Intellect, Advising, and the College Major Decision Process

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The most frequently identified life regret for Americans involves their educational choices. A meta-analysis of 11 regret ranking studies revealed that the top six biggest regrets in life center on (in descending order) education, career, romance, parenting, the self, and leisure (Roese & Summerville, 2005). When a college student chooses a major, three of these regrets, including the top two, are involved in the decision.

The choice of a college and a major are arguably the first decisions a student typically makes on their own that will impact the future. As students enter college, they display a wide range of conviction regarding their intended major, varying from absolute certainty to having no idea what they plan to study. My personal experience, as a consultant/adviser with students in The Pennsylvania State University’s Division of Undergraduate Studies, is that uncertainty, regarding a choice of major, can produce frustration and varying degrees of anxiety. This angst is natural. Research and theory on the cognitive and psychosocial development of college students strongly suggests that the majority of first-year students have not yet reached a stage of intellectual maturity at which they are capable of making well-reasoned educational and occupational decisions (Cuseo, 2005).

Students benefit from institutional support as they navigate the curriculum and campus experiences to develop academic maturity. Students who employ a faulty decision-making process may find themselves enrolled in courses that are not congruent with their interests or abilities. Poor academic choices can lead to a plummeting grade point average or may prolong a degree completion path. Information about both positive and negative influences on the students’ decision-making process when choosing a major would be beneficial. Knowledge of how students arrive at informed decisions can provide advisers with information to guide the
intellectual and identity development of students required for mature decision making.

Knowledge of negative circumstances that affect decision making can alert advisers to situations in which students may require intervention and support.

Various studies explore the influences that affect college major choice. While many influences come from forces outside the student such as family, faculty, or the economic market, internal forces are equally at play. Virginia Gordon believes that students’ first year is a “critical time to learn how to gather information about academic strengths and limitations and how to incorporate these into various major and occupational alternatives (1995, p. 99). The ability to profit from such internal influences is, in part, mediated by the students’ epistemological framework and formulation of identity.

Research and theory on both cognitive and psychosocial development of college students indicates that many first-year students are not at the stages of intellectual development needed to arrive at well-reasoned educational and occupational decisions (Cuseo, 2005). Both Perry (1998) and Baxtor-Magolda (2001) describe students in the early part of college as being at a stage of cognition where their thinking is absolute. Diverse viewpoints or differing perspectives can be confusing. Students at this stage have difficulty weighing choices so they turn to authorities for answers. It follows that students at this level of intellectual development would lean on parents, teachers, or other sources for information and support when making academic decisions.

Chickering and Reisser’s (1993) developmental theory of college student identity suggests that students typically will develop personal identity before they can make sound academic decisions. According to Chickering, first-year tasks are the development of social and intellectual competence along with emotional independence. These are internal characteristics that enhance a student’s identification of their interests, abilities, and aspirations. Students’
developing intellect and identity augment their efforts to make personal meaning of educational experiences and apply these to informed decisions about majors.

I believe that students at the early stages of intellectual development rely on decision making influences that are externally based and result in either random multiple changes or no choice at all. Students with a developing personal identity, who also apply a multiplistic lens to choices, may seek advice or information to guide their decision making. They are more confident with their decisions. The level of cognitive complexity necessary to make commitments helps to explain the reluctance to commit to a decision exhibited by some students (Evans et al., 2010).

The purpose of this study is to explore how the intellectual levels of students, as measured by growth toward self-authorship, influence academic decision making processes and a choice of college major. Specific influences situated in experiential learning and mediated through advising that enhance decision making will also be investigated. Through my methodology I intend to answer the following questions:

1) “What is the relationship between cognitive development, defined as self-authorship skills, and the college major decision-making process?”

2) How do advising practices influence cognitive growth and the college major decision process?

The results are intended to guide advisers in their efforts to educate students as they navigate meaningful educational experiences related to improving decision-making skills.

In the first section of this proposal, I provide a review of current literature to examine both internal and external influences on students’ decision making as related to choice of college major. I identify and discuss additional literature related to intellect and identity development in academic decision making. Also in the literature review, I included a detailed theoretical
framework of the underlying developmental theories informing my hypothesis, specifically those related to cognitive development. In the next section, a mixed-methods methodology is proposed. A mixed method approach was chosen to provide an expanded understanding of the role cognitive development plays in academic decision making. The quantitative query of the significance of cognitive development on the decision making process of college major choice will be enhanced by the rich qualitative data about factors in advising that may influence cognitive development and lead to a decision. The also methodology describes the participants, assessment instruments used, procedures, and the plans for the statistical analysis of data. A final section will include findings and recommendations for use in the practice of advising students.

