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Psychology of Mentoring

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Psychology of Mentoring: *The Case of Talented College Students*

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ABSTRACT

Mentoring is an important relationship that can transform talented students into elite performers.

There has been limited empirical study on the psychology of the mentoring relationship. Most of the research focuses on mentee benefits, while the motivation and interests of the mentee have been relatively neglected.

This study analyzed archival interview records (N = 128) from three cohorts of academically talented students who had participated in a faculty mentorship program for six semesters. A mixed methods analysis, guided by a Grounded Theory approach, was used to quantify the qualitative data.

Two themes emerged from the qualitative analysis.

First, 1 in 4 of the students did not feel mentored for one of three reasons.

- Some students were mentored by faculty outside the program.
- Other students did not see the need for a mentor.
- The rest of the unmentored students were either unable or unwilling to identify another faculty mentor.

Second, selecting a profession was related to the quality of their mentor relationship.

Students who reported career certainty were more likely to report having a high quality mentoring relationship. Great mentors provided career support to the students by involving them in research, taking them to conferences, and connecting them to other faculty.

After quantitatively coding the qualitative data, multinomial logistic regression was used to predict student ratings of the quality of the mentor relationship from career certainty. Students were more likely to report a better mentor relationship as career certainty increased from no career plan to developing a career plan.

Student career needs (and not just psychosocial needs) may influence mentor relationships with faculty and should be given greater consideration in mentoring practice.

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THE FULL RESEARCH REPORT

Mentoring programs exist in all sorts of organizations. They are widely found in large corporations (Allen, Eby, Poteet, Lentz, & Lima, 2004; Underhill, 2006), in nonprofit agencies (Bozeman & Finney, 2008), and in elementary and secondary schools (Rhodes, 2002). They are also prevalent in colleges and universities (Crisp & Cruz, 2009) and are part of the educational process, particularly in doctoral programs (Nettles & Millet, 2006). One of the few universities that has carefully examined mentoring on its campus reported over 100 different academic mentoring programs (Mentoring Institute, 2009).

Yet, there is remarkably little empirical research regarding how mentoring works. According to several thorough literature reviews from different disciplines, the practice of mentoring is not well supported by research findings (Allen et al., 2004; Crisp & Cruz, 2009; Underhill, 2006). Furthermore, much of the existing literature seems to suggest that the mentoring relationship is unidirectional, flowing from mentor to mentee. That is, the mentor is a role model who opens doors, provides insights, guidance, and emotional support, and otherwise brings benefits to the mentee (Callahan & Kyburg, 2005; Hébert & McBee, 2007; Sekowski & Siekanska, 2008). While this is generally true, it is also true that the mentee contributes significantly to the success or failure of a mentoring relationship. Mentorship is a two-way street (Padilla, 2005). The mentee brings certain motivations and attitudes to the interactions with the mentor. Yet, nearly all of the early research neglects this latter point. However, this seems to be changing, and some scholars are beginning to investigate the contributions of mentees. For example, Bozeman and Finney (2008) proposed a theoretical model for studying the “Goodness of Fit” between the mentee and mentor. Fit is theorized to be how well the personal attributes, abilities, and needs of both the protégé and mentor match.

This study contributes to understanding mentee contributions by examining the interview records of merit scholarship recipients who participated in a formal faculty mentorship program. The words protégé and mentee are used interchangeably in this paper to refer to the student. This paper uses a mixed-method approach that gives voice to gifted students’ verbal data and that optimizes data interpretation (Onwuegbuzie, Collins, Leech, & Jiao, 2010). The paper concludes with policy implications for the practice of mentoring.

Psychosocial, Developmental Theory

A psychosocial, developmental perspective explains what mentor behaviors should be considered, when a mentor might be most important, and why

talented students might invest in a mentoring relationship. Psychosocial theory states that individuals are confronted by predictable challenges that must be resolved for healthy, psychological development to occur (Erikson, 1968). This theory focuses attention on which student motivations and needs might be important in mentoring relationships for talented college students (Bordes & Arredondo, 2005).

