much given in quarters and half semesters depending on which classes you're in. He goes, "You know, just kind of concentrate on one at a time."

Another student recounted a unique goal setting technique that focused the student beyond the traditional strategies of chunking: "She (the

e-Sponsor) actually provided me with a little card which [sic], like, three academic goals for the year and then another card which was, like, three social goals for the year. It was pretty cool."

Advice generalized to other classes and to work. Several of the protégés claimed to be successful in generalizing advice from their e-Sponsors to useful practices in other classes and at work. The data supporting this finding was robust in the interviews.

Speaking specifically to generalizing e-Sponsor advice from the FOCUS mathematics class to other classes, one student stated: "Oh, uh… whenever he gave me the advice about helping my grades out, I carried that over to my CJ (criminal justice) class and my, um, political science class and, um, and that's how I ended greatly in those classes."

A prenursing student gained valuable and generalizable career information from her e-Sponsor relationship, especially as it related to presenting a professional demeanor: "…actually, I think it was

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A second student was able to apply what he learned from his e-Sponsor about listening to his job.

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successful because he, uh, gave me some good, helpful tips for when I go into my profession as a nurse with how being a business woman and being in the professional field, you know, this is how you're supposed to dress…to walk in and do an interview."

A second student was able to apply what he learned from his e-Sponsor about listening to his job:

I carried over the e-Sponsor experience to my job. I'm a front end manager at XX, and, well I have to listen to cashiers' personal life. Like I had a cashier come in, she had a boyfriend (who) beat her, and the old me would have been like, "That sucks, now get on the register." I was like "Alright, are you hurt in any way?" or something like that.

The student was able to see empathetic listening modeled by the e-Sponsor and apply those skills to the workplace.

Student Perceptions of the e-Sponsor Relationship

All six students articulated variations on the success of the personal relationship they formed with their e-Sponsors. One student noted the benefit of having someone to talk with: "Oh, yeah, it was

definitely successful; having someone else to talk to about just class work is always good." Another pointed to the level of respect she and the e-Sponsor had for one another: "I got along with her and she got along with me and we were always respectful to each other. So, umm, so I would say it was successful." "The relationship with my e-Sponsor was definitely successful…I would call her my friend… we bonded pretty well." "I think it was pretty successful, and we are going to continue to meet on a weekly basis until I graduate." "So he was very helpful at just checking just to see how I was cause he understands especially coming back into the spring, it gets a little hectic."

Several students made a point of telling the interviewer that they grew personally as a result of the experience: "I would say it (e-Sponsor interactions) helped me be more responsible." A second said: "He had me do like a, uh, I guess a reflection (to) kind of (help me) learn a little about me."

Discussion

The study provides interesting perspectives on postsecondary mentoring. Although the researchers found no significant difference from the analysis of survey responses regarding protégés and mentees' quality interactions (RQ1) or their perceived helpfulness (RQ2), in regard to the two groups, the quantitative data did reveal a surprising result—that protégés sought face-to-face communications with their e-Sponsors. This was unexpected because many of today's postsecondary students born since the 1980s have been immersed with technology throughout their educational experiences. Although protégés appreciated the immediacy and spontaneity of using electronic communication (email, texts, and cell phone calls), the use of multiple forms of communication most likely allowed the e-Sponsors and their protégés more opportunities to reduce barriers and to establish rapport, especially early in the relationship.

So why did these students seek face-to-face interactions? Findings from the qualitative portion of the study may help answer this question as it relates to RQ1. The qualitative interviews clarified what protégés viewed as quality interactions. Four categories emerged: (a) sharing study and scheduling tips, (b) practicing to interact with professors by practicing with e-Sponsors, (c) receiving helpful advice that could generalize to other courses, and (d) learning to advocate for themselves in academic and practical situation. Such categories lend themselves to more advanced mentoring skills; and to some degree, it could be argued that more in-depth help could be provided through face-to-face interactions. For example, allowing students to role-play possible interactions with their professors is more easily accomplished face-to-face.

Implications for Practice

Regardless of group, the data confirmed that more quality interactions resulted in participants perceiving the interactions with mentor or e-Sponsor as very helpful. The researchers interpret this finding as an important design aspect as learning support professionals plan programs for academically at-risk students. Quality mentoring should occur regularly and throughout one semester or longer. In addition, the positive effects of mentoring also seem connected to selecting knowledgeable mentors along with offering ongoing training and support.

Conclusion

This study adds to the limited empirical literature currently published on mentor programs implemented specifically to support students enrolled in developmental coursework. The study adds insights to assist educators on selecting to use a technology versus face-to-face protocol for this student population. Nationally, getting students into college and retaining them is a growing priority. The results from this study apply to the latter: a persistent and systematic mentoring program with qualified and well-trained mentors tends to improve satisfaction and study skills while helping students to develop their sense of belonging and being situated within a broader academic community of lifelong learners. Students can benefit from having an ongoing relationship with faculty members, professional staff, and graduate students who understand the institution where the students are enrolled and who can provide entre into the academic and personal support programs available.

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