**Literature Review**

Students arrive at college with varying developmental levels which, among other influences, can affect the process they utilize to commit to an academic field of study. Some students arrive prepared to commit to an academic major while others enter undecided and embark upon an exploratory process. As students explore, various factors influence what major they ultimately select. The influences behind the decision-making process for college students have been explored in the research through many lenses. Identifying what influences students to make a choice, that is for most a life event, can help advisers and student affairs professionals guide students through this decision-making process. Literature on the process of choosing a college major has focused on specific influences and their relationship to decision making, the decision making process itself, and the role student development plays.
How Specific Influences Affect the Choice of a College Major

In the research, influences fall into one of two categories: external influences that motivate the student from the outside or internal influences that develop from within the student. External and internal influences also intersect with variables such as gender, race, ethnicity, and identity development.

Advice from people significant in a student’s life can influence a student’s selection of a major. Relationships that students have, personal and professional, play a role in their choice. Parents, faculty, sibling and peers all wield a strong and significant influence in direct and indirect fashions (Walmsley, Wilson, & Morgan, 2010; Beggs, Bantham, & Taylor, 2008). Calkins and Welki (2006) observe this influence as well, but more so for women than men. Men, in studies based on populations of business majors, focused on economic factors such as marketability and perceived income when selecting a major (Calkins & Welki, 2006; Malgwi, Howe, & Burnaby, 2005). Arcidiacono, Hotz and Kang (2012) researched the effect of economics, defined as expected earnings, and student self-assessment of ability in a survey of Duke students. They found that students’ perceptions of expected earnings are not always accurate. The authors recommend providing students with specific earnings by major so that if students reference earnings to influence their choice, they can select a well-paying major that matches their abilities and preferences as well.

Economic factors and advice from others are external influences that act on the student’s decision-making. Internal factors also come into play in the body of research that investigates how and why students select a college major. Students’ understanding of self has been investigated, along with their personality, interests, and abilities.
Several studies have investigated the role that personality plays in a student’s search for a college major. McPherson and Mensch (2007) found a relationship between technology majors’ personality type and their choice of major. Students majoring in Business Information Systems shared the traits of being group-oriented and social extroverts, whereas students majoring in Computer Information Systems were private loners who expressed they would rather be friendless than jobless. McPherson and Mensch suggested using personality typing to recruit students to the field of Information Technology. Porter and Umbach (2006) found that students with similar personality types and political viewpoints lean toward similar majors. They also discovered that personality type influences some minority students’ decisions to avoid majoring in the sciences. Their results showed that females and Black students were more likely to choose social science majors over science. The control of varying factors decreased differences for females but racial differences remained significant in the fully controlled models. Only 6.4% of the Black students at the institution studied majored in sciences. When their background characteristics and personality types were controlled, 10.6% would major in sciences. The authors implicated the importance of studying personality type development and idea formation in Black students well before college to see what influences are at play.

The most influential factor within and among the research appeared to be that of a student’s fit with a major. Phrases used within the literature to define the concept were: Match with Interests or Strengths, Course/Major Attributes, Job Characteristics and Interest in Subject (Beggs, Bantham, & Taylor, 2008; Calkins & Welki, 2006; Malgwi, Howe, & Burnaby, 2005). Walmsley, Wilson, and Morgan (2010) also examined how a student uses experiences such as internships, study abroad, and research to determine their interests in various fields. Beggs, Bantham, and Taylor (2008) noted the limitation that a student’s perceived strengths and abilities
may not be an accurate match to those required by a major. This misperception may lead the student to an ineffective choice.

