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## Improved mentor satisfaction: emphasising protégé training for adult-age mentoring dyads

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Mentoring and e-mentoring programmes have traditionally focused on training mentors rather than protégés. In this research study, we examine the effects of mandated training for protégés on mentor outcomes within a large-scale e-mentoring programme, MentorNet. The programme paired college students (protégés) at various US colleges and universities with professionals (mentors) from a number of US-based companies. The results suggest that a paradigm change from mentor training to protégé training for adult protégés is beneficial. In this randomised experiment, 200 protégés were assigned to a mandated e-training (experimental) group, and another 200 protégés were assigned to a voluntary e-training (control) group. The mentors who were paired with the protégés in the experimental group were more engaged in the programme, more satisfied with their experience, and held their protégés in higher esteem. Rather than emphasising mentor training, the findings suggest that protégé training may be more appropriate for mentoring dyads.

**Keywords:** e-mentoring; telementoring; training; adult-age mentoring dyads; mentor satisfaction; protégé training; mandatory protégé training; randomized experimental design

E-mentoring is gradually becoming more popular, largely because of its ability to overcome obstacles associated with traditional mentoring (Bierema & Merriam, 2002; Hamilton & Scandura, 2002). Two of the major constraints of face-to-face mentoring are time and geography (Ensher, de Janasz, & Heun, 2006; Noe, 1988) – the mentors and protégés must meet in person on a regular basis. While businesses, schools, universities, and community organisations have developed mentoring programmes, competing work, school, and family commitments often make it difficult for participants to engage in and sustain mentoring programmes. In organisations where the mentor and protégé are both employed, factors such as position differences and departmental affiliations may also affect the ability of individuals to develop effective face-to-face mentoring programmes (Boyle & Boice, 1998; Ragins & Cotton, 1999; Scandura & Ragins, 1993). In addition, increased costs are required for the use of facilities, printed materials, and transportation.

Based on the impediments associated with face-to-face mentoring and the increasing availability of electronic communications, programme developers have considered the benefits of electronic mentoring, also known as e-mentoring. Such large-scale programmes have focused on assisting public school students with their science projects, supporting women college students in engineering and science fields, and linking school students with professionals in

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technology fields (Bennett, Tsikalas, Hupert, Meade, & Honey, 1998; Harris, Rotenberg, & O'Bryan, 1997; Kealy & Mullen, 2003; O'Neill, Wagner, & Gomez, 1996; Single & Single, 2005). One benefit of e-mentoring is that it allows mentors and protégés to exchange email messages in an asynchronous manner. Protégés and mentors often have different schedules, but e-mentoring allows them to stay in contact and at their convenience. For instance, professionals serving as mentors can respond during work or early evening hours and can correspond while travelling. Likewise, protégés can respond when convenient, as in the case of the college students in this study, who often responded in the late evening or early morning.

E-mentoring has expanded greatly because of increased access to technology. College campuses in the US provide students with ready access to email and the Internet through wired dorms and classrooms or wireless connections (National Science Foundation, 2005). Work-based use of the Internet has also expanded, as has home use. American society has been transformed through the technological advances leading to more rapid communication and access to information through use of email and the Internet using personal computers, hand-held devices, and cellular phones.

### **Mentors as assets to programmes**

Large-scale e-mentoring programmes were developed during the 1990s to provide educational and pre-professional support for K–12 and college students (Single & Single, 2005). These programmes provide opportunities for many more protégés but likewise must recruit a large number of volunteer mentors. A major concern for this type of programme that must be addressed is the recruitment and retention of mentors, as well as sustaining the mentors' commitment to the programme (O'Neill & Harris, 2004–2005; Single & Muller, 2001).

