

Mentoring Initiation of Adolescents:
Examining the Role of Identity Style and Constructivist Epistemology

By

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ABSTRACT

Research has documented many benefits of mentoring for adolescents. However, less is known about what factors make it more likely for adolescents to initiate mentoring. Previous work focused on the mentoring of adults suggests that a more pro-active identity style and epistemological worldview may be associated with heightened initiation of mentoring, and it was hypothesized that these factors would be associated with mentoring initiation among adolescents. In this study, 60 adolescents were surveyed about their identity style, constructivist epistemology, and initiation of mentoring relationships. As expected, a positive correlation was found between information-oriented identity and seeking a family member for career support. In addition, a positive correlation was found between constructivist personal epistemology and seeking a family member for career support. Additionally, a multiple regression suggested that a model with both constructivist personal epistemology and information-oriented identity predicted about 16 percent of the variance in seeking a family member for career support. Implications of this work are discussed for researchers, teachers, guidance counselors, parents, and adolescents.

INTRODUCTION

Mentoring relationships have been identified as important in facilitating development during adolescence (Dondero, 1997). Research has overwhelmingly illustrated the many positive benefits of mentoring for adolescents (Lee & Cramond, 1999; Rhodes, Grossman, & Resche, 2000). For example, adolescents who have mentoring relationships are more likely to stay in school, have positive socio-emotional development, and explore and develop other positive relationships (Rhodes et al., 2000; Schockett & Haring-Hidore, 1985). Since mentoring relationships can have such a meaningful role in adolescent development, it is important to learn more about how to increase the likelihood that adolescents will experience mentoring.

Mentoring relationships can be established in the context of formal programs or informal relationships. Although formal mentoring can be effective for adolescents, only a small percentage of adolescents actually participate in formal programs (Rhodes et al., 2000). Initiation of mentoring is the first phase of the mentoring relationship and of critical importance in obtaining mentoring through informal means (Kram, 1983; Rhodes & Grossman, 2002; Turban & Dougherty, 1994). What factors make it more likely that some individuals will initiate mentoring? Although research focused on the initiation of mentoring by adolescents is scant, there is a small but growing body of literature focused on indicators of mentoring initiation among young adult college students and adults in the workplace. This previous work suggests that a more pro-active identity

style and epistemological worldview may be associated with heightened initiation of mentoring (Egan, 1994; Packard, 2003a), and it was hypothesized that these factors would be associated with mentoring initiation among adolescents.

In the next sections, I review the relevant literature on mentoring, identity styles, constructivist personal epistemology and constructivist worldview in order to more fully ground the current study.

Mentoring

Mentoring relationships are consistently linked to positive identity development in adolescence. For young people in particular, the benefits of being mentored are concentrated on personal and educational growth (Lee & Cramond, 1999), including support for identity exploration (Galbraith & James, 2004). In Rhodes and Grossman's (2002) research focused on a national study of Big Brothers-Big Sisters, they found that long-term mentoring relationships with a caring adult were advantageous for young people, yielding the highest benefits such as school persistence and emotional well-being. Other research studies consistently document similar benefits, with a focus on a brighter future for the youth engaged in the mentoring (Napoli & Wortman, 1998; Rhodes et al., 2000; Schockett & Haring-Hidore, 1985).

But which person or persons provide mentoring can vary across adolescents. Typically, mentoring is described in terms of access to a formal program such as the national Big Brothers-Big Sisters mentoring program, where youth are matched with an adult with whom they have the opportunity to consult

and form relationships (Rhodes et al., 2000). In these programs, mentors often provide important functions such as encouragement and role modeling to youth (Dondero, 1997; Zirkel, 2002). Although the availability of formal mentoring programs continues to grow, only a small subset of adolescents will participate in these opportunities (Rhodes et al., 2000). It is important to note that mentoring is not constrained to formal programming, although formalized mentoring is the typical model of design and has also been the focus of research. One notable exception is that of Rhodes and her colleagues' work on natural mentors, or individuals within the mentees' nuclear and extended families who take a special interest in developing the adolescent (Rhodes, Ebert, & Fischer, 1992). This work suggests the value for young people when they tap into the resources of family members in order to grow and develop in positive ways, including gaining career advice and socio-emotional support.

The person or persons who act as a "mentor" may take many forms and play somewhat different mentoring roles. For example, mentors may be members of one's family (Napoli & Wortman, 1998; Rhodes et al., 1992), professors and advisors at college (Pope, 2002), managers at work (Turban & Dougherty, 1994), or peers (Azmitia & Cooper, 2001). Mentors can provide many functions, including socio-emotional support such as advice and encouragement (Rhodes & Grossman, 2002), academic support such as tutoring and guidance (Dondero, 1997), and career support such as sponsorship or provision of opportunities (Turban & Dougherty, 1994). In the current study, the function of career

mentoring was specifically examined given its salience in identity development during adolescence (Erikson, 1963), and the school-based sources of teachers and guidance counselors (Drier, 2000) and family members (Rhodes et al., 1992) are considered as potential places to seek and experience this career mentoring.

Social learning theory (Bandura, 1977) has also been used to explain how individuals learn from mentoring relationships, by emphasizing the role model function of mentoring (Rhodes et al., 2000). In particular, researchers emphasize the importance of not only observation of role models, but also interaction with them, as facilitating the most optimal learning experience (Filstad, 2004).

Building upon this notion of interaction, researchers from a socio-cultural perspective have argued that learning optimally occurs in contexts where individuals can interact with and learn from supportive others who have more experience and have established identities in the domain of interest (Lave & Wenger, 1991; Vygotsky, 1978). However, in order to learn from mentors, one must first engage with them. The ability to do so can be influenced by many factors, including how pro-active of a stance the student takes in the relationship.

Traditional models of mentoring portray an active mentor who seeks to initiate a relationship with the protégé; consequently, the protégé's role is often nondescript, or viewed as a passive one in that he or she must wait to be discovered and invited into a relationship by the mentor (Packard, 2003b; Powell, 1999). However, a "wait and be discovered" strategy can result in a lack of mentoring for many youth if adolescents are not invited into mentoring

relationships by supportive others. One effective way to increase one's mentoring experiences is to seek out potential mentors and attempt to initiate relationships with these individuals. However, because not all students participate in mentoring practices, it is evident that many individuals may not know how to successfully identify potential mentors and properly initiate relationships with these people (Mullen & Noe, 1999; Packard, 2003b). In other words, mentoring initiation is not necessarily a common or "natural" strategy for most individuals. Research focused on mentoring initiation among adolescents is scant. However, there are a small number of studies that have examined mentoring initiation among young adult college students and adults in the workplace.

