The Effect of Self-efficacy and Psychosocial Development on Major-Changing Behavior

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In this study, we sought to determine whether psychosocial development and self-efficacy of major changers differ from those classified as relatively stable. Participants completed the Life-Skills Inventory–College *(Picklesimer, 1991) form to measure psychosocial development and the* General Self-efficacy *(Schwarzer & Jerusalem, 1995) scale to measure students' level of self-efficacy. Major changers reported a lower level of self-efficacy than relatively stable students, and relatively stable students scored higher on the self-perception measures of the* Problem-Solving/ Decision-Making *subscale on the* Life-Skills Development Inventory *than did major changers.*

KEY WORDS: career advising, General Self-efficacy Scales (GSES), Life Skills Inventory–College Form (LSDI-CF), student development, survey, undecided/undeclared students

While many find choosing a college major a difficult task, a significant subset of students are unable to commit to one area of study, drifting from one major to another. These *major changers* spend valuable time and money looking and waiting for the vocational impetus necessary to take an academic or vocational path. Unfortunately, relatively little empirical research has been conducted on this population of students. Most studies spotlight the challenges faced by major changers, but few researchers have examined the factors that distinguish those students who waver from those who remain relatively focused.

Academic advisors assume a principal role in assisting deciding students with the selection of a major. Because advisors spend most of their time teaching students how to select a major, it is imperative that academic advisors have a better and more complex understanding of the major-changer population. Little is known about this population of students, and what is known is outdated. Research indicates that students change majors for a variety of reasons (Gordon & Polson, 1985; Pascarella & Terenzini, 1991; Titley & Titley, 1980). Many students make impractical and hasty choices without knowledge of academic requirements or based on perceived notions of vocational opportunities (Pierson, 1962). Other obstacles to making prudent major choices include societal/peer expectations (e.g., "all my friends are business majors") or the underutilization of institutional resources (e.g., academic advising and career services).

Many students deviate from their educational plans due to poor academic performance rather than an intentional change of interests (Osipow, 1983); however, according to Gordon, Newton, and Kramer (1985), some students change their majors even though they are academically capable of pursuing them. Theophilides, Terenzini, and Lorang (1984) categorized major changers into three groups: early changers (those who changed majors in the freshman year); late changers (those who changed majors in the sophomore year); and constant changers (those who changed majors in both their freshman and sophomore years). According to Theophilides et al. (1984), early changers had reported a high likelihood of changing majors, performed well academically, and continued to develop intellectually as well as academically. Conversely, late changers indicated no desire to change majors upon entering college but performed poorly during the sophomore year. The constant changers showed weak academic ability and low levels of institutional and educational commitment.

In 2008, we conducted a study at the University of Northern Iowa (UNI), a comprehensive institution, to fill a gap in the research of factors that distinguish those students who vacillate between majors (major changers) from those who remain relatively stable (never changing their initial major or change major once or twice). We address the general question, "What are the factors that distinguish those students who fluctuate between majors from those who remain relatively constant?" For principal independent variables, we considered levels of a) psychosocial development, b) self-efficacy, and c) parental education. Four main research questions framed this study: Which factors distinguish those students who change their major multiple times from those who remain relatively stable? How does perceived level of self-efficacy influence a person's ability to make decisions?

How does a person's psychosocial development affect his or her ability to make decisions? Is there a relationship between level of parental education and major-changing behavior? While the research project was broad in scope, we focused this article on the main quantitative findings concerning two independent variables—the levels of undergraduates' self-efficacy and psychosocial development—and their measured impact on the decision to change majors. We hypothesized that those who change their major multiple times would report a lower level of self-efficacy and psychosocial development than those who change only once or twice.

Method

Prior to the distribution of the survey, we administered a pilot study to declared general studies majors at UNI through an electronic mailing list. We sent these participants an e-mail informing them about the pilot study and directing them to a web link where the pilot survey was administered via SurveyMonkey, a web site (www.surveymonkey.com) that enables researchers to create and administer surveys online. Students who agreed to participate in the pilot study were ineligible to take part in the final study. We informed pilot participants that their names would be deleted from the final electronic mailing list and they would not be contacted again for the final study. Seventeen students voluntarily participated in the pilot. This small-scale version of the study gave us information on the feasibility of the study and identified areas for improvement. The pilot study provided valuable information on the procedures and design of the study. It also helped us identify areas where research protocols may not have been followed and determine if the proposed instrumentation was comprehensible or too complicated.

Through follow-up interviews with the 17 participants we obtained feedback on the functionality of the survey. Participants reported no difficulties in understanding the survey and stated that it was accessible and functional online. Participants suggested that we add certain choice options to some of the questions, which we subsequently added to the final survey to improve its overall quality.

Sample

We defined the sample by identifying major changers and relatively stable students. According to the definition set forth by The National Academic Advising Association (NACADA) (2010): "A major-changer is defined as an undergraduate student who enters college decided about a major but changes to another before he or she graduates. Students who enter college undecided are NOT considered major changers until they change after declaring an initial major." For our study, we defined a major changer as an undergraduate who changes her or his major three or more times. A student who is defined as relatively stable, for the purpose of this study, never changes his or her initial major or changes only once or twice. We also determined that only full-time students would be included in the sample because they make up a greater portion of the student body population and would, therefore, be more representative of possible major changers.