**Decision-making in Relation to Major Choice**

Galotti et al. (2006) studied the way students use the aforementioned attributes and influences to arrive at the critical decision of choosing a major. They compared a rational planning style to a more intuitive approach. They also tested the correlations of Belenky, Clinchy, Goldberger and Tarule’s (as cited in Galotti et al., 2006) epistemological orientations of separate knowing and connected knowing to decision-making styles. The findings suggest that individuals do not vary greatly in the manner in which they collect or structure information, but do differ in the way they respond to the process or how they approach it. They differ in the way they project the results into the future and how they assimilate results into their values and belief systems. These findings indicate that students at different intellectual levels may process the same input differently depending on what stage of cognitive maturity they have reached. This work leads one to challenge the assumption that all first-year students are cognitively capable of selecting a college major based on their interests and abilities. Some students may require interventions to promote cognitive growth and effective decision making practices in order to arrive at a choice that is based on their identity and internal voice rather than the reliance of external authority. It stands to reason that a student’s varying levels of development effect this decision making process.

**The Role of Development in College Major Decision Making**

**The influence of identity.**

Studies have been conducted that investigate a developmental role in the decision-making process of college majors. Boyd, Hunt, Kandell, and Lucas (2003) explored the relationship
between identity processing style and academic success (which included choice of college major) in undergraduate students. Students’ style of processing information related to identity formation was identified using the Identity Styles Inventory (ISI) developed by Berzonsky (as cited in Boyd, Hunt, Kandell & Lucas, 2003). The ISI categorizes identity processing styles as: information oriented, normative oriented, or diffusion oriented. Information-oriented students are open to feedback, have good problem-solving skills and test and revise aspects of their identity. Normative-oriented students avoid exploration. They adopt the ideas of others and use avoidance as a strategy in behaviors such as wishful thinking and procrastination. Diffuse/avoidant oriented students employ outright avoidant behaviors. They are not introspective.

Both information and normative oriented students felt prepared for college and had selected a major. Students were less likely to change majors if they had a normative oriented processing style. Students with a diffused orientation shared feelings of anticipated difficulty with course work, few had chosen majors, and many experienced self-induced pressure. The overall findings supported the idea that identity style processing influences decision-making as related to students’ choice of college major. As information processing is a cognitive skill, it is logical to also investigate the influence of cognitive theory and whether it, along with identity processing style, influences a student’s college major decision making process and outcomes.

**Intellectual/Cognitive theoretical framework.**

William Perry’s (1998) theory of intellectual development proposed that many first-year college students are still at a position of dualistic thinking and seek wisdom and guidance from authority. Accordingly, it would appear logical for students to lean more heavily on external factors when choosing a major. Understanding the value of Perry in analyzing how students
interpret their experiences can help advisers recognize that each cognitive position requires a different type of developmental response when helping students navigate their decision making (Evans et al., 2010). Constructive-developmental theory also informs the thinking of first-year students as they attempt to construct meaning from their life experiences. Kegan’s levels of consciousness describe typical first-year students as entering college with third-order thinking. Students see others as sources of validation or authority. They strive for the acceptance and need to be encouraged to make their own decisions. Growth toward Order 4 results in beginnings of self-authorship and the capacity to take responsibility for internal feelings along with the development of values and beliefs (Kegan, as cited in Evans, Forney, Guido, Patton, & Renn, 2010). Baxter-Magolda’s (2001) work expanded on Perry and Kegan’s theories. She developed her model of epistemological reflection which identifies four stages of knowledge construction. Longitudinal work with this model led to her theory of self-authorship. Baxter Magolda found evidence, through her qualitative interviewing, that epistemological (intellectual) development was connected with an individual’s development of a sense of self and also with relationships with others.

Students achieve self-authorship via a journey through four stages moving from external definition to an internal capacity to define one’s beliefs, identity, and social relationships. In the first phase, students follow the voice of authorities about what to think and how to accomplish matters similar to Perry’s dualism and Kegan’s third order of consciousness. Many do not consider their own actual interests and the approval of others is critical. During the second phase, students recognize that plans and ambition include their own needs and interests. Tension between one’s own desires and those of others must be resolved. In the third phase, students choose their beliefs and identity and anchor them amidst external alternatives. Students learn
that beliefs form within a context and that continual self-reflection helps to define who they are. In the last phase, recognition of the internal foundation upon which identity rests is solidified (Baxter Magolda, 2009).

**Self-authorship’s effect on college major decision-making.**

The tenets of self-authorship dictate that students’ academic decision making is influenced differently depending on the stage of their self-authorship journey. Students who exhibit self-authorship have strong underpinnings of identity. It follows that they would look inside themselves to inform their academic decision-making and make effective selections based on self-reflection and contextual meaning making. This thinking is supported in the literature.