In their study, Turban and Dougherty (1994) surveyed college graduates about their initiation practices and mentoring received, and found that individuals who were proactive and sought to initiate mentoring were more likely to be engaged in mentoring relationships. Similarly, in a qualitative study, Kram (1983) explored the stages of the mentoring relationship among young professionals and their upper-level managers and found that the initiation phase was critical in the development of strong mentoring relationships. Likewise, researchers who are interested in mentoring from the protégé's perspective have also focused on how the individual's self knowledge and understanding of knowledge acquisition in general may impact initiation. In her study of women in broadcasting careers, Egan (1994) examined the influence of constructivist epistemology on women's ideas about themselves and mentoring. The results of

her study indicated that constructivists, or people who see themselves as constructors of knowledge, were most likely to seek out the greatest number of mentors. These individuals were the most open to establishing mentoring relationships and understood the value of learning from others. Packard (2003b) also argued that students who saw themselves as constructors of their own identities were more likely to seek out and assemble multiple mentoring relationships.

While Egan's (1994) interview-based study and Packard's (2003a) mixed-methods study have indeed created the groundwork for exploring the relationship between epistemological worldview and mentoring initiation, there were two major methodological limitations. First, most of the previous research has focused on college students and adults, so it was necessary to consider additional literature that was grounded in adolescent development. Secondly, when considered in the context of the current study, it appeared that the previous researchers' work, in their interviews or surveys, conflated constructivist identity with mentor seeking, and the general notion of constructivism with that of identity. It seemed possible that identity style and constructivist epistemological worldview generally, and with particular regard to identity, could be associated with mentoring initiation. Baxter Magolda (1992, 2004) and Pizzolato (2003, 2004) have researched the development of personal epistemology, or how individuals construct knowledge about the self. However, there are no published validated measures of personal epistemology since Baxter Magolda and Pizzolato

relied heavily on interview measures. As a result, I created my own measure of constructivist personal epistemology in order to better understand how individuals actively construct self-knowledge in relationship to mentoring initiation. To further situate the current study, the following sections consider research on adolescent identity development and constructivist epistemologies, both in terms of constructing self-knowledge (constructivist personal epistemology) and knowledge more generally (constructivist worldview).

Identity Styles

Identity development is a salient task during adolescence. According to Erikson (1963) who proposed a stage theory of development, adolescents experience a crisis of identity when they are unable to recognize who they are and who they want to become in the future, particularly in terms of their occupational identities. Consequently, during the stage of “identity vs. role confusion,” the resolution of the identity crisis is facilitated as adolescents integrate the roles they are comfortable with into their future occupational identities in a way that draws upon their past experiences, and thus establishes continuity between their current and future identities. The establishment of a salient career identity is central to Erikson’s theory and ensures the resolution of the adolescent identity crisis. Furthermore, Erikson argued that identity exploration occurs within a social context, such that adolescents evaluate and develop a sense of occupational identity according to their place in society and the resources available to them. It is a process that has a meaningful impact on both the individual and society as a

result of the interplay between these two systems, and hence is a critical framework for understanding the development of identities among youth.

What role does the adolescent take in the process of identity development? Berzonsky (1989) explored this avenue of identity development and derived a process-oriented conceptualization of identity, which emphasizes the adolescent's style of identity development. The first style, information-orientation, describes individuals who actively seek out, process, and evaluate relevant information before making identity-related decisions. Information-oriented individuals are most likely to endorse constructivist epistemological assumptions, as was determined by Berzonsky (1992). In aligning most closely with a constructivist worldview, individuals with an information-oriented identity style are most likely to be proactive in constructing their identities and often see themselves as having a dynamic role in co-creating what goes on in the world around them. The second style, a normative-orientation, describes adolescents who feel particularly invested in conforming to normative standards, such as those held by parental figures. Lastly, adolescents with a diffuse/ avoidant-orientation do not perceive important decisions as interesting challenges and thus tend to delay decision-making processes until they are forced to make a commitment. For the purposes of the present study, to investigate how adolescents actively construct their identities, participants' scores on information-oriented identity will be most relevant, and thus examined most closely.

Identity styles have not been researched in relation to mentoring, but it does appear that there would be logical ties. It was hypothesized that individuals who score high on information-orientation may be most likely to initiate mentoring relationships, particularly with regard to career support, because information-oriented individuals are pro-active, pursue knowledge, and value an understanding of multiple perspectives. Thus, it seems likely that individuals with this identity style would seek career-related mentoring, particularly from teachers, guidance counselors, or family members, who could provide these perspectives. In conclusion, one's identity style may provide insight into the *processes* that adolescents employ to construct their futures and suggest possible ways in which individuals may initiate mentoring, from whom, and to what degree. Further, they highlight the role that epistemological beliefs may have in this process by recognizing that adolescents perceive their identity development in the context of how they view themselves and the world around them.

Epistemology

Individuals may approach their identity development differently as a function of their epistemological beliefs, or how they self-theorize, gather, and understand their individual license to construct knowledge about the world around them (Berzonsky, 1994). Epistemological development has been measured both in the specific context of academic performance (Schommer, 1993; Schommer, Calvert, Gariglietti, & Bajaj, 1997), and within the more general context of adolescent and young adult development (Baxter Magolda, 2004; Berzonsky,

1994; Pizzolato, 2003, 2004). The latter set of researchers who study epistemology within the context of adolescent and young adult development conceive of those individuals who see themselves as agents in creating knowledge as having constructivist epistemological beliefs.

In relationship to academic performance, researchers such as Schommer (1993) conceptualize epistemological development as the maturation of ideas about learning, intelligence, success, and the nature of knowledge within the classroom. Researchers who study the construct differently investigate epistemological development in conjunction with identity development during adolescence (Berzonsky, 1994) and study students' epistemological reflection throughout college (Pizzolato, 2003; 2004) and into their early professional years (Baxter Magolda, 2004). The following discussion will explore these various conceptualizations of epistemological development and their relevance to the current study.

In Schommer's (1993) work on epistemological development and academic performance, the relationship between students' beliefs about the nature of knowledge and learning were examined as an aspect of metacognition. In her study of 1,182 predominantly White high school students, Schommer (1993) explored participants' agreement with particular beliefs about knowledge as described by the following four epistemological statements: the ability to learn is innate (e.g., learn the first time, can't learn how to learn, success is unrelated to hard work), knowledge is discreet and unambiguous (e.g., avoid ambiguity, seek

single answers, avoid integration), learning is quick or not at all, and knowledge is certain. The researcher found that although much of the foundational work on epistemological development had been conducted with college-age students and beyond, epistemological development did occur in high school students as they progress from their freshmen to senior years. In her study, she concluded that high school students' thinking about knowledge increases in complexity over their four years of secondary schooling, such that their beliefs in simple knowledge, certain knowledge, and quick learning become less prevalent. Instead, students began to think about knowledge as being more complex and ultimately more ambiguous – a change which also predicted significantly higher GPAs in the researcher's regression analyses. In the present study, which focuses more on the concept of epistemological development within the general context of adolescent and young adult development, it is likely that constructivist epistemological assumptions will be higher among participants in higher grade levels as compared to participants in lower grade levels. This prediction emphasizes both the academic and developmental contexts within which epistemology is studied. It was also hypothesized that accordingly, mentoring initiation scores would be higher for participants in higher grade levels than in lower grade levels.