Mentoring Behaviors

Mentoring relationships usually involve a senior, experienced person who provides assistance to a junior, less-experienced person (Crisp & Cruz, 2009; Kram, 1985). Kram (1985) identified two kinds of support mentors provide in organizational settings: psychosocial and career. Psychosocial support refers to activities like role modeling, acceptance, counseling, and friendship. Career support refers to activities such as sponsorship, coaching, protection, and challenging assignments. The literature on talented students suggests that mentors provide psychosocial and career support (Callahan & Kyburg, 2005) in educational settings.

Most research assumes that mentors provide both psychosocial and career support. However, recent research suggests that these two factors do not have to occur together; therefore, it may be the case that mentors may provide only one kind of support (Lunsford, 2007). Alternatively, mentors may provide different amounts of each type of support over time. Kram (1985) identified four stages of mentoring relationships in business settings: initiation, cultivation, separation, and redefinition. The initiation stage lasts up to 6 months and is characterized by psychosocial support. Career support is more important during the cultivation stage, which can last up to 5 years. The last two stages are marked by a cessation of mentoring support. Faculty mentors and their protégés may move through similar stages.

Developmental Window

Vaillant's (1977) work on adult development found mentoring to be a rare but important relationship in young adulthood for successful men. In contrast, the unsuccessful men had mentors either too early or too late, if at all. His work suggested there was a developmental window during the early twenties when a young adult most benefits from having a mentor. Individual psychological attributes, such as personality factors or identity needs, have been relatively neglected in the mentoring literature, which is curious since early mentoring researchers (Levinson, 1978; Vaillant, 1977) used a developmental framework. Thus, college may be an ideal time for students to participate in academic mentoring programs.

Protégé Psychological Needs

Traditional-aged college students, the population of interest in this study, face the developmental challenge of identity formation. Identity formation is a cognitive task of determining values and goals through relationships with others and across domains (Erikson, 1968). Subdomains of identity exist, e.g., in mathematics or sports, but the subdomains contribute to an overall sense

of identity (Marcia, Waterman, Matteson, Archer, & Orlofsky, 1993.)

Marcia (1966) proposed that individuals develop a sense of identity through exploration and commitment. His work predicts different mentors might be appropriate for students with different psychological needs. Students who are exploring their values and goals may have psychosocial needs, which could be fulfilled through psychosocial mentoring support. Students who have committed to particular goals and values (i.e., which would include having chosen a profession) may have career needs that a mentor may fulfill through career mentoring support. Finally, some students might not benefit from a mentor if they are not certain about a career path and are not interested in exploring options.

Identity needs may explain why students would be motivated to invest in a mentoring relationship. Developing a professional identity is an important task for talented college students, who may need additional assistance if they are talented in multiple domains (Robinson, 1997). These psychological needs of the protégé may provide the basis for mentoring relationship.

Literature on Mentoring Talented Students

Mentors are important for academically gifted students (Pleiss & Feldhusen, 1995), to develop their specialized knowledge (Subotnik & Olszewski-Kubilus, 1997) and to transform them into elite performers (Arnold & Subotnik, 1995). One researcher posits that mentors are part of the environmental influence that contributes to the development of talented individuals (Gagné, 2004). Mentoring programs for academically gifted students seek to develop talent (Chan, 1999), versus remediating deficits (Arnold & Subotnik, 1995), usually in high school students (Rinn, 2006) and in particular areas of national interest such as math and science (Siegel & Shaughnessy, 1991).

However, much of the literature is descriptive and practically oriented with advice about how students might find the right mentor (Clasen & Hanson, 1987), best practices from reviews of programs (Chan, 1999), or tips on how to train mentors (Pleiss & Feldhusen, 1995). Only a few researchers have examined the psychological needs of talented students. Casey and Shore (2000) suggest that mentors develop students' vocational interests (an identity need). Hébert and McBee (2007) found that mentors help gifted college students develop social networks.