A chief impetus for the development of e-mentoring programmes is the provision of social support for educational or pre-professional purposes. Individuals who are desirable as mentors are generally professionals in demanding careers, such as university faculty or graduate students in business, science, technology, engineering, and mathematics. Work and travel commitments often preclude professionals' ability to volunteer in more traditional ways, such as face-to-face mentoring. Prospective mentors with ready access to the Internet and facile in its use can engage in electronic mentoring programmes. Volunteers who serve in a similar role as mentors report that they are more likely to volunteer in the future if disruption of their work schedule is minimised and intrinsic rewards are maximised (Single, Jaffe, & Schwartz, 1999).

In comparison to face-to-face mentoring programmes, e-mentoring minimally disrupts work, if at all, and also eliminates 'windshield time'; that is, the time spent travelling to and from a mentoring meeting (National Mentoring Center, 2002). In response to being asked the reason, he (or she) participated in a particular large-scale e-mentoring programme, one mentor responded, 'Being able to give something back while working remotely. I travel frequently for my job. It makes it difficult to volunteer. This is a unique opportunity to do something I really believe in...encouraging women in the sciences and engineering,' (Ithaca Evaluation Group, 1999, p. 20). With such benefits, professionals would more willing to participate in an e-mentoring programme compared with a face-to-face mentoring programme.

As such, programme developers have taken into account the needs and time constraints of volunteer mentors, as well as the time commitment needed to develop and sustain an effective e-mentoring relationship. MentorNet, a large-scale e-mentoring programme that supports diversity in science, technology, engineering, and mathematics (STEM), measured this question. In an article on this programme, Single, Muller, Cunningham, Single, and Carlsen (2005) reported that the mentoring pairs developed satisfying and useful relationships with a time investment by the mentors and protégés of merely 20 minutes per week; this statistic was determined by

averaging three years of data from more than 3,000 respondents. With this seemingly modest investment of time, more than 90% of the participants would recommend participation in the programme to a friend or colleague.

### **Benefits mentors derive from mentoring and e-mentoring**

Although there is often no financial reward, a review of the literature reveals that mentoring yields multiple benefits for mentors (Ehrich, Hansford, & Tennent, 2004). For example, it provides mentors with the opportunity to reappraise their current careers, often in the middle years (Boyle & Boice, 1998; Brainard & Carlin, 1998). Providing advice and insights to protégés at the beginning of their career also allows mentors to review their early careers (Chao, 1988; Ragins & Scandura, 1997). This reflection and recognition of their accomplishments provides a perspective on what the mentors have contributed as professionals and aids in defining their next career stages.

In addition, it is beneficial for mentors to interact with and share the enthusiasm of protégés who are new to the profession. While interacting with their protégés, the mentors reported that they were able to sense the newcomers' excitement (Single, Cunningham, Single, Neptôn, & Kirk, 2002). The mentor-protégé relationship offers the opportunity for mentors to redirect energy and share their own developing wisdom. E-mentoring programs may also provide other avenues by which mentors can support not only protégés but each other (Single, Muller, Cunningham, & Single, 2000).

Mentors are a valuable commodity. When new programmes are designed and implemented, it is essential to recruit mentors. This can prove a time-consuming and resource-intensive task. Programme developers must identify the characteristics of successful mentors (depending on the goals of the programme) and then enlist individuals who have both the desirable attributes and willingness to engage in this type of relationship (Harris, O'Bryan, & Rotenberg, 1996; O'Neill & Harris, 2000). Each time new protégés are added to the programme, or when mentors leave for personal reasons or dissatisfaction with the programme, additional mentors must be solicited.

Current mentors who are satisfied with their experiences would be more likely to continue participating in the mentoring programme. In addition, satisfied mentors could have easy access to recruiting their colleagues as mentors. The less time required to recruit new mentors and the more that satisfied mentors can assist with recruiting, the more time the programme developer and staff have to provide structure, support, and facilitation for the participants.