Schommer's (1993) conceptualization of epistemological development within the context of academic performance is important because of her focus on high school-aged participants. As mentioned, since much of the early work on epistemological development was done with college-aged students (Perry, 1968;

Ryan, 1984), any research which suggests that a shift in epistemological thinking begins at least as early as one's first year of high school lends essential knowledge and support to the present study. Other contemporary researchers have also studied epistemological development in high school-aged students in relationship to approaches to learning and secondary school performance (Cano, 2005), domain-specific identity and intellectual ability (Klaczynski & Lavalley, 2005), and general adolescent identity development (Krettenauer, 2004). Thus, an important trend in research in the area of epistemological development is toward a broader understanding of how, when, and in what domains changes in adolescents' thinking about the nature of knowledge occur. Thus, with regard to the current study, one might expect that younger high school students may be less likely to endorse constructivist epistemological worldviews than their older counterparts.

One of the most relevant pieces of work within the context of the present study is Berzonsky's (1994) research with identity construction and constructivist epistemological assumptions. In a series of three studies, each with approximately of 100 to 170 undergraduate students, Berzonsky (1994) examined whether particular identity styles and epistemological beliefs may align and guide the strategies youth employ to approach their development. He concluded that the identity styles (i.e., information-oriented, normative-oriented, and diffuse/avoidant-oriented) correlated with particular epistemological assumptions, namely, constructivist, mechanistic, and fatalistic worldviews, respectively. In

particular, scores on a constructivist assumptions scale were related to an information-oriented style of identity development. Secondly, those who hold a mechanistic worldview, tend to believe that identity is determined by external, rather than internal, forces. He argues that these individuals are likely to take a defensive and closed-minded approach to their identity development, are not likely to be willing to question their identities, and may be best characterized as passive in comparison to individuals with an information-orientation. Lastly, according to the research, adolescents with a fatalistic set of assumptions are likely to believe that their “true” identities are pre-determined by an inner essence or proclivity. Fatalists are similar to mechanists in that they do not believe in having control over their identities; however, mechanists believe in the control of external forces, whereas fatalists accept a more cosmic pre-determination.

An understanding of these epistemological beliefs is critical because how individuals see themselves as receivers and constructors of knowledge may not only guide their beliefs about the nature of knowledge, but also about the value of learning through mentoring and role modeling. Berzonsky (1994) argues that individuals with constructivist epistemological assumptions, with whom this study is most concerned, are also likely to be evaluating their identities in light of additional knowledge that they receive and are likely to endorse and use role modeling as an effective means of positive development.

As mentioned before, the work of Egan (1994) and Packard (2003a) relate. Egan (1994) found that constructivists, or individuals who see themselves as

active constructors of knowledge, were most likely to initiate mentoring relationships in the workplace and to have the most mentors. In her study, Egan surveyed 454 women in broadcasting and related careers about their perception of the workplace, perceptions of self and work, mentoring functions, mentor and protégé similarities, and epistemological beliefs. Based on their responses to the survey, Egan then categorized these women in one of three epistemological perspectives: Subjective, Procedural, or Constructed, in accordance with Belenky, Clinchy, Goldberger and Tarule's (1986) classification. For the purposes of the current study, Egan's conclusions regarding Constructivists' perceptions are most significant and noteworthy. Accordingly, the researcher found that Constructivists, as compared to both Proceduralists and Subjectivists, perceived that their lives and relationships were most under their own control and were personally responsible for how their lives had thus far unfolded. In terms of mentoring in particular, Constructivists were most likely to have had at least one mentor and typically as many as three mentors. Lastly, part of Egan's survey included a question that asked about the importance of different functions that mentors can provide. Importantly, Constructivist women were the only group to understand the importance of role modeling and to endorse the significance of observing and learning from others' successful behaviors. Following up on Egan's (1994) work, Packard (2003b), in her study of undergraduate women pursuing science careers, found that a constructivist view of identity and mentoring was associated with a greater seeking of mentoring and experiences of mentoring.

It is critical to understand whether adolescents' mentoring relationships align with the findings of young adult college students and adults in the workplace in terms of adolescents' understanding and employment of initiation strategies and the ultimate presence of mentoring in their lives. Thus, it was hypothesized that a constructivist worldview would be associated with greater mentoring initiation and greater mentoring experiences in the career domain. In addition, it was hypothesized that a constructivist personal epistemology, or constructivist beliefs about self-knowledge, would also be associated with greater mentoring initiation and mentoring experiences in the career domain.

Present Study

The focus of this study is on the relationship among identity styles, constructivist worldview, constructivist personal epistemology, and mentoring initiation practices. The specific research questions were:

1. Are mentoring initiation and experience related to one another?
2. How are information-oriented identity style and mentoring initiation related? Specifically, do positive correlations exist between information-oriented identity style and seeking career mentoring from family or teachers/guidance counselors?
3. How are scores on the constructivist worldview measure, the constructivist personal epistemology measure, career mentoring initiation and career mentoring experiences related to one another, and does this differ based on age or grade? Specifically, do positive correlations exist between scores on the

constructivist epistemological measures, seeking career mentoring from family or teachers/guidance counselors, and career mentoring experiences from family or teachers/guidance counselors? In addition, do 10th graders have lower mentoring yield, initiation, and constructivist epistemology scores than 12th graders?

4. How well do these factors of identity style and constructivist epistemology collectively predict career mentoring initiation by adolescents?

METHOD

Participants

Participants consisted of 60 female and male high school students in their sophomore, junior, or senior years. Fifty-six (93%) of the participants were female. Their ages ranged between 14 and 19 years old ($M = 15.9$, $SD = 1.0$). Thirty-seven participants were Latino, eight were African American, three were European American, and 12 did not identify their specific ethnic background. They were recruited from an urban vocational high school in New England where they were enrolled in the allied health program.

Procedure

Participants were recruited as part of a larger study focused on identity and mentoring in adolescence. The researcher spent five weeks in the classroom prior to administering the survey. During her time at the high school, she observed and became acquainted with the participants of the study through involvement in their classroom activities and through informal conversations with them during break times. They were informed of the larger study through discussion forums in high school classes. Parental consent forms were obtained from participants under the age of 18, and youth consent forms were obtained from all participants. The surveys for the current study were disseminated in high school classes by the researcher as part of a discussion on personality development. After completing the survey, students were given a scoring sheet that allowed them to calculate their identity style scores and learn what the survey said about their personalities.

Then, the researcher invited the students to voice their opinions about whether the activity's personality profiles adequately represented them. Lastly, participants were debriefed about the purpose of the study and were invited to ask questions of the researcher.

Data Sources

Identity Style. In order to assess identity style, items from the Identity Style Inventory, Revised Version (ISI3) (Berzonsky, 1992) were administered to assess identity style (see Appendix A). The information-oriented identity style subscale was of focus in this study. These items were slightly modified to be appropriate for high school students since the original items were used with college students. A sample item from the information-oriented identity style subscale is, "When making important decisions, I like to have as much information as possible." The alpha level of the information-oriented identity style subscale was originally .61, and as adapted in the present study was .66.