Most of the research presumes a unidirectional effect of mentoring where the mentor provides advice, guidance, and opportunities that will result in mentee benefits (Casey & Shore, 2000; Larose, Cyrenne, Carceau, Harvey, Guay, & Deschênes, 2009; Sekowski & Siekanska, 2008). The contribution of protégé motivations has been relatively neglected.

This study advances the literature by examining how student identity development might influence students' relationships with their mentors. What psychological needs do students bring into mentor relationships that may influence the quality of those relationships?

Method

Data Collection

The data were collected through document review from interview records. Three cohorts of traditional aged college students (N = 128), who were enrolled at a research-intensive institution in the Southeast, were interviewed during their sixth semester in college as a formal requirement of the program. The interviews took place in March of 2005, 2006, and 2007 and were conducted by the program administrators as part of the program assessment. The recipients of a highly selective academic scholarship were required to participate in a faculty-student mentor program. The scholarship selection criteria included academic variables, such as course difficulty, grade point average, and college admissions test scores (ACT or SAT); and non-cognitive variables, such as character and leadership potential; letters of recommendations; essays; and interviews. The average SAT score for each cohort was 1400. The students were assigned to faculty mentors in their major and could change mentors at any time by registering the change on the program website.

Students were asked questions about their progress in the program and about the program components during a structured interview, lasting between 15-30 minutes. The answers were transcribed during and immediately after each interview. The interview records included observations by the interviewer and direct quotes from the students, which were indicated by quotations around phrases. Responses to two prompts listed below are used in this study.

1) Remember back to the first year retreat, introducing yourself in the circle. How well have met the hopes and aspirations you had then? Anything you haven't done yet that you wished you had or you will do? (If not mentioned then ask: "What are your plans after graduation?")

2) Think about your mentor. For some students this is a great relationship and for others it is not so great. Tell me about yours.

Analysis

A mixed method analysis provided an opportunity to use the rich archival data and to apply rigorous empirical tests. The mixed-method approach used here was a multitype, mixed analysis to quantify data (Onwuegbuzie et al., 2010). Qualitative data were coded into categories. The categories yielded two ordinal variables, which were used in a multinomial logistic regression analysis. This approach is also referred to as concurrent analysis, whereby qualitative data is analyzed using qualitative and quantitative methods (Tashakkori & Teddlie, 1998) and is common in social science research.

The qualitative analysis was guided by a Grounded Theory approach (Strauss & Corbin, 1990), which allowed themes to emerge from the responses and gave voice to the student experience. The approach involved textual analysis of interview records. An open coding, iterative approach (Strauss & Corbin,

1990) was used to develop the categories into which the responses were coded. Two raters independently coded the data. Three iterations were needed to develop reliably coded themes. The themes were shared with the program director to triangulate the categories.

Multinomial logistic regression is appropriate when the dependent variable is polytomous and ordinal (Menard, 2010). Multinomial logistic regression estimates the odds of a one unit change in the dependent variable given a one unit change in the independent variable. An initial model was computed to determine if the independent variable, Career Certainty, significantly predicted the dependent variable, Mentor Relationship Quality. The next step was to compute sequential multinomial logistic regression, by first regressing career commitment on mentor relationship quality and then adding each covariate and its interaction with the independent variable (Menard, 2010).

Variables

The dependent variable was students' ratings of their mentor relationship, referred to as Mentor Relationship Quality (MRQ). MRQ is the extent to which students felt they had a relationship with a faculty mentor. High quality relationships were characterized by frequent, meaningful interaction centered on common professional interests. The categories that emerged from the qualitative analysis were: great, good, average, and poor (none). Many records listed direct student responses such as "great", "good", or "none", which were reliably coded (see Table 2) from 0 (poor) to 3 (great) with great as the reference category. The raters had 23 discrepancies, which were discussed; 1/3 of them focused on the poor quality category. This category included students who just changed to another mentor or who said their mentor was "not that great" or "none really." The remaining 14 discrepancies were resolved. The variable was treated as polytomous (more than two levels) and ordinal (natural order in the levels; Menard, 2010).