### **Programmatic features to enhance benefits**

Similar to traditional face-to-face mentoring programmes, e-mentoring programmes must be designed for specific purposes and groups. Although tempting, programme designers should not use a 'cookie-cutter' approach, nor should they assume programme elements that were effective in face-to-face settings would be directly applicable and effective in the electronic format. Basic elements need to be present, including training, coaching, and group e-mentoring, but every aspect of the mentoring process needs to be re-examined in light of electronic communications (Mullen, 2002). The development and implementation of each component will vary with the population and purpose that the programme is serving (Kasprisin & Single, 2005).

Successful e-mentoring programmes should address the characteristics, needs, and expectations of protégés and mentors in a number of areas (Bennett, Hupert, Tsikalas, Meade, & Honey, 1998; Harris & Figg, 2000). For example, programme developers need to determine unique characteristics of the participants, their access to and familiarity with technology (Friedman, Zibit, & Coote, 2004; National Mentoring Center, 2002), and the programme content of interest to the

participants (Harris & Jones, 1999). Finally, in the programme planning process, designers need to establish and match expectations of protégés and mentors in terms of frequency, modes of communications, and outcomes (O'Neill & Harris, 2000). Having this information will enable programme developers to determine the technology, training, and coaching needs of participants and help them to establish communication patterns and programme goals.

### **Training for e-mentoring programmes**

Training has become a very popular feature of face-to-face mentoring programmes. Commonly, programme developers provide a day-long training session for mentors. With the advent of e-mentoring, an early concern was how to deliver training electronically, as email does not provide an interpersonal context. Without the advantage of physical cues, there is a greater chance for misunderstandings, for 'anonymous' negative interactions, and for recipients to avoid responding to email (Sproull & Kiesler, 1992).

The developers of the earliest e-mentoring programmes experimented with various media and training formats. One programme had facilitated electronic discussion lists (Bennett, Hupert, Tsikalas, Meade, & Honey, 1998) in which groups of mentors were paired with a programme staff member who served as the facilitator. The facilitator provided case studies to the group and asked them to respond. In another programme (Harris & Figg, 2000) a facilitator, again a programme staff member, was assigned to each e-mentoring pair and assisted the pair while the mentor and protégé established a relationship. These two examples of e-training were used in programmes that paired school-aged students with adult mentors. As a result, the e-training either focused solely on the mentors or the mentor-protégé dyad.

Another e-training format featured case-study scenarios at a website that allowed participants to engage with the content on their own time. These interactive web-based tutorials allowed for scalability, in that more participants could work through the e-training tutorials at their leisure. Additionally, the tutorials were customised based on the various development and information needs of the different subpopulations (Single & Muller, 2001). In this programme, college protégés were paired with mentors in industry. Based on the target protégé population (adults), the programme designers also experimented with emphasising protégé training over mentor training.

To determine the efficacy of web-based protégé training, in one study (Kasprisin, Single, Single, & Muller, 2003), a group of potential protégés were randomly assigned to an experimental group, where completing the training was mandatory. An equal number of potential protégés were assigned to a control group, where completing the training was optional. The protégés in the experimental group exchanged, on average, two or more additional emails per month than the protégés in the control group. This additional interaction was positively correlated with increased protégé satisfaction and deepened value associated with programme participation.

The next stage of the (Kasprisin et al., 2003) study was to determine how mandating protégé training influenced the experiences of the mentors, which we report on herein. The primary goal of this phase was to determine the influence of protégé training on the mentors. Outcomes experienced by mentors matched with protégés in the mandated training group were compared with mentors of protégés in the control group. The rationale for this strategy was to maximise the time and experiences of busy professionals who are volunteering as mentors by requiring that the adult protégés engage in additional activities rather than having the mentors engage in training.

This study was motivated by the three research hypotheses (i.e., statistical alternative hypotheses) that follow. Accepting the null hypothesis regarding any of the three research

hypotheses would refer to either (1) lower ratings from the mentors assigned to the protégés in the experimental group or (2) no difference between the mentor groups. As such, these research hypotheses reflect the fact that if mentors assigned to the protégés in the experimental group obtain equal or lower ratings compared with mentors assigned to the protégés in the control group, we arrive at the same conclusion, namely the lack of justification for the use of on-line training tutorials for the protégés.