Epistemological Worldview. In order to assess epistemological worldview, the Constructivist Assumption Scale (Berzonsky, 1994) was used (see Appendix B). This twelve-item Likert-scale measure was created and validated by Berzonsky in a series of three studies regarding the relationship between identity development and constructivist worldview in young adults. A sample item from the scale is, "The more people know, the more they are likely to feel that they cannot be totally sure about anything." The original alpha level for this

survey was .55. In the present study, the alpha level of the adapted measure was .66.

Constructivist Personal Epistemology. In order to assess constructivist personal epistemology, the researcher developed the Constructivist Personal Epistemology Scale (see Appendix C). This three-item Likert-scale measure addresses the extent to which participants see themselves as playing an active role in the construction of their identities and future. A sample item from the scale is, “I am confident that I will be successful in making my own path in life.” The alpha level for this scale was .79.

Mentoring Initiation. In order to assess mentoring initiation, an adapted version of Packard, Babineau, Piontkowski, and Ruiz’s (2006) mentoring initiation measure was used. Participants were asked to report their level of agreement with having various types of mentoring on a scale of 1 to 6 where 1 = strongly disagree and 6 = strongly agree (see Appendix D). The sources of mentoring of interest in the current study were teacher or guidance counselor and family member, and the function was career support, defined for the participant as help thinking about your future career or given experiences in the future career. Thus, the two items in the study were: “I often go to a family member for career support” and “I often go to a teacher or guidance counselor for career support.”

Mentoring Experience. In order to assess mentoring experiences, an adapted version of Packard et al’s (2006) measure was used. Participants were asked to report their level of agreement with having various types of mentoring on

a scale of 1 to 6 where 1 = strongly disagree and 6 = strongly agree (see Appendix E). The sources of mentoring of interest in the current study were teacher or guidance counselor and family member and the function was career support, defined for the participants as help thinking about your future career or given experiences in the future career. Thus, the two items for the current study were: “I have career support from a family member” and “I have career support from a teacher or guidance counselor.”

Demographics

The survey also asked participants to record their demographic information, including age, grade, and ethnicity.

Interviews

Interviews were conducted with a subset of participants, in order to more fully understand the relationships among the key variables of study. Consistent with the case study method, participants were selected based on their responses to the survey in order to select a range of participants with varying viewpoints, in a way that could help develop theory (Yin, 2003). These participants were asked a series of follow-up questions about their identity style, constructivist epistemologies, and mentoring initiation and experience, particularly regarding career support from a family member, teacher, or guidance counselor (see Appendix F).

RESULTS

Descriptive Data.

Means and standard deviations for information-oriented identity, constructivist worldview, constructivist personal epistemology, mentoring initiation: family for career and teacher for career, and mentoring experience: family for career and teacher for career are presented in Table 1.

Intercorrelation of Variables.

Pearson's correlations were conducted to explore the relationships among information-oriented identity, constructivist worldview, constructivist personal epistemology, mentoring initiation: family for career and teacher for career, and mentoring experience: family for career and teacher for career. These results can be found in Table 2.

Table 1

Means (+/- Standard Deviation) for Information-Oriented Identity, Constructivist Worldview, Constructivist Personal Epistemology, Mentoring Initiation: Family for Career Teacher for Career, Mentoring Experience: Family for Career, and Teacher/Guidance Counselor for Career (n=60)

	Mean	Standard Deviation
Information-Oriented Identity	4.68	0.76
Constructivist Worldview	4.39	0.61
Constructivist Personal Epistemology	5.37	0.77
Mentor Initiation - Family for Career	4.68	1.38
Mentor Initiation - Teacher/GC for Career	4.33	1.39
Mentor Exp - Family for Career	5.17	1.25
Mentor Exp - Teacher/GC for Career	4.85	1.15

Note. All scores range from 1 (low) to 6 (high).

Mentor Exp = Mentoring Experience

Table 2

Correlations between Information-Oriented Identity, Constructivist Worldview, Constructivist Personal Epistemology, Mentoring Initiation: Family for Career and Teacher/Guidance Counselor for Career, and Mentoring Yield: Family for Career and Teacher/Guidance Counselor for Career (n = 60)

Item	1	2	3	4	5	6	7
1. Information	-						
2. CWV	.25	-					
3. CPE	.42**	.06	-				
4. Initiation Fam	.37**	-.12	.28*	-			
5. Initiation T/GC	-.01	.19	-.01	.16	-		
6. Exp Fam	.27*	.12	.30*	.71**	.32*	-	
7. Exp T/GC	.14	.11	.13	.26	.38**	.48**	-

Information = Information-Oriented Identity

CWV = Constructivist Worldview

CPE = Constructivist Personal Epistemology

Initiation Fam = Mentoring Initiation: Family for Career

Initiation T/GC = Mentoring Initiation: Teacher/Guidance Counselor for Career

Exp Fam = Mentoring Experience: Family for Career

Exp T/GC = Mentoring Experience: Teacher/Guidance Counselor for Career

**Significant at the .01 level (2-tailed).

*Significant at the .05 level (2-tailed).

Mentoring Initiation and Experience for Career Support from Family Members and Teachers/Guidance Counselors.

Pearson's correlations were conducted to assess the relationships between mentoring initiation and experience for career support from family members and teachers/guidance counselors. The results indicate a highly significant correlation between seeking and experiencing career support from a family member ($r = .71$, $p < .01$). A significant relationship between seeking and experiencing career support from a teacher/guidance counselor was also found ($r = .38$, $p < .01$). Based on the strength of these correlations, it is reasonable to suggest that students who seek family members for career support are more likely than those who seek teachers/guidance counselors for career support to experience support.

Pearson's correlations were also conducted to examine the relationship between mentoring initiation and experience by age and grade. The results indicate that the relationship between seeking and experiencing career support from a family member is stronger for 12th graders ($r = .91$, $p < .01$) as compared with 10th graders ($r = .73$, $p < .05$). However, the results did not indicate stronger correlations between seeking and experiencing career support from a family member by age. Similarly, the results did not indicate a stronger relationship between seeking and experiencing career support from a teacher/guidance counselor by age or grade.

Identity Style, Mentoring Initiation, and Mentoring Experience.

Pearson's correlations were conducted to examine the relationship between information-oriented identity and mentoring initiation (see Table 2). A positive correlation between information-oriented identity and seeking career support from a family member and a teacher/guidance counselor was expected. Information-oriented identity was significantly related to seeking a family member for career support, ($r = .372, p < .01$). However, a significant correlation did not exist between information-oriented identity and seeking a teacher/guidance counselor for career support ($r = -.01, ns$).

Constructivist Personal Epistemology, Constructivist Worldview, Mentoring Initiation.

The third research question asked how identity styles (e.g., information-oriented identity), constructivist worldview, and constructivist personal epistemology, career mentoring initiation, and career mentoring experiences related to one another. Pearson's correlations were conducted to examine the relationship between scores on the information-oriented identity and constructivist worldview. A positive correlation between information-oriented identity and constructivist worldviews was hypothesized. Information-oriented identity was not significantly correlated with constructivist worldview ($r = .25, ns$), but was positively correlated with constructivist personal epistemology ($r = .419, p < .01$).