King, Baxter Magolda, Barber, Brown, and Lindsay (2009) proposed self-authorship as a theoretical lens to understand the meaning making process among other important developmental learning outcomes. Student decision-making as in choice of college major can be examined through this lens. Students come to college with a baseline of cognitive development. The level of cognition informs the way students make meaning of external influences situated in their experiences, as well as whether and how they incorporate them into their sense of self, when choosing a major. Students who develop effective decision making skills situate the decision within their own experiences validating them as knowers, an underlying premise of self-authorship. Students who self-author consider differing perspectives, practice goal reflection, and base decisions on these internal influences (Baxter Magolda, as cited in Pizzolato, 2006); all practices that would promote an effective college decision making process.

Pizzolato (2006) used practices from the Learning Partnership Model (Baxter Magolda, 2001) when studying decision making in academic advising. Through 132 interview surveys of students she found that most students can identify options, but need encouragement and guidance
to evaluate the options and clarify reasons for making decisions. These reflective practices are nurtured through open-ended conversations about the values of each option and how they align with personal goals. In Pizzolato’s findings, learning was also situated in the experiences of the students both positive and negative. Discussions with advisers about positive perceptions and behaviors from experiences in courses, activities, and internships helped students clarify academic goals. Students learned how this process influences decisions. Negative experiences such as poor academic performance or lack of admission to a desired program also merited serious reflection for goal redirection and alternative options.

Laughlin and Creamer’s (2007) five-year study of women and career-related decisions echoed the need for students to have supportive discussion when considering options and alternatives. These authors also recommended that students be encouraged to determine criteria to judge the quality and information they use when evaluating advice and making a choice.

The Current Study

A theme that emerged from many of the aforementioned studies is that the process students use when choosing a college major should be the focus rather than the outcome of their choice (Galotti et al., 2006; Laughlin & Creamer, 2007; Pizzolato, 2006; Boyd, Hunt, Kendall, & Lucas, 2003). Another theme indicated that a number of students require guidance when processing their experiential influences. They need encouragement to reflect on the perceptions and behaviors of the experiences and evaluate the fit with their internal influences (Beggs, Bantham, & Taylor, 2008; Walmsley, Wilson, and Morgan (2010); Pizzolato, 2006; Laughlin & Creamer, 2007). Conversely, some students arrive at college with these intellectual skills already developed. Those students have worked through the decision making process virtually independently and arrive at a choice.
Pizzolato (2006) studied the process of college major decision making and how the facilitation of self-authorship affected it. Yet, she highlighted multiple limitations of this study. Her subjects were predominantly white females. She specifically noted a lack of pre and post testing of student intellectual development. Inclusion of measures of the students’ cognitive growth would allow for comparison to the students’ decision-making process. She also acknowledged the lack of input from advisers in addition to student data.

My proposed study will focus on the process of college major decision-making and addresses some of the limitations of Pizzolato’s study. It will explore the relationship between cognitive development, as defined by growth of self-authoring practices, influences situated in experience, and effective advising practices (Figure 1).

Figure 1
A Model of the College Major Decision Process
Assessment of students’ self-authoring practices will occur when students enter and at the time of their college major decision. This information will provide a measure of the students’ intellectual growth during their decision making process. It will ascertain whether cognitive growth readily accompanies the college major choice. The expectation is that the majority of students who show little growth toward self-authorship will lean on external influences to inform their decision making process. They may take a longer time to arrive at a decision or be unable to communicate how they arrived at their choice. Students arriving with elements of self-authorship in place or who show considerable development in this area will be able to work through options for a major and evaluate the fit of each with their internal values and beliefs. They will be able to explain their decision making process. Students who exhibit initial low levels of self-authorship skills upon entry will be exposed to guidance in self-authoring practices via the Learning Partnership Model. When students arrive at a college major decision, a qualitative follow-up will provide information on which influences informed each student’s decision-making from both the student’s and the adviser’s perspectives. The qualitative data will provide evidence or lack thereof of the students’ use of self-authorship in making their choice. It will also investigate whether advising practices influenced students’ decision-making and cognitive growth.

The following questions will be addressed.

1. What is the relationship between cognitive development, defined as self-authorship skills, and the college major decision making process?