Career Certainty (CC) was the independent variable. This variable emerged from the coding of students' responses about their plans after college. CC is the extent to which students exhibited commitment to a career path during their college years. The variable was dummy coded into four categories: no plan, developing/deciding a plan, pursuing a new plan, and demonstrating commitment to a plan over several semesters (reference group). Two of the categories (developing and deciding) were combined so that the regression model would converge.

There were four covariates: sex, ethnicity, cohort, and college. Sex was dummy coded with female as the referent (0 = female and 1 = male). Ethnicity was dummy coded into two categories, with White as the referent and non White coded as 1. Cohort was dummy coded into three categories: 2005 (reference group), 2006, and 2007. The colleges were coded into dummy codes: engineering (reference group); business; physical and life sciences; humanities, social science and education; and design.

Results

Demographic Information

Archival data from 128 interview records were analyzed. There were 70 women and 58 men, evenly distributed among three cohorts.

About 80% of the interview records were from White students (n = 105) with the remainder of the records from

- Asian Americans (n = 4)
- African Americans (n = 16)
- Hispanic (n = 2), or
- not reported (n = 1).

Interview records were from students in a variety of majors, which reflected the enrollment at the institution:

- Engineering (n = 40)
- Business Management (n = 12)
- Agricultural, Physical or Life Sciences (n = 44)
- Humanities, Social Science, and Education (n = 26)
- Design (n = 6).

Qualitative Results

The qualitative analysis revealed a subset of the students did not feel mentored. Further, there was a connection between student career certainty and mentor relationship quality.

Not mentored. Participation in a mentoring program did not mean students felt

mentored. Almost a quarter of these highly talented students (n = 30), all of whom had been assigned to a mentor, reported not being mentored (see Table 2) by their assigned faculty mentor. There were three reasons for not being mentored in the program: change of majors, lack of connection with mentor, or had a mentor outside the program.

Some students, who changed their majors, were unable to find a faculty member in their new area of interest. The interview notes for these students included comments such as these:

- Needs a new mentor and we talked about how he could get one (individual interview, March, 2005).
- Mentor in math is not the right person for their current major or professional interests (individual interview, March, 2005).
- Needs to change mentor from sociology to a person in Spanish, which will be a better fit (individual interview, March, 2007).

Other students reported a lack of connection to their mentor. The interview records for these students included comments like these:

- Didn't really connect with mentor (individual interview, March, 2006).

- Finding a new mentor, knew it was time to move on (individual interview, March, 2005).
- Hasn't met her own expectations in terms of grades, involvement in professional activities, or connecting with faculty (individual interview, March, 2007).

A few students were mentored by a faculty member, but not by the faculty member the scholarship program had on record. It is unknown why these students did not officially change their mentor. This interview note was characteristic of these students: He is going to change his mentor to the faculty member he actually spends time with (individual interview, March, 2006).

Career Certainty and Mentoring Relationship Quality. The textual analysis of the interview records revealed a link between the students' career certainty and their mentor relationship, or lack thereof. All of the students (n = 26) with great mentor relationships and the majority of the students with good mentor relationships reported career plans or were selecting from a couple of career paths (e.g., apply to law school or work first).

Students who reported having a great mentor expressed commitment to a career path. Involvement in research with their mentor was a commonly mentioned activity. These students had interview notes such as these:

- ...hitting stride now. Loves major. "Mentors great." (individual interview, March, 2006).
- Really involved in research with mentor (individual interview, March, 2005).
- Her "mentor is a very busy lady" but put her in touch with GREAT research, excited about doing research... (individual interview, March, 2006).
- Great relationship with several faculty who have been encouraging and horizon widening for him (individual interview, March, 2006).
- Great mentor and knows several faculty (individual interview, March, 2006)

What about the 5 students who had a longstanding career plan but no mentor? Three students were receiving mentoring from individuals outside the faculty mentor program. One student simply never mentioned a mentor, despite being asked about it and 1 student had this note in her record: Perfunctory mentor relationship-doesn't see why mentor is important (individual interview, March, 2006).