The second research question also hypothesized that a positive correlation between constructivist worldview and seeking a family member or a

teacher/guidance counselor for career support. Pearson's correlations were conducted to examine the relationship between seeking career support from these two sources and constructivist worldview and constructivist personal epistemology. The relationship between constructivist worldview and seeking a family member for support was not significant ($r = -.12, ns$). The relationship between constructivist personal epistemology and seeking a teacher/guidance counselor for support was also not significant ($r = .19, ns$). There was a significant relationship between constructivist personal epistemology and seeking a family member for career support ($r = .282, p < .05$). However, there was not a significant relationship between constructivist personal epistemology and seeking a teacher/guidance counselor for career support ($r = -.01, ns$).

Next, it was hypothesized that constructivist worldview would be positively related to participants' grade level. A one-way ANOVA was conducted, and the results indicated a marginally significant difference between groups $F(2, 58) = 2.57, p = .086$, reflecting a trend of participants' stronger agreement with constructivist worldview as their grade level increased; for 10th grade, ($M = 3.3, SD = .57$) for 11th grade, ($M = 3.5, SD = .73$) and for 12th grade ($M = 4.2, SD = .61$). Lastly, one-way ANOVAs were also conducted to determine whether constructivist worldview was related to age, whether constructivist identity was related to age, and whether constructivist personal epistemology was related to grade. However, none of these analyses indicated significant results.

Regression of Seeking a Family Member for Career Support on Constructivist Personal Epistemology and Information-Oriented Identity.

A hierarchical regression was performed to examine the predictive value of a model that included information-oriented identity and constructivist personal epistemology for seeking a family member for career support (see Table 3). The first block in the hierarchical regression included constructivist personal epistemology. Alone, constructivist personal epistemology accounted for a significant portion of the variance in seeking a family member for career support ($\beta = .28, p < .05$). The next block added information-oriented identity, which also accounted for a significant, unique portion of the variance in seeking a family member for career support ($\beta = .37, p < .01$). Interestingly, when information-oriented identity was added to the regression model, the effects of the constructivist personal epistemology ($\beta = .15, ns.$) disappeared. In other words, constructivist personal epistemology did not account for unique portions of the variance in seeking a family member for career support when information-oriented identity was present in the model.

Table 3

Summary of Hierarchical Regression Analysis with the Information-Oriented Identity and Constructivist Personal Epistemology Scores as Predictors of Seeking a Family Member for Career Support (n = 60)

Block	Model	β	R^2	Adj. R^2	F
1.	CPE	.282	.080	.064	5.01*
2.	Info-Orient	.372	.139	.124	9.33**
3.	CPE	.153			
	Info-Orient	.308	.158	.125	5.34**

Note. B represents the standardized beta for the coefficient.

Info-Orient = Information-Oriented Identity
CPE = Constructivist Personal Epistemology

- * Significant at the .05 level
- ** Significant at the .01 level

Information-Oriented Identity as a Mediator of Constructivist Personal Epistemology

Constructivist personal epistemology was a significant predictor of seeking a family member for career support without information-oriented identity in the model, but was not a significant predictor when information-oriented identity was present in the model. As a result, information-oriented identity was perceived as a potential mediating factor of constructivist personal epistemology. There are three criteria to test for mediation, according to Baron and Kenny (1986). The first criterion is that the variability in the independent variable must account for a significant portion of the variability in the potential mediator. Secondly, variability in the mediator must significantly account for variability in the dependent variable. Lastly, when the independent variable and the mediating variable are included in the model, the mediating variable must significantly account for the variance in the dependent variable and the effect of the independent variable is weakened or disappears. In the current study, this means that: 1) constructivist personal epistemology must account for a significant portion of the variability in information-oriented identity; 2) variability in information-identity must account for variability in seeking a family member for career support; and 3) that the effects of constructivist personal epistemology should weaken or disappear when information-oriented identity is present in the model, and information-oriented identity should then account for a significant portion of the variance in seeking a family member for career support.

To test for mediation, as outline above, a simple linear regression analysis was performed, with constructivist identity as the independent variable and information-oriented identity (the mediating variable) as the new dependent variable. As expected, constructivist personal epistemology accounted for a unique portion of the variance in information-oriented identity ($R^2 = .18$, $\beta = .42$, $F(1, 58) = 12.32$, $p = .001$). A second regression with information-oriented identity as the predictor of seeking a family member for career support showed that information-oriented identity accounted for a significant portion of the variance in seeking a family member for career support ($R^2 = .14$, $\beta = .37$, $F(1, 58) = 9.332$, $p < .01$). Finally, the multiple regression with constructivist personal epistemology and information-oriented identity as predictors of seeking a family member for career support revealed that information-oriented identity accounted for a unique portion of the variance in seeking a family member for career support ($\beta = .31$, $p < .05$), while constructivist personal epistemology ($\beta = .15$, *ns.*) did not ($R^2 = .16$, $F(2, 57) = 5.344$, $p < .01$). Together, according to Baron and Kenny's (1986) model, these analyses suggested that information-oriented identity mediated the relationship between constructivist personal epistemology and seeking a family member for career support. In other words, when information-oriented identity was controlled for, the relationship between constructivist personal epistemology and seeking a family member for support was not significant.

Additionally, in the multiple regression, the R^2 of Model 3 ($R^2 = .16$) is higher than both the R^2 of the simple linear regression with constructivist personal epistemology as the independent variable ($R^2 = .08$), and the R^2 of the simple linear regression with information-oriented identity as the independent variable ($R^2 = .14$). This criterion also enhances the validity of the multiple regression model whereby constructivist personal epistemology effectively predicts seeking a family member for career support, in the presence of information-oriented identity. This model predicts almost 16 percent of the variation in seeking a family member for career support.

Case Studies

Next, case illustrations are presented in order to illustrate the relationships of the key variables within individual participants. See Table 4 for participants' scores on information-oriented identity, constructivist worldview, constructivist personal epistemology, and seeking a family member for career support.

Yamil – Moderate Information-Oriented Identity, High Constructivist Personal Epistemology, and High Seeking of Family Members for Career Support.

Yamil is a 16-year-old Latina student in the 10th grade. Her ultimate career goal is to become an obstetrician because “you are bringing someone into the world by delivering babies.” For now, she is especially interested in learning about working in the medical field because she likes working with people, wants to help pregnant women, and “wants to learn everything there is to know about

being a good caregiver.” To increase the likelihood that she will achieve her

Table 4

Interviewees’ Scores on Target Measures

	Yamil	Cristina	Carmen
Info-Orient	4.54	4.75	5.25
CWV	3.83	4.67	4.67
CPE	5.33	5.67	5.67
Initiation of Career Support from Family	6.00	3.00	6.00

Note. All scores range from 1 (low) to 6 (high).