- Hypothesis 1: Overall involvement will be higher for mentors in a formalised e-mentoring programme whose protégés were required to complete a training tutorial compared with those mentors whose protégés were not required to undergo training.
- Hypothesis 2: Overall comfort and satisfaction with the programme will be higher for mentors whose protégés were required to complete a training tutorial compared with those mentors whose protégés were not required to undergo training.
- Hypothesis 3: Overall perceived value will be higher for mentors in a formalised e-mentoring programme whose protégés were required to complete a training tutorial compared with those mentors whose protégés were not required to undergo training.

## Sampling and measurement

### *Selection and randomisation of mentoring participants*

Participants from MentorNet (<http://www.mentornet.net>), which primarily paired women college students in STEM fields with mentors from technical and scientific industries, as well as mentors, signed up for a one-year structured e-mentoring relationship. Training was provided, along with biweekly email coaching and the option to participate in group-based e-mentoring by utilising one of several email discussion lists. Of the 3,347 students who applied for participation in the MentorNet programme, 2,557 were undergraduates. From this population, a stratified random sample of 400 students was chosen. Half of the sample ( $n = 200$ ) consisted of 1st- and 2nd-year students. The other half ( $n = 200$ ) were juniors, seniors, and 5th-year seniors (5th-year seniors are more common in engineering and science fields).

Using this stratified sample, the 400 participants were randomly assigned to one of two conditions. Half were placed in the control group in which completing the e-training tutorials was optional, and the remaining half were assigned to the experimental group in which completing the e-training was mandatory. In the mandatory group, students were matched with a mentor only after they had completed the tutorial. For those who did not complete the tutorials, multiple attempts were made to contact the students and, as a last resort, they were not matched. The mentors were then placed back in the pool of mentors to be matched with different students.

To avoid introducing bias due to discrepancies in time, students in the control group were not matched until their counterparts in the experimental group were also matched. In the instances in which a student in the experimental group did not complete the tutorial after repeated follow-up messages (and therefore was not matched), the counterpart in the control group was then matched. Each college student was paired with a professional to form an e-mentoring dyad.

### *Evaluation of mentoring programme*

The expected length of the e-mentoring relationship was one academic year. Near the end of this period, both mentors and protégés were asked to complete an evaluation of the programme via an online survey. The survey focused on involvement, comfort and satisfaction, and perceived value of participation in the e-mentoring programme (items associated with these three constructs are

Table 1. Items included in the year-end survey presented to the mentors.

| Survey items   |
|--|
| <i>Involvement</i>   |
| How often did you send email to your protégé? ___ times a month                      |
| How often did you receive e-mail from your protégé? ___ times a month                |
| How much time did you spend each week writing and reading emails? ___ minutes a week |
| <i>Satisfaction (Rated from 1 = Not at all to 5 = Excellent)</i>                     |
| How comfortable have you been asking your protégé questions?                         |
| How comfortable have you been responding to questions from your protégé?             |
| How satisfied have you been with your one-to-one mentoring experience?               |
| How satisfied have you been with your MentorNet experience this year?                |
| Please rate the quality of the match between your protégé and you:                   |
| <i>Value (Rated from 1 = Strongly disagree to 7 = Strongly agree)</i>                |
| In my role as e-mentor, I:   |
| Think highly of my protégé   |
| Serve as a sounding board for my protégé to develop and understand herself/himself   |
| Am reminded of myself as a student   |
| Identify with my protégé   |
| Try to serve as a role model   |

identified in Table 1). The survey also included some items posed solely to students, which are presented more fully in Kasprisin et al. (2003).

### **Definition of outcome measures**

#### *Measures of involvement*

Involvement was defined as the frequency and amount of contact between mentor and protégé. The mentors were asked to report the total minutes spent writing and reading MentorNet email in a typical week, and the number of emails sent and received per month.

