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The Impact of E-Mentoring on Information Technology Professionals

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ABSTRACT

Our research examines the impact of virtual mentoring, or E-mentoring. We surveyed 133 IT professionals as to their experiences as protégés. We asked them about their mentoring relationships, as well as job and career outcomes, and the extent to which they interacted with the mentor virtually. We predicted that E-mentoring would lead to less effective mentoring relationships, less mentoring satisfaction, and lower career outcomes, and that these effects would be moderated by age (millennial protégés versus older protégés). We found few effects, other than lower satisfaction with E-mentoring relationships. The results suggest that E-mentoring can be as effective as face-to-face mentoring. However, few in our sample had completely virtual mentoring relationships, so it may still be possible that E-mentoring with almost no face-to-face interaction may be less effective.

CCS CONCEPTS

- Social and professional topics → Computing profession → Employment Issues; Computing occupations

Keywords

Mentoring; Virtual Communications; Millennials

1 INTRODUCTION

The topic of mentoring has developed into a rich research area, demonstrating how mentoring relationships can have an impact on a variety of career outcomes. Mentoring is found to promote salaries, promotions, improved work performance, new career roles, and enhanced skills. Mentorship eases socialization and acculturation of new employees [14] and expands social and professional networks [9]. At the firm level, mentoring increases job satisfaction, organizational commitment, and employee retention [16]. Whereas similar benefits are expected to accrue for information technology (IT) professionals, the benefits of mentoring in such individuals has only been examined as a peripheral issue.

1.1 E-Mentoring

E-mentoring can be thought of as a continuum, from completely face-to-face interactions to completely virtual interactions, where the mentor and protégé never physically meet. Given the technology of today's environment, completely face-to-face interaction is probably rare. Even close relationships will involve email, texting or other communication technologies. However, most mentoring relationships have a significant face-to-face component. But, what happens as this component shrinks, or disappears entirely? Is a mentor and his/her impact the same when the relationship occurs via Skype, e-mail and other technologies? There have been a number of instances where virtual relationships have been found to be unsatisfactory, or at least less efficient than face-to-face interactions.

For example, Grenny and Maxfield [7] reported a survey of 1,100 on-site and remote employees. They found that remote employees were more likely than onsite employees to report feeling left out and less supported. The conclusion has been that virtual relationships are more difficult to develop and maintain but can be successful.

What about virtual mentoring or e-mentoring? Because protégés are not geographically restricted in finding mentors, e-mentoring allows potential protégés to expand the potential pool of mentors [8]. Research has demonstrated that e-mentoring can increase knowledge [2][4], communication skills [1], and teamwork skills [5]. However, this research has generally compared e-mentoring with no mentoring. How does e-mentoring compare with face-to-face mentoring? Does e-mentoring affect the mentoring relationship? If so, how?

1.2 Protégé Demographics

A demographic of interest with e-mentoring is age. The millennial generation (born between 1985 and 2000) has consistently demonstrated a greater understanding and talent with technology in comparison to older workers. Twenge and colleagues [15] argued that "the constraints of time, space and physicality that previous generations were raised with do not exist for Millennials in the same way". In a conceptual paper on E-mentoring, Neely, Cotton and Neely [10] hypothesized that Millennials should be more likely to attempt e-mentoring and should also be more effective in managing mentoring in this fashion. (Other demographics were also examined in this study, but we have not finished those analyses, and because of space limitations, we are only reporting age effects. The findings thus far for other demographics are similar.)

1.3 Hypotheses

The discussion above leads to the following hypotheses related to the adoption of E-mentoring:

H1: E-mentoring will be as effective as face-to-face mentoring with regard to career-oriented mentor relationships, but less effective than face-to-face mentoring with regards to psychosocial mentor relationships.

H2: E-mentoring will be less effective than face-to-face mentoring with regards to satisfaction with the mentor relationship.

H3: E-mentoring will be less effective than face-to-face mentoring with regards to job and career outcomes.

H4: Millennials in IT careers are more likely to benefit from e-mentoring than other generations.

2 METHODS

2.1 Respondents

The authors employed a Qualtrics survey of their own design. To be included in the sample the respondent must have had an IP address within the United States, be currently employed (not retired or seeking employment) as an IT professional and have a mentor currently or in the past. In addition, several questions were inserted into the survey designed to indicate if the respondents were paying attention to the questions or simply answering at random. A total of 139 responses met these requirements. However, six respondents did not answer the question regarding e-mentoring, so 133 responses were utilized for the analyses involving this variable.

2.2 Questionnaire

2.2.1 Demographics

Respondents were asked which range encompassed their current age (18-25, 26-35, 36-45, 46-55, 56-65, above 65). Ages ranged from 26 to more than 65, with a median of 36-45 years and a mode of 36-45 years (33%). In terms of gender, 56% were male, 43% female and 1% (1 respondent) indicating another identity. In terms of race, 71% reported themselves as Caucasian, 10.8% African American, 8.6% Hispanic, 8.6% Asian/Pacific Islander, and 1% (1 respondent) American Indian. Respondents were asked their level of education, ranging from high school diploma to doctorate. Of the sample, 7.2% had high school diplomas, 13.7% had associate degrees, 55.4% had bachelor's degrees, 20.1% had master's degrees, 2.9% had doctorates and 1 respondent indicated "other".