Info-Orient = Information-Oriented Identity
 CWV = Constructivist Worldview
 CPE = Constructivist Personal Epistemology

career goals, Yamil is currently researching obstetrics and has begun her path in nursing by choosing to study it in high school. Yamil scored moderately on information-oriented identity, the lowest in comparison to the two other interviewees described in these case studies. She reported moderate constructivist worldview, a high score on constructivist personal epistemology and a high score on seeking career support from family members. In our interview, Yamil stated that she feels like she has control over her life. She said definitively, "I've got everything down!" Yamil works two jobs that occupy her for over forty hours per week. Working full-time and going to school became overwhelming and overtiring for Yamil. She often abandoned sleeping in favor of completing her homework when she returned home after a full school day and several hours at work. Now, she strategizes so that she can get more sleep by trying to complete her homework during every spare minute of her school day. These strategies demonstrate the ways that she is pro-actively pursuing her future goals by making her feel more in control.

Her scores on the seeking and experience of mentoring section reveal that she seeks career support from family members. Specifically, Yamil talked about the career encouragement that she experiences. She said assuredly that her mother always tells her that she will help Yamil to reach her goals, regardless of how much money and effort it takes. Thus, it is clear that some students, like Yamil, are acutely aware of who best to seek and receive career support from.

Yamil provides a strong example of the qualitative results that reveal a pattern of seeking and experiencing career mentoring from family members.

Cristina – Moderate Information-Oriented Identity, High Constructivist Personal Epistemology, and Low-Moderate Seeking of Career Support from Family Members.

Cristina is a 16-year-old Latina student in the 10th grade. She hopes to become a pediatric nurse because she says excitedly, “kids are my passion, and helping them and saving their lives from disease makes me feel good.” She enjoys learning about medicine in high school because she wants to “know about different illnesses,” enjoys “learning about and working with kids,” and understands that she “can make good money with a good education.” To increase the possibility that she will achieve her occupational goals, Cristina has worked with children in a church ministry group, and has visited with sick children at her local hospital.

Cristina scored moderately on information-oriented identity, the middle score in comparison to the two other interviewees featured in these case studies. She reported moderate constructivist worldview, a high score on constructivist personal epistemology, and a low-moderate score for seeking career support from family members. During our interview, Cristina stated that she does not have a good relationship with her mother and does not perceive her mother as an available source of support. Furthermore, she says that her mother and stepfather

discourage her by communicating that they do not believe that she will reach her career goals.

Interestingly, Cristina reports a relatively high agreement to constructivist personal epistemology, which would indicate that she is more likely than individuals who report low agreement to seek support from family members. However, her story describes the scenario whereby some adolescents may not seek mentoring because they assume (correctly, in some cases like Cristina's) that they will not receive support. Although mentoring initiation is correlated with mentoring experience, and vice versa, support from family members is not always present for youth whether they seek it or not.

Additionally, Cristina's low levels of seeking and experiencing support stood in contrast to her behavior in class. In my observation, I saw her as a very highly engaged student. She exhibited consistent participation in class and often said hello to me when I entered her classroom and struck up a conversation during break times. As a student who regularly spoke up to ask and answer questions in class, Cristina did not apply the same gregarious personality and enthusiasm to garnering support for her goals. Although I only observed her in a school environment, and not at home where she would seek support from family members, her story may indicate that students who may seem to have the "best" personalities for support seeking may actually be the ones with the lowest levels of initiating and experiencing support. Thus, family members should be

especially aware to offer their children help in the achievement of their goals, regardless of whether they “appear” to need the encouragement.

Carmen – High Information-Identity, High Constructivist Personal Epistemology, and High Seeking of Family Members for Career Support.

Carmen is a 17-year-old Latina student in the 10th grade. She hopes to become a pediatrician in the future because she likes to be in the company of other people. Carmen is currently preparing to achieve her goals by taking nursing classes in school. She is excited about learning about medicine because she likes to help, care for, and talk to people, and is hoping to, she says, “learn everything I need to...help me become the doctor I want to be.”

Carmen scored highly on information-oriented identity, the highest score in comparison to the two other interviewees featured in these case studies. She reported moderate constructivist worldview and a high score on constructivist personal epistemology. Lastly, she reported a high score on the seeking of career support from family members. During our interview, she illustrated the support she receives by enumerating each family member who helps her. Carmen’s mother helps her achieve her career goals because she “makes her come to school and have good grades;” her grandmother helps her by “telling her where she wants her to be;” her aunt instructs that Carmen “should not become like her because she dropped out of school;” lastly, her brother “wants her to keep her dreams and make them come true.”

These individuals in Carmen's family all serve as examples of people who provide her significant career advice and support. Her network of supportive others maps directly onto the qualitative findings as her seeking of family members for career support resulted in the attainment of support. Carmen's mentoring experience demonstrates one of the most central relationships of this study, namely, the relationship between information-oriented identity and seeking career support from family members.

Overall, these case studies illustrate many of the patterns described by the quantitative data, as well as the story of a participant whose information deviates from the patterns. They describe, in greater detail, why participants do and do not seek family members for career support. Additionally, the case studies highlight the types of strategies that participants employ to actively pursue their goals and to be pro-active about their futures.

DISCUSSION

This study was successful in identifying several relationships involving information-oriented identity, constructivist worldview, constructivist personal epistemology, mentoring initiation, and mentoring experience. To summarize, the results revealed a positive relationship between information-oriented identity and initiating career mentoring from family members. Additionally, there was also a significant relationship between information-oriented identity and constructivist personal epistemology, but not between information-oriented identity and the constructivist worldview. The seeking of career support from a family member was associated with receiving career support from a family member, in positive ways. Finally, a multiple regression analysis revealed that constructivist personal epistemology, in the presence of information-oriented identity, served as an effective predictive model of seeking a family member for career support; this model explained close to 16 percent of the variance in seeking a family member for career support.

This study found a significant correlation between information-oriented identity and mentoring initiation from a family member for career support. This is a noteworthy finding because it suggests that youth who value the perspectives of others while constructing their identities are likely to deem family members as important resources in their positive development. For those students who do not understand or acknowledge the importance of asking for help and engaging in the active evaluation of their budding identities, it would be important to identify the

specific reasons why they *prefer* to operate independently of supportive others, or why they feel that they *must*, due to a potential perceived lack of viable mentors.

In the interviews that were conducted, participants stated that their families “were always there for them,” and offered them the most support. During the adolescent years, when many children are still living at home with their family members before going to college, it is reasonable to assume that parental figures are some of the most present and significant individuals in their lives. Despite what some researchers argue about the centrality of separation and individuation during adolescence, a process whereby adolescents seek to differentiate themselves from their family unit (McCurdy & Scherman, 1996), the results of the present study suggest that the influence of family members, particularly parents, may be especially critical during the adolescent years. It may be that the students in this study found it possible to find ways to establish their separate identities while also acknowledging the importance of support from their families, such that the two processes are not mutually exclusive. Furthermore, it would be important to explore the ways in which the career support that these family members provided could seamlessly extend into these youths’ college years. Researchers have found that some adolescents report decreased support from their family members, particularly parents, upon entering college (Hsiao, 1992).