Most of the students who reported no mentor were undecided about their career or had recently decided upon a direction, often after having discarded other very different options. This note is representative of these students: Plans to do public relations...started using his professional network, realized law school is not right for him (individual interview, March, 2005).

The responses of the students who did not have a plan indicated a lack of decision making and almost a paralysis, such as:

“wandered aimlessly my first two years (individual interview, March, 2007).”

A typical response was

“I wish I had gotten involved in research....I wish I had known what I wanted to do in the beginning, and sometimes I wish I had studied abroad” (individual interview, March, 2007).

The interview records of the students who were not sure about their career included statements such as:

- Not sure what he plans to do after graduation (individual interview, March, 2007).
- Plans to figure it out over the summer (individual interview, March, 2007).

Regression Results

The sample size was large enough to conduct quantitative analysis. Multinomial logistic regression was computed using the SPSS multinomial logistic command.

The dependent variable was Mentor Relationship Quality and Career Certainty was the independent variable. There were no statistically significant differences by cohort, college, gender, or ethnicity when regressed on the dependent variable (see Table 4) in the fully specified model. Thus, these covariates were excluded from the final model.

The final model fit was good, pseudo $R^2 = .25$ ($\chi^2 = 37.50$, $df = 9$), $p < .001$ (see Table 5). The Cox and Snell pseudo R^2 estimate, a measure of association for multinomial logistic regression, was .25. The data show that the odds of a one-unit change from a good to a great mentor relationship increased as career commitment increased. The reference comparison for career certainty was having a long term commitment to a career. For example, students who were working on a plan and those who had recently decided on a plan were less likely than those who were certain about their career goals to report having a great mentor relationship as compared to a good one; however, these differences were not statistically significant. When compared to those who were certain about their career goals, students who had no plan were far less likely to report that they had a great mentor as compared to a good one, and this was statistically significant.

Discussion

Academic mentoring programs have proliferated in part because it is assumed the programs will universally benefit the protégé. These results suggest that conclusion may be premature. After assessing mentee identity development (i.e., levels of goal formation, career commitment, and professional aspiration), the results point to three conclusions.

First, there is evidence that some talented students are not ready or do not want to participate in a mentor relationship. A significant fraction of students, up to 1 in 4, were not psychologically ready to have a mentor, despite a high level of academic talent and preparedness.

Second, career commitment may be a prerequisite psychological need for talented students to benefit from faculty mentoring. Students with well defined career interests and professional aspirations were more likely to report greater benefits from the mentoring relationship. Third, the results suggest that high quality mentor relationships are characterized by frequent and ongoing career support (e.g., writing articles, attending conferences, and connecting students with other faculty members).

Receptivity to Mentoring

This study provides evidence that talented students may not always benefit from having a mentor. The students were participating in a highly selective academic scholarship program and had been matched to a faculty mentor in their first semester. The students reported annually on their mentor relationship and were encouraged to change their mentor as needed. The interview records suggest that a subset of students did not feel they had a mentor even though they reported in writing to the program staff that they had a mentor. It is surprising that about 1 in 4 of these students were not mentored despite being in a supportive learning environment to connect talented students with faculty.

There were three reasons students were not mentored.

First, a minority of the not mentored students were being mentored, but by faculty outside the program. It is unknown why these students did not register the change with the program, given their freedom to make a change and ease with which they could note the change online.

Second, a few students stated they did not see the need for a mentor. These students, by their own admission, were not receptive to being mentored. These students were in a program where the importance of mentors was touted and they were surrounded by students in successful mentoring relationships. Labeling talented students unreceptive to mentoring may be at odds with the assumption that everyone benefits from having a mentor.