2. How do advising practices affect cognitive growth and the college major decision process?
Methodology

This study is framed through a pragmatic lens in an effort to come to a better understanding of how students work through their transition to college and develop independent decision making skills. Meaning is constructed through both assessment data and the voices of students and their advisers who have worked through this process together. The use of self-authorship theory acknowledges both the importance of cognition in the decision-making process as well as the construction of meaning through experiential learning.

Participants

All first-year students attending the main campus of The Pennsylvania State University attend a First-Year Testing, Advising, and Consulting program prior to entering the University. Students enrolled in the Division of Undergraduate Studies (DUS), the enrollment unit for students who have not chosen a major, are included in this orientation. At the time of each DUS student’s summer visit, they will be offered an invitation to participate in the study. The invitation will explain the purpose of the study and describe what participation entails. Specifically, students will be informed that they will receive an email providing a date and time for them to report to their assigned advisor when they arrive on campus in the summer or fall. All students who sign consent to participate while at FTCAP will receive an email with an appointment. At that time, the advisor will administer the Self-Authorship Survey (SAS) to obtain a baseline score of the student’s intellectual development toward self-authorship. The same assessment will be administered at the time the student leaves DUS for his/her college of choice. Students remaining in DUS will retake the SAS at the end of the fall semester. This same process will be repeated through the spring semester. All participating students who leave DUS for the college of their intended major and their advisers will also be asked to participate in
online surveys to collect qualitative data about the key influences that informed their college major decision making.

Typically, DUS matriculates from 1,500 to 1,800 students each summer and fall semester combined. A 30% participation rate will provide a sample size of 450-600 students for the study. These numbers should be adequate to support the results of a planned statistical analysis.

**Instruments and Procedures**

The Self-Authorship Survey (SAS) was selected to measure students’ intellectual development toward self-authorship. It consists of twenty-four Likert-type questions on four subscales that measure: Capacity for Autonomos Action, Problem-Solving Orientation, Perceptions of Volitional Competence, and Self-Regulation in Challenging Situations. Together these categories provide a measure of a student’s developing self-authorship. Many of the questions directly relate to aspects of student decision making. An example of a question from each subscale can be found in Appendix A.

The SAS and its subscales have been found to have internal consistency and test-retest reliability. Internal consistency alpha scores for the subscales ranged from .73 to .88. Test-retest reliability ranged from .82 to .92 with p < .01. The SAS provides both subscale scores and a total score which is obtained by the average of the subscale scores. The higher the score, the more likely the student is to use self-authoring practices (Pizzolato, 2007). Along with the SAS, students will be asked to provide demographic data such as their age and gender. Other relevant information such as grade point averages and number of changes in major can be readily accessed, if warranted. SAS scores along with other independent variables such as gender and
academic ability will be analyzed to determine if these variables have any effect on a student’s proclivity to select a major.

A self-created survey will be emailed to all students and their respective adviser once a major has been selected (See Appendices B-C). The purpose of the survey will be to collect qualitative data to investigate what specific experiences influenced the student’s selection of major. The data will be coded to determine if the student was influenced more by internal or external factors. Data will also be coded for evidence of advising practices that influence self-authorship such as choosing and analyzing various options and evaluating experiences in relation to abilities and interests. The qualitative data will be compared to the student’s growth in self-authorship to look for relationships between the decision-making influences and cognitive growth.

**Data Analysis Procedures**

The mixed method approach used in this study is a sequential explanatory strategy. A quantitative analysis will compare the growth in self-authorship of students who have chosen a major to that of students who have not, at two points in the year. The data will be analyzed to see if the difference in their growth rates was significant and could have influenced their decision-making. At the time students select a major, both the student and his or her adviser will be given a qualitative survey to collect data about specific influences, experiences or practices that contributed to their college major decision. This qualitative data will be coded and analyzed to find common themes or practices that influence decision making and to determine if those practices are related to growth in self-authorship.

The dependent variable in this pre-experimental design is the ability to make an academic decision, the choice of a college major. Growth toward self-authorship, a level of cognition, is
the main independent variable that will be investigated in this study. Other independent variables that may influence decision making are gender, age and academic ability. These will also be considered in the statistical analysis.

As the population of this study is specifically first-year undecided students from a large research university, the findings may only be generalizable to similar populations to protect the external validity of the study. Threats to internal validity will be minimized by eliminating outlying scores from the study to control for regression and by the use of a random population.