In this study, there was not a significant correlation between information-oriented identity and constructivist worldview, as Berzonsky (1994) found in his

study. However, there was a significant correlation between information-oriented identity and constructivist personal epistemology. One possible explanation as to why the current study did not reproduce Berzonsky's (1994) results is that the current study dealt with ethnic minority adolescents whereas Berzonsky's participants were undergraduate college students. It may be that high school students' epistemological assumptions are not developed enough to reflect a significant correlation between their identity styles scores and their constructivist worldview.

However, there was a positive correlation between participants' scores on information-oriented identity and constructivist personal epistemology. This finding is significant in that it highlights the idea that students who value the importance of multiple perspectives and who are willing to evaluate their identities in light of new information that they gather, are also likely to endorse positive, constructive feelings about their futures, and vice versa. These individuals may feel as though they know how to use the resources available to them to construct their futures wisely, whereas students who do not report high information-oriented identity may feel less competent at taking an action-oriented approach to construct their future identities. The latter adolescents would theoretically be less likely to endorse feeling strongly that they know the steps they need to take to become the people they want to be.

In terms of constructivist worldview and mentoring initiation, a significant relationship was not found between constructivist worldview and seeking career

support from a family member or a teacher/guidance counselor. However, the results did indicate a positive relationship between constructivist personal epistemology and seeking a family member for career support. One possible explanation for the lack of a significant finding between constructivist worldview and mentoring initiation is that initiating career mentoring is really about how one wants to construct one's own career identity rather than how one sees the world around him or her. Thus, it was important to separate the conflation that existed in previous studies between having a specific identity style, seeing oneself as a constructivist, and mentoring initiation. The relationship between constructivist personal epistemology and the initiation of career support from family members highlights the relationship between seeing oneself as capable of constructing one's future and being invested in seeking advice about one's future career. It makes sense that participants who are interested in constructing positive futures would be thinking a lot about who they will become in terms of their careers, as Erikson (1963) argued that establishing a career identity is central to adolescent development.

It is noteworthy that a one-way ANOVA revealed a marginally significant difference between tenth, eleventh, and twelfth graders on agreement with constructivist worldview, but did not reveal a parallel relationship between constructivist worldview and age. Although much of the past research argues that individuals advance in their constructivist assumptions with age (Berzonsky, 1994; Baxter Magolda, 2004; Pizzolato, 2003, 2004), Schommer's (1993) some

work on epistemological development focuses heavily on academic performance – a variable that is arguably more dependent on grade level than age. It may be that the participants in this study interpreted many of the constructivist worldview items in the context of their in-school learning. After all, the surveys were administered during the school day in participants' high school classrooms, within which much of their academic activity occurs. Thus, participants' grade levels, as opposed to their ages, may have exerted a greater influence on their learning, and consequently, their interpretation of the constructivist worldview items.

Additionally, since the age distribution (14-19 years) was greater than the grade distribution (10th-12th grade) it may be that because there were more participants per grade level as opposed to the amount of participants per age group, the analysis with constructivist worldview and grade had more power than the analysis between constructivist worldview and age.

Secondly, in terms of the finding based on age and grade, the results indicated a significant relationship between seeking and experiencing career support from a family member by grade. The correlation between seeking and experiencing career support from a family member was stronger for twelfth graders than for tenth graders. It may be that students' grade levels are their most salient reminders of how far they have progressed in their academic careers, as well as what phase they are approaching. Twelfth graders, who were in their final year of high school, may have been much more cognizant of the fast-approaching career stage of their lives, as opposed to tenth grade students, for whom the career

stage likely seemed more distal. In addition, twelfth grade students' family members may also be more aware of the need to offer career support, as they, too, would be conscious of the upcoming graduation. As a result of the strong correlation between seeking and experiencing career support from a family member for all grade levels combined, it is clear that the participants of this study value the support of their family members in thinking about their future careers. Consequently, it is logical that the relationship between seeking and experiencing career support from a family member was stronger for twelfth grade students than for tenth grade students, considering the salience of career-related expectations that surround entering the workforce or matriculating to college for students about to graduate. Additionally, twelfth grade students may have become better at implementing more effective mentor-seeking strategies over their high school careers, which would also explain the stronger correlation between seeking and finding for twelfth graders as compared to tenth graders.

Finally, the primary aim of the regression analysis in the present study was to examine the relationships among constructivist personal epistemology, information-oriented identity and seeking a family member for career support for the high-school aged youth in this study. Both information-oriented identity and constructivist personal epistemology were independently related to seeking a family member for career support. However, in the presence of information-oriented identity, constructivist personal epistemology did not account for a unique portion of the variance in seeking a family member for support. Further

regression analyses revealed that information-oriented identity was indeed the mediating variable between constructivist personal epistemology and seeking a family member for career support. Together, constructivist personal epistemology, in the presence of information-oriented identity, served as an effective predictive model for seeking a family member for career support; this model explained close to 16 percent of the variance in seeking a family member for career support.

As stated, information-oriented identity operated as a mediating variable between the independent variable, constructivist personal epistemology, and the outcome variable, seeking a family member for career support. This could mean that, in order to explain the most amount of variance in seeking a family member for career support, one should have a constructivist personal epistemology and an information-oriented identity, and that these together predict seeking a family member for career support. It may be that having a constructivist personal epistemology guides how an individual *thinks* about the future, such that it influences how one sees oneself as pro-actively creating a life. Thus, a constructivist personal epistemology may operate most effectively as a set of *cognitive* representations of “who I believe I can be in the future if I actively construct my identity.” Having an information-oriented identity may guide how the individual *behaves* in order to construct his or her future. The information-oriented identity may influence how resourceful an individual is in attempting to obtain the multiple perspectives that he or she can consider when forming an

identity. The *behavioral* and practical piece that the information-oriented identity offers may further motivate individuals with a constructivist identity to initiate career support from a family member. It remains logical that one's family member may represent a very salient resource in the adolescent's life from whom to obtain career support. Consequently, when information-oriented identity and constructivist personal epistemology are conceptualized as contributing both a cognitive and a behavioral dimension to mentoring initiation, it appears to explain why they, together, account for a greater percentage of variance in seeking a family member for support than either one variable contributes when alone.

The limitations of this study include the fact that the sample was drawn from one high school and the majority of participants were adolescent females. Thus, the results of the present study may not be generalizable to a larger adolescent population, and may be most reflective of the experiences of female youth at a vocational high school. As a result, future research should seek to determine whether the results of the current study can be applied to the larger population of adolescents. Researchers may wish to examine whether these results are replicable across high schools, with samples of female and male students. We might expect that male students, in contrast to female students, would be more likely to report successful seeking of mentoring. In a study of 365 graduate students, Scandura and Williams (2001) found that male students who sought support perceived more mentoring than their female peers. Thus, it would be valuable to explore the initiation patterns of male high school students in

comparison to female high school students to see if findings similar to those of Scandura and Williams would result.