However, it was clear that some students did not believe a mentor would be helpful and did not want one. Why did these students have this belief and could it or should it be changed? This is an area for future research.

The majority of the unmentored students knew they needed to find another mentor. Why were these students unable to identify an appropriate faculty member at a large, research institution? Perhaps it was not socially desirable for these students to say they did not want or need a mentor, and they too were unreceptive to mentoring. Alternatively, these students, while academically talented, may have lacked the personal characteristics, such as

motivation, confidence, or perseverance, which would enable them to locate or attract another mentor. It might be the case that these students need to be more established in a career before they can match successfully with a mentor. Another possibility is that these students had bad mentors, and they were not able to recover from that experience to invest energy in finding another mentor. In any case, mentoring did not benefit these students simply because they did not interact with their mentor.

These findings raise important questions about talented students' receptivity to mentoring. Developing talented students into elite performers requires an enormous investment. Mentors are important to this process.

1. Why might academically talented students not connect with faculty mentors?
2. Can these unreceptive students be identified and routed to other pathways, which do not include mentoring, to develop their talent?
3. Do these students ever become mentorable?
4. Was their developmental window for mentoring earlier or later?
5. Is there a mentoring personality or a constellation of personality traits that are necessary in perceiving a need that can be met through mentoring?
6. Can beliefs about not needing a mentor be changed?

Future research might consider these questions.

Career Commitment

The results demonstrate a connection between student career certainty and having a great mentor relationship. *The question is the directionality of the relationship.* Are Casey and Shore (2000) correct in believing that mentors have an important role in developing student career interests? Or is it the case that students drive the relationship?

Perhaps great mentors help students decide on a profession and as a result these students become more certain about a career path. All students were assigned to a mentor, thus they had an opportunity to be directed in such a way that developed their career commitment. It is true that some mentors might invest more in their protégés. However, the student descriptions of great mentors suggest these relationships were reciprocal and not coercive. Mentors did not seem to encourage or push the protégés to develop their career interest; instead the relationship seemed to develop around genuine mutual interest.

An alternative explanation may be that protégé career certainty is a candidate for a Goodness of Fit indicator (Bozeman & Finney, 2008) that influences the extent to which the protégé and the mentor are willing to invest in the relationship. These are voluntary relationships that require investment from both individuals.

Theoretically, career commitment is a part of identity development (Erikson,

1968). Students who are ready to commit to a career are more likely to want to learn more about that field through conducting research, attending conferences, and securing internships. They may therefore wish to have guidance in these areas and invest in a mentor relationship. It makes sense that a faculty member may not wish to expend energy teaching lab techniques to a student who expresses modest interest (because of their major uncertainty). Alternatively, students may not visit a faculty member if they are not sure about their major.

Talented students may be gifted in several domains, which means career choices become more difficult (Robinson, 1997). In college, faculty mentoring might not be the right avenue for career exploration. Instead, faculty mentors may be more appropriate for students who have selected a profession and who have research interests or plan to pursue graduate work. It is unknown if those students with low career commitment are multitalented. Future research could clarify the relationship between career exploration, career commitment, and faculty mentoring.

Career Support

The students with great mentors reported activities similar to Kram's (1985) career mentoring support. These students talked about going to conferences, engaging in research, and being introduced to other faculty in the discipline. It is possibly that these mentors also provided psychosocial support in the form of listening to their mentees, building their confidence, and serving as a role model. However, it is likely these activities revolved around their shared professional interests.

Do mentors provide different amounts of career support over the duration of the mentoring relationship? Kram's stages of mentoring relationships suggest this might be the case. This study was cross-sectional and therefore was not able to access the changes over time. It might be that most of these students were in the cultivation stage, the stage where career support is most evident. Future research might examine the specific behaviors and activities best suited for student-faculty mentorships as well as changes in mentoring support over time.

Limitations

The study may be limited in its generalizability and validity.