#### *Measures of comfort and satisfaction*

Mentors rated their levels of comfort with and satisfaction on several aspects of the e-mentoring relationship: 'How comfortable have you been responding to questions from your protégé?' and 'Please rate how satisfied you have been with your e-mentoring experience this year'. The responses were rated on a 5-point scale, from 1 = Not at all to 5 = Excellent.

#### *Measures of value*

The perceived value of serving as a mentor was assessed based on the mentors' responses regarding their e-mentoring experiences. The survey items addressed issues that reflected whether the individuals perceived they were fulfilling the roles of the mentor. For each question, the mentors were asked to select the level of agreement with the statement. Examples of items included 'In my role as e-mentor, I serve as a sounding board for my protégé to develop and understand herself (himself)' and 'In my role as an e-mentor, I think highly of my protégé'. The scale anchors were from 1 = Strongly disagree to 7 = Strongly agree.

## Results

### Response rates

The relative response rates of the protégés were examined because they influenced the number of mentors in the sample. All 200 protégés in the control group were paired with mentors. Of the 200 protégés in the experimental group, 120 (60%) completed the tutorials. Even after several follow-up reminder messages and phone calls, 80 protégés in the mandatory condition never completed the tutorials and so were not included in the programme. For this reason, there were 120 mentors remaining in the experimental group compared with 200 in the control group. Of the 120 mentors of the protégés in the experimental group, 67 (56%) completed the end-of-year survey. Of the 200 mentors of protégés in the control group, 104 (52%) completed the survey.

### Data analysis

In this study, comparative analyses were conducted to determine whether the mentors of students in the experimental group had significantly better responses for each of the variables. Since either a negative impact or no impact on the mentors' experiences would lead us to recommend against the use of mandated e-training tutorials for the protégés as a means of improving mentor experiences, our research hypotheses were tested against one-sided alternative hypotheses (Bland & Altman, 1994; Keppel, 1991). The results of the *t*-tests, assessing the evidence for more positive ratings for mentors of protégés in the experimental group, are reported in Table 2.

Table 2. Comparative analysis for mentors of protégés in the mandatory e-training (experimental) group and the control group.

| Survey items  | Control Group<br>M (SD) | Experimental Group<br>M (SD) | <i>t</i> | P value<br>(one-tailed) |
|---|-------------------------|------------------------------|----------|-------------------------|
| <i>Involvement</i>  |                         |                              |          |                         |
| How often sent and received email (per month)                         | 3.65 (3.19)             | 4.39 (5.80)                  | -2.14    | 0.02*                   |
| Time spent writing and reading emails (per week)                      | 11.45 (8.13)            | 14.41 (10.96)                | -1.78    | 0.04*                   |
| <i>Satisfaction (Rated from 1 = Not at all to 5 = Excellent)</i>      |                         |                              |          |                         |
| How comfortable asking questions                                      | 4.37 (0.83)             | 4.40 (0.72)                  | -0.31    | 0.38                    |
| How comfortable responding to questions                               | 4.59 (0.72)             | 4.68 (0.53)                  | -0.99    | 0.16                    |
| How satisfied with one-to-one mentoring experience                    | 3.27 (1.07)             | 3.57 (1.17)                  | -1.71    | 0.04*                   |
| How satisfied with MentorNet experience                               | 3.34 (1.14)             | 3.73 (1.08)                  | -2.26    | 0.01**                  |
| Quality of the match  | 3.49 (1.20)             | 3.69 (1.22)                  | -1.06    | 0.14                    |
| <i>Value (Rated from 1 = Strongly disagree to 7 = Strongly agree)</i> |                         |                              |          |                         |
| In my role as e-mentor, I:  |                         |                              |          |                         |
| Think highly of my protégé  | 5.40 (1.46)             | 5.85 (1.24)                  | -2.04    | 0.02*                   |
| Serve as a sounding board   | 4.74 (1.72)             | 4.85 (1.50)                  | -0.44    | 0.33                    |
| Am reminded of myself as a student                                    | 5.12 (1.56)             | 5.45 (1.43)                  | -1.41    | 0.08                    |
| Identify with my protégé  | 4.68 (1.71)             | 5.06 (1.69)                  | -1.42    | 0.08                    |
| Try to serve as a role model  | 5.96 (1.17)             | 6.00 (1.09)                  | -0.22    | 0.41                    |

\*  $p < .05$ ; \*\*  $p < .01$ .