In terms of future research, it may be valuable to further examine the relationship between adolescent girls and epistemology. Studies examining the role of personal epistemology in college-aged women have discovered marked within-group differences concerning how pro-active young women believe they can be in constructing knowledge about themselves (Belenky et al., 1986; Egan, 1994). Aside from constructivist personal epistemology, which was of central concern in the present study, Belenky et al (1986) categorized their participants into five different categories (e.g. silent, received knowledge, subjective knowledge, procedural knowledge, and constructed knowledge), based on how they perceived themselves as creators and receivers of knowledge. From a developmental perspective, it would be important to understand, in greater detail, how young women develop these beliefs, since individuals with a constructivist approach have been shown to take a more pro-active approach to creating knowledge about themselves and the world around them.

Lastly, upcoming studies could take a longitudinal approach to research on identity and mentoring and track students with various identity styles and strategies of mentoring initiation to determine whether these key variables produce long-term effects among high school students during their transitions into college, the workforce, and beyond. As stated, this study found a significant relationship between information-identity and seeking family members for career

support. In order to determine how students' mentoring needs change over the course of their educational careers (particularly in terms of whom they seek and for what functions), a longitudinal study would be worthwhile. The results of future studies of this nature could greatly improve the quality of mentoring programs in high schools, colleges, and in the workplace, and allow program developers to create curricula that would address individuals' most specific needs at different stages in their education.

The implications of this study are relevant for parents of high school-aged children, high school teachers, guidance counselors, and the adolescents themselves. First, it is clear from the current study that some students seek more support from their parents than may be readily assumed. Parents need be aware of offering help to their adolescents, whether their children directly ask for it or not; as mentioned, some participants in this study reported wanting more help from family members, but not perceiving that support as available. The findings regarding identity development may be especially critical for the work that teachers and guidance counselors perform. How the participants in this study perceived their process of identity development appeared critical in terms of who they sought for support and how they thought about constructing their futures. Thus, teachers and guidance counselors should monitor how and what their students are thinking about their futures by noting how they use the resources, especially supportive people, available to them. It will also be important to make support-givers like teachers and guidance counselors aware that they should not

assume that students who do not seek support do not need mentoring. Finally, implications could include teaching high school students how to initiate mentoring, and helping them to recognize who can help and for what functions. Programs may wish to raise awareness about mentoring and the importance of mentoring outside of the family, especially for students who will be the first in their families to go to college. As a result of the valuable implications of studies on identity, constructivist worldview, constructivist personal epistemology, and mentoring, this promising and innovative line of research should be pursued with precision and vigor.

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APPENDIX A

Identity Style Inventory, Revised Version (ISI-3) (Berzonsky, 1992), adapted for high school students

Likert Scale 1-6: strongly disagree – strongly agree

Information-Oriented Identity Subscale Items

1. I've spent a good deal of time reading and talking to others about my ideas for the future.
2. I've spent a great deal of time thinking very hard about what I should do with my life.
3. When I have a personal problem, I try to think hard about the situation in order to understand it.
4. When I have to make a decision, I like to spend a lot of time thinking about my options.
5. When I talk about an issue with someone, I try to see the issue from their point of view.
6. I've spent a lot of time reading and trying to make sense out of my future.
7. I've spent a lot of time and talked to a lot of people trying to develop a set of values that make sense to me.
8. I like to have the responsibility for taking care of problems in my life that make me think on my own.
9. I find that personal problems often turn out to be interesting challenges.
10. I find it's best to go to professionals (e.g., bosses, teachers) for advice when I have problems.
11. When making important decisions, I like to have as much information as possible.

APPENDIX B

Constructivist Assumptions Scale (Berzonsky, 1994)

Likert scale 1-6: strongly disagree – strongly agree

Items:

1. Facts speak for themselves.
2. Our understanding of the natural, physical world is influenced by what we value or what the 'norm' is.
3. Scientific facts are always truths; they do *not change* over time.
4. Nothing is really good or bad, it always depends upon how we think about it.
5. What we see with our own eyes is influenced by what we expect to see.
6. What is true at one point in time may not be true at another.
7. Studies about science are not influenced by what we value or what the 'norm' is.
8. We never see the world as it really is. What we see depends on what we believe and want to see.
9. Our understanding of human actions is influenced by what we value or what the 'norm' is.
10. Nothing is really important by itself. A thing is important if we think it is.
11. Seeing is believing.
12. The more people know, the more they are likely to feel that they cannot be totally sure about anything.

APPENDIX C

Constructivist Personal Epistemology Scale (Piontkowski, 2006)

Likert scale 1-6: strongly disagree – strongly agree

Items:

1. I see myself as someone who can create my own future.
2. I am confident that I will be successful in creating my own path in life.
3. I know the steps I need to take to become the person I want to be.

APPENDIX D

Mentoring Survey – Initiation, adapted from Packard, Babineau, Piontkowski, & Ruiz, (2006)

Likert scale 1-6: strongly disagree – strongly agree

Items:

1. I often go to a teacher or guidance counselor for career support (help thinking about your future career or given experiences in the future career).
2. I often go to a family member for career support (help thinking about your future career or given experiences in the future career).

APPENDIX E

Mentoring Survey – Experience, adapted from Packard, Babineau, Piontkowski, and Ruiz (2006)

Likert scale 1-6: strongly disagree – strongly agree

Items:

1. I have career support (help thinking about or experience with my future career) from a family member.
2. I have career support (help thinking about or experience with my future career) from a teacher or guidance counselor at school.

APPENDIX F

Interview Protocol

Seeks Career Support from Family and/or Teacher/Guidance Counselor

1. On the survey we did together in class, you wrote that you tend to be very active about discovering and developing who you are and who are you going to be. You tend to go after information rather than just wait for life to happen. Can you give me a good example of something you did recently that shows this about you?
 - a. Why do you think you are the kind of person who does this?
2. Some people think that they have some control over who they are going to become in the future. Can you give me an example of something that you feel like you have a lot of control over in your future and what you're doing about it?
 - a. Is there anything you feel like you don't have as much control over? Are you doing anything to have more control?
3. I looked at your survey and it looks like you tend to seek _____ source(s) for a lot of help thinking about your future career.
 - a. Is there a reason why you tend to choose these people?
 - b. Can you give me examples of how they've helped you?
 - c. Do you seek support from them or do they offer you help without you having to ask for it?
4. It appears that you don't seek _____ source(s) for career support. Why not?

Seeks Support from Family

1. On the survey we did together in class, you wrote that you tend to be very active about discovering and developing who you are and who are you going to be. You tend to go after information rather than just wait for life to happen. You also tend to be influenced a lot by your family. Can you give me a good example of something you did recently that shows this about you?
 - a. Why do you think you are the kind of person who does this?
2. Some people think that they have some control over who they are going to become in the future. Can you give me an example of something that you

feel like you have a lot of control over in your future and what you're doing about it?

- a. Is there anything you feel like you don't have as much control over? Are you doing anything to have more control?
3. I looked at your survey and it looks like you tend to seek _____ source(s) for a lot of help thinking about your career.
- a. Is there a reason why you tend to choose these people?
 - b. Can you give me examples of how they've helped you?
 - c. Do you seek support from them or do they give you help without you having to ask for it?
4. It appears that you don't seek _____ source(s) for help thinking about your future career. Why not?