1. The data were from academically talented students at one institution. The results may not generalize to other colleges or to college students in general.
2. The data were self-reported, which can lead to socially desirable responses. Thus, what students said may not accurately reflect actual behavior. There might, for example, be more students without mentors than were reported.
3. The interview records include direct quotes from the students as well as notes by the program administrator conducting the interview. Thus, there was an additional layer of interpretation by the program

administrator, which may have decreased the accuracy of these findings.

4. There may be differences by ethnicity, but there were not enough cases for the non-White student records to determine this. The study was cross-sectional and therefore changes over time could not be assessed.

Implications

The results have four implications on mentoring practice and research.

First, it should not be assumed that students participating in a faculty mentorship program are being mentored. Careful and more frequent assessment of mentoring needs to be considered. For example, students could be asked to rate the quality of the relationship rather than checking a yes or no type of question. College operates on a semester or quarterly system, thus it might make sense to ask students to report at the end of the academic term rather than once a year. This would allow more opportunities for program directors to intervene, before too much time has elapsed, with students who report low quality relationships.

Second, student psychological needs should be considered before assigning students to faculty mentors. Colleges have vast data about student academic performance (e.g., SAT scores, grade point averages) number of advanced courses taken, and yet they collect amazingly little information about student psychological development. However, it is well known that identity development is an important task for traditional-aged collegians. Identity commitment may drive student interest in investing in a mentor relationship. Thus, mentoring programs for academically students might begin with a career assessment.

Honors or scholarship program directors could include career assessment as part of the developmental activities for students. The results might provide guidance on what activities might be most appropriate for each student. For example, students who are exploring several careers or majors might benefit from a semester engaged in directed career exploration before working directly with a faculty mentor. These students might be assigned to rotate through several labs or to conduct interviews with advanced students or faculty who are in the various majors of interest to the student. Students who are certain about their career path may benefit from being assigned immediately to a faculty mentor.

Third, the results raise questions about stages of mentoring relationships. Do Kram's mentoring stages apply to college students? Training for faculty mentors might help them better meet the needs of talented students. For example, placing an emphasis on psychosocial support may be important in the initial stage of the relationship but later career support needs to take precedence. It might be important for faculty to have a procedure to alert program administrators if they feel the student is not ready or interested in being mentored so students might be routed to other activities, such as those

listed above.

Developing a clearer route for students to change mentors as their career interests change is also important. Here again, Kram's (1985) stages provide a helpful framework. Mentors and protégés may benefit from guidance on how to separate and terminate relationships in a positive manner. For example, program administrators could provide information about stages of mentoring relationships with the information on the mentoring program. Older students could be trained as peer mentors who might be available to provide guidance on how to end a relationship and start new ones.

Fourth, is there a developmental window for mentoring talented students or a mentoring personality? Are the unmentorable students mentorable either earlier or later? Or is it the case that some students, even the academically talented ones, do not have the personal characteristics that make them amenable to receive advice from a mentor or attractive to a mentor? *The surprising finding this study raises is why were so many of these students, in a highly talented population with a lot of support for mentoring, not actually being mentored?* These results highlight an important measurement problem. *Survey research finds mentoring to be frequent, while research with interviews finds mentoring to be less frequent.* When these students reported annually online, with a survey, they reported being mentored. However, when the students were interviewed, fewer of them reported being mentored.

The data simply did not provide sufficient information to investigate deeply why almost one fourth of these highly talented students were not being mentored. Future research should consider the presence of a developmental window for mentoring, which would require longitudinal study; the possibility of a mentoring personality; and the effects of early negative experiences with mentors on student's interest in mentoring.

Mentoring can provide a powerful transformative experience for talented youth. This work highlights that mentoring is a reciprocal relationship. The mentor may provide opportunities, experience, and access to a professional network. However, the protégé needs to have motivation, interest, and curiosity or the relationship does not develop. A focus on the mentoring dyad and fulfillment of protégé needs may help improve mentoring opportunities for the most talented among us.

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