Students’ self-authorship will be assessed individually by their assigned adviser using the SAS in September and at the time a major is chosen (or in December if still undecided). Students will also provide demographic data such as name, gender, and age. The adviser will access the student’s high school grade point average and add it to the demographics. The difference in the scores will be calculated for each student. The students will then be separated into two groups: students who chose a major and those who did not. The mean score of each groups’ differences will be calculated and a t-test performed to compare the scores of the groups to determine whether the difference in cognitive growth is statistically significant.

An additional statistical test will be computed to determine if other variables may influence the decision-making process more directly. The students’ growth in self-authorship, gender, age and high school grade point average will all be compared using a multiple regression analysis to determine whether the variability in scores for each is statistically significant. This will help to determine if cognition is a key influential factor in academic decision-making or if other variables are at work.

The identical procedure described above will be repeated at the end of the second semester for the students who have not yet selected a major in December. At this time, an
analysis of variance will be completed to determine the significance of cognitive growth in the first semester change of major group, the second semester change of major group and the students who still have not selected a major at the end of the first year.

The qualitative arm of the study will be comprised of collecting and coding the results of online surveys sent to students who have selected a major and the advisers of the students. The survey questions are designed as open-ended in nature and will require coding by hand to help identify the influences that will either support or negate the role of self-authorship practices in the development of academic decision-making. This is in keeping with the pragmatic lens of the quantitative piece. The purpose of the study is action-oriented research to develop practical understanding.

Once data is collected it will be read with an eye for general themes or descriptions. Codes will also be analyzed for underlying theoretical perspectives. Data will then be coded by common expected themes and also unintended surprises. The outcome will consist of influences, experiences, practices and unknown factors that influence students to arrive at a college major decision. Demographic information will enable data to be analyzed for first-year students as a whole, as well as specific sub groups to see if experiences are similar across groups.

As the chief examiner of the study, I will participate in the coding, but will also be employing other advisers to code. Systematic intercoder cross-checking will be built into the analysis process. As a practicing adviser, I cannot allow my own assumptions and contextual experiences to influence what other students are sharing with me. Findings will be conveyed through the use of rich narratives and specific quotations to share the voices of the students with other advisers and interested parties. As a final precaution, I plan to use my department’s
research team to act as peer debriefers to insure that their interpretation of the data and findings are congruent with my own.

Implications for Practice

Results of this study will provide advisers with a better understanding of influences that affect their student’s decision-making processes when working toward a choice of major. Both the quantitative and qualitative data will provide information on types of conversations that advisers should be striving to have with their students. The qualitative data will especially provide advisers with rich information to inform their work and prepare undecided students for a less stressful and more productive first year of college.
Appendix A

Sample Questions for each Subscale of the Self-Authorship Survey

Capacity for Autonomous Action: If my friends are doing something I don’t want to do, I often do my own thing without them.

Problem-Solving Orientation: When I’m making decisions I spend time thinking about how my decision fits with my goals and principles.

Perceptions of Volitional Competence: When I set a goal for myself, I come up with a specific plan for how I am going to achieve it.

Self-Regulation in Challenging Situations: When things start getting hard, I often have trouble sticking with my plans.
Appendix B

Student Academic Decision Making Survey

Name:

Age:

Gender:

In completing the following survey, please think about the process that transpire in your journey to select an academic major. As you leave the Division of Undergraduate Studies (DUS), please reflect on the situation, experiences, conversations and events that may have played a role in leading you to your decision. Your thoughtful answers to the following questions will be helpful in guiding future students to an informed decision.

1. What major did you select? ____________________________

2. How many majors did you consider prior to making your choice? ______________

3. What would you identify as the key factors (ex: people, experiences, coursework) that led to your decision? Please list as many as necessary considering all factors even those that may have occurred before entering college?

4. What was the deciding factor that led you to know this was the right major for you?

5. What advice would you give an incoming freshman to help them with this process?
Appendix C

Adviser Survey for Students Exiting DUS

Adviser’s Name:

Student’s Name:

High school grade point average of student:

In completing the following survey, please refer to your advising notes and memory of interactions with the student.

1. How many appointments did the student have with you prior to his decision?

2. What was the main focus of the advising appointments?

3. What practices, if any, were employed to enhance the student’s self-authorship development?

4. Did the student display evidence of growth in self-authorship? If so, please describe the behaviors/actions that support the growth.
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