***Mentor involvement***

Hypothesis 1 predicted that overall involvement would increase for the mentors matched with protégés who engaged in the required training tutorial in a formalised e-mentoring programme. This conclusion is supported by the data which demonstrates that the mentors and protégés in the experimental group had increased interactions. As can be seen in Table 2, the mentors paired with protégés in the experimental group spent more time reading and answering email messages each week. This was significant at the  $p < .05$  level. On average, mentors paired with protégés in the experimental group spent 14.41 minutes each week, compared with 11.45 minutes in the control group. In addition, mentors paired with protégés in the experimental group exchanged more emails per month (4.39) than the mentors in the control group (3.65), a significant difference ( $p < .02$ ).

***Comfort and satisfaction***

Hypothesis 2 predicted that overall satisfaction would increase for mentors matched with protégés who engaged in the required training tutorial in a formalised e-mentoring programme. The mentors paired with protégés in the experimental group reported higher satisfaction with their e-mentoring experiences (3.57) than did the mentors in the control group (3.27); this difference was significant at the  $p < .05$  level. Likewise, the mentors paired with protégés in the experimental group reported higher satisfaction with their overall MentorNet experience, which included not only the e-mentoring relationships but also, for instance, website content, discussion group e-lists, and the coaching curriculum. The mentors paired with protégés in the experimental group rated their satisfaction with the MentorNet experiences as 3.73, and the mentors paired with protégés in the control group rated theirs as 3.34, which is significant at the  $p < .01$  level.

Mentors matched with protégés either in the control group or the experimental group did not exhibit any differences in terms of their comfort with asking questions or responding to questions from their protégés. In addition, the two groups did not differ in their ratings of their match, so the difference in satisfaction cannot be attributed to perceptions of matching (see Table 2).

***Mentor perceived value***

The last hypothesis predicted that perceived value would increase for the mentors of protégés who engaged in the required training tutorials in a formalised e-mentoring programme. In response to one of the indicators of value, the mentors paired with the protégés in the experimental group reported that they 'thought highly of their protégés' at a higher rating (5.85) than the mentors matched with the protégés in the control group (5.40). The difference was significant at the  $p < .05$  level.

For each of the other items in this section, the mentors paired with protégés in the experimental group had higher ratings than the control group; however, the differences were not significant between the two groups (see Table 2).

**Discussion**

E-mentoring continues to become more prevalent because of its ability to overcome some of the barriers to mentoring, such as geographical distances and scheduling (Ensher et al., 2006). Structured e-mentoring programmes thus bring about e-mentoring opportunities that otherwise would not exist.



As e-mentoring programmes grow in number and in size, so does the need to recruit and retain volunteers willing to serve as mentors. Based on the numbers served by some large-scale e-mentoring programmes, recruitment efforts can be substantial. For instance, the International Telemotor Program (2007) has provided mentoring opportunities for more than 15,000 students in 26 countries including the United States, Australia, India, and Singapore. When mentors have positive experiences, they are more likely to continue serving as a mentor, which reduces the need to replace them. In addition, these satisfied mentors could serve as ambassadors of the programme, recruiting colleagues to volunteer as mentors. E-mentoring programme developers should therefore consider how to increase the benefits experienced by mentors without increasing their time investment or required tasks.

Requiring the protégés to complete the training tutorials before participating in the mentoring programme is one form of mandatory mentoring (Mullen, 2005). For some individuals, having compulsory assignments is inconsistent with participation in programs that are voluntary and educational. Programme developers need to understand the issues involved with mandatory mentoring. Our results demonstrate improved mentor outcomes for involvement and satisfaction when protégés complete a mandatory online training programme.