2.2.2 E-Mentoring

In the questionnaire, respondents were asked, "to what extent do you and your mentor meet face-to-face as opposed to virtually (e.g., using videoconferencing, e-mail, phone call or other technology mediated communications)?" The respondents could indicate their mentoring interactions on a scale from 0-100, where 0 indicated completely face-to-face interactions and 100 indicated completely virtual interaction. The sample varied across the entire scale, with 12 respondents (7.8%) reporting complete face-to-face interaction, and 4 respondents (2.6%) indicating complete virtual interaction and the rest in between. However, interaction tended to skew towards the face-to-face extreme, with the mean and median both around 37. We created a variable where the responses were broken into quartiles, with the breaks occurring at 15, 37 and 53, indicating that the distribution was skewed towards the face-to-face extreme but there was a significant amount of virtual mentoring as well. This 4-level variable was employed in the regression analyses.

2.2.3 Mentoring Relationship

The mentoring relationship was assessed through a series of scales designed to assess various functions completed by the mentor. These functions included six psychosocial functions (being a role model, social,

counseling, friendship, acceptance, acting like a parent) and five career functions (sponsorship, challenging assignments, providing protection, giving exposure, coaching). In addition, there was a four-item measure of mentor satisfaction. These measures of mentor functions have been employed previously [13]. The reliability of the psychosocial scales was reasonable, with Cronbach alphas of 0.85 (Role Model), 0.92 (Social), 0.93 (Acting like Parent), .73 (Counseling), 0.82 (Friendship), 0.89 (Acceptance). The reliability of the career functions was also acceptable, with Cronbach Alphas of .80 (Sponsorship), 0.89 (Challenging Assignments), 0.73 (Providing Protection), 0.85 (Giving Exposure), and 0.88 (Coaching). The mentor satisfaction scale had a reliability of 0.80.

2.2.4 Job and Career Outcomes

The dependent variables assessed included Occupational Commitment, Organizational Commitment, Turnover Intentions, Career Satisfaction and Job Satisfaction. Occupational Commitment was assessed using scales from [11], measuring affective commitment (six items) and continuance commitment (six items). The reliability coefficients for these scales were 0.86 and 0.81, respectively. Organizational commitment was assessed using scales from [11], measuring affective organizational commitment (six items) and continuance organizational commitment (six items). The reliability coefficients for these scales were 0.79 and 0.78, respectively. Turnover intentions were measured with a three-item scale from [10]. Its Cronbach alpha was 0.79. Career satisfaction was assessed by a five-item scale developed by [6]. The reliability of that scale was 0.93. Job satisfaction was assessed by agreement or disagreement with a single item, "Overall, I am satisfied with my job".

3 FINDINGS

Because an interaction was predicted between E-mentoring and age, the hypotheses were tested by regressing the mentoring functions and other outcomes on both the e-mentoring scale (broken into the four quartiles) and whether the protégé was a millennial (under 35) or older. We predicted that the career-oriented mentoring functions would be unaffected by e-mentoring, but the psychological support functions would suffer with e-mentoring in comparison to more of a face-to-face environment. Only one of the five career-oriented functions were marginally related to e-mentoring, age, or the interaction of these. The function of "protecting the protégé" was marginally significant ($F=2.77, p<.07$). Examining the individual predictors shows that this effect was due to age ($t=2.34, p<.03$) and not E-mentoring. Of the psychological support functions, being social ($F=3.95, p<.03$), being a parent ($F=4.25, p<.02$), and showing acceptance ($F=5.39, p<.01$) all had significant effects. With the first two, age was the significant predictor ($t=2.68, p<.01$; $t=2.62, p<.01$), while for showing acceptance, E-mentoring had the significant effect ($t=3.24, p<.01$).

In regard to satisfaction with the mentoring relationship, the regression was highly significant ($F=8.71, p<.001$). The individual betas showed that this effect was due to the E-mentoring variable ($t=4.17, p<.001$). As mentoring became more virtual, satisfaction with the mentoring relationship went down.

In terms of other career outcomes (job satisfaction, commitment, etc.), E-mentoring had no impact. This suggests that the influence of E-mentoring is only on the mentoring relationship and has little carry-over to other outcomes.

Across all the analyses, the interaction of E-mentoring and age was not significant.

4 CONCLUSIONS

In terms of our hypotheses and examination of E-mentoring, significant effects were infrequent. As academics looking to prove our hypotheses, this lack of significance is disappointing. However, for mentors and protégés thinking of virtual mentoring, these effects are both positive and exciting. The results suggest that E-mentoring provides essentially the same mentoring relationship quality, and equal effects with regards to job and career

outcomes. Since it would seem unlikely for E-mentoring to be *more* effective than face-to-face mentoring, these results are about as positive as one could expect.

The one area in which E-mentoring was less effective was in terms of satisfaction with the mentoring relationship. Even though the E-mentoring appeared to provide similar support for protégés, they were not as satisfied with the virtual relationship. It may be that there are other outcomes we did not assess that are less effective with E-mentoring. Or, it may be that E-mentoring is successful, but is more work, or intrinsically less satisfying than face-to-face relationships.

One concern with the findings is that we examined the entire continuum of E-mentoring, and not just the extreme, which would be completely virtual E-mentoring. We divided our range of E-mentoring into four equal parts, and the most extreme quartile included the scores of 54-100 on the 100-point scale. It may be that we need a stronger, more refined comparison where primarily virtual E-mentoring is examined. As an ad hoc analysis we tried comparing the top 25% with the remaining 75% and found few effects. It might be possible to find effects looking at the top 10%, but we had too few respondents to perform statistical tests. Future research could see if E-mentoring becomes less effective if it is almost entirely conducted virtually.

A limitation of the current study is that it examines the responses of IT professionals. If any employee group would be ready and able to conduct E-mentoring, this would be the group. Surveying members of other professional groups might find that E-mentoring is less effective in a variety of ways.

Overall, at this point, the evidence suggests that E-mentoring is an effective approach to mentoring IT professionals. Given the ability to expand the potential pool of mentors for professionals, these results suggest that E-mentoring should be encouraged.

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