Involvement has been identified as an important variable associated with benefits accrued from the programme and satisfaction with it. We measured involvement in various ways, such as through the amount of time spent reading and writing emails that were exchanged by mentors with protégés. The mentors who were matched with protégés mandated to complete the e-training invested more time in their e-mentoring relationships.

Other research has linked the positive relationship between involvement and satisfaction with mentoring and e-mentoring programmes (Boyle & Boice, 1998; Ensher et al., 2006; Ithaca Evaluation Group, 1999). That same finding is supported in this work. The mentors paired with the protégés in the experimental group had greater involvement and reported higher satisfaction. Perhaps the enhanced satisfaction experienced by mentors paired with protégés in the experimental group predisposed them to react more favorably to the regular coaching messages and other features offered by MentorNet.

Along with higher involvement and satisfaction, the mentors paired with protégés in the experimental group also rated their protégés more highly. Specifically, the mentors paired with protégés in the experimental group provided higher ratings to the question 'In my role as e-mentor, I think highly of my protégé'. The increased connections with the protégés could only enhance the knowledge and understanding the e-mentoring pairs had of one another. As the relationships developed and grew, we can only assume that the increased involvement led to the enhanced perceptions of their protégés. Other items, which were less dependent on the relationship, such as the mentor serving as a sounding board or role model, did not differ between the two groups. These items were less dependent on rating the relationship and more on the self-perceptions of the mentors.

This is a very different paradigm than the popularly accepted model of mentor training. Training for mentors (without concomitant protégé training) may be most appropriate for community mentoring or academic mentoring/e-mentoring with school-aged children. In these programs, a mentor-driven model would be most effective, where the mentor sets the goals and activities of the mentoring relationship to meet the developmental needs of the child or young adult. However, with mentoring and e-mentoring for college and graduate students or for professionals, we propose that a protégé-driven model is more appropriate. Requiring additional commitment upfront from the protégés better equips them to successfully manage an e-mentoring relationship and screens out those with questionable dedication to the programme. Perhaps an ideal model would be mandated training for protégés and voluntary training for mentors. In this way, only protégés who have made a commitment to the programme are paired with mentors. In addition, the recruitment

of mentors who are busy professionals may be easier without the requirement of a training programme and the increased satisfaction that accompanied trained protégés.

## Conclusion

The advantages of electronic communication provide both geographic and temporal flexibility that may outweigh the lack of face-to-face contact. The use of email in e-mentoring greatly expands the number of individuals who can participate in mentor-protégé relationships. To encourage over-used professionals to volunteer as mentors, rewards must be evident and time investment must be minimal. Since most mentoring programme coordinators are unable to offer extrinsic rewards (such as financial compensation), the experience should be structured to provide the mentor with as many intrinsic rewards as possible. In this research, we found that mandatory training for protégés enhanced the experiences of their mentors, without increasing the time commitment of the volunteer mentors.

Traditionally, mentoring and e-mentoring programmes have focused on delivering mentor training. A major drawback of this approach is that it requires greater time investment on the part of volunteer mentors. In this study, we examined the effects of mandated training for protégés on mentor outcomes and found that when training was mandated for the protégés the mentors were more engaged in the programme, more satisfied with their experience, and held their protégés in higher esteem. The results of this study suggest that rather than emphasising mentor training, protégé training may be more appropriate for adult age mentoring dyads.

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Carol B. Muller, Ph.D. is the [please check this on the website: Founder and CEO] of MentorNet, *The E-Mentoring Network for Diversity in Engineering and Science*. MentorNet is a 501(c)(3) educational organization headquartered in San José, CA. Its mission is to further the progress of women and others underrepresented in scientific and technical fields through the use of a dynamic, technology-supported mentoring network.

Jamie L. Ferrier is an undergraduate student pursuing a degree in Mathematics with a concentration in Statistics from the University of Vermont.

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