Participants included in the study met the following criteria: They had changed majors three or more times prior to graduation or had never changed their initial major or changed only once or twice prior to graduation, were full-time undergraduates (transfer students included), were between the ages of 18 and 24 years, and represented all major codes, including pre-business, which functions as a declared major.

Based on the above criteria, the UNI Registrar's Office and Information Technology Services (ITS) created a student information system (SIS) degree-audit trail for the sample population. We obtained demographic information by using a preexisting identification system maintained by ITS, so students did not need to report on available information. The contents of the SIS audit trail included a record of the following information for each major change for the students selected: a) student name and number, b) admission semester, c) classification during the admission semester, d) classification during the current semester, and e) date and semester of major change.

Procedure

The ITS staff generated a list of e-mail addresses for the study sample. We sent participants an e-mail informing them about the study and directing them to a web link where the survey was administered. The survey was run through SurveyMonkey. All participants were then sent two reminder e-mails approximately 7 and 14 days after the original e-mail to remind nonresponders to complete the survey.

Because of the type of questions to be answered and the desire to generalize results from the sample to the population of interest, we used a quantitative methodology in this study. We created a major-changer's survey to assess the factors that contribute to selecting and changing a major and

administered it to all participants (n = 1,765 of 9,854 students contacted to participate or 17.9%). Of the 1,765 participants, 1,542 (87.4%) completed all required questions.

The survey was based on concepts and principles of major-changing behavior, specifically that of developmental task achievement typical of students within the college setting. The survey was sectioned into three parts. Part One consisted of 41 closed-ended questions related to the factors involved in selecting and changing a major.

Part Two of the survey included the *Life-Skills Development Inventory–College Form* (LSDI-CF) (Picklesimer, 1991). The LSDI-CF was used to measure students' psychosocial development. It is an 88-item self-reported, developmental assessment tool designed to determine life-skills mastery for students aged 17 to 24 years. It also measures skill achievement in four areas: interpersonal communication and human relations, problem solving and decision making, physical fitness and health maintenance, and identity development and purpose in life. Each of these categories is applicable to four settings: home and family, school, work, and the community. The LSDI-CF incorporates seven theoretical constructs of human development: psychosocial, physical-sexual, vocational, cognitive, ego, moral, and affective. The LSDI-CF is based on the assumption that identification of life-skill deficits can provide student development educators with essential information for establishing structured life-skills training for college students (Picklesimer, 1991). The alpha coefficient for the scale and subscales on the LSDI-CF indicate satisfactory levels of internal consistency (α = .77).

Part Three of the survey consisted of the *General Self-efficacy* scale (GSES) (Schwarzer & Jerusalem, 1995). The GSES is a 10-item psychometric scale designed to assess optimistic self-beliefs used to cope with a variety of different demands in life. The GSES takes approximately 4 minutes to complete. Alpha coefficients for the scale indicate satisfactory levels of internal consistency (α values equal .70 to .90). The scale was originally developed in 1979 by Schwarzer and Jerusalem and has been used in many studies with hundreds of thousands of participants. In contrast to other scales that were designed to assess optimism, this one explicitly refers to personal agency (the belief that one's actions are the reasons for successful outcomes). The 10 items are designed to reflect an optimistic self-belief that one can perform novel or difficult tasks and cope with adversity within the various domains of human functioning (Schwarzer & Jerusalem, 1995). Each item refers to successful coping and implies an internal-stable attribution of success. Perceived self-efficacy is an operative construct. It is related to subsequent behavior and is thus relevant for clinical practice and behavior change.

Results and Discussion

As in any research, the limitations of our study should be acknowledged and taken into consideration by those reviewing it. One such limitation pertains to the study's response rate. According to Babbie (2007):

> A review of published social science research literature suggests that a response rate of 50 percent is considered adequate for analysis and reporting. A response rate of 60 percent is good; a response rate of 70 percent is very good. Bear in mind, however, that these rates are only rough guides . . . . (p. 262)

Using that formula, a 17.9% response rate is below conventional standards for scientific survey research; therefore, readers should exercise caution concerning the generalizability of the results.

We found statistically significant differences for level of self-efficacy and major-changing behavior, which suggests that major changers (M = 30.25; SD = 5.350) have a lower level of self-efficacy than relatively stable students (M = 31.43; SD = 5.102) on the GSES, $t(1,487) = 2.230$, $p < .05$. In addition, the levels of problem-solving and decision-making skills differed: Major changers (M = 70.13; SD = 8.213) possess a lower level of these skills than relatively stable students (M = 72.79; SD = 7.721), $t(1,496) = 3.329$, $p < .001$. These data regarding the factors that distinguish major changers from relatively stable students confirm findings from other studies (Firmin & MacKillop, 2008; Lewallen, 1993, 1995) that indicated that major changers and nonchangers are more alike than they are different regarding the factors in selecting a major. Unlike authors of earlier studies (Gordon, 1984; Holland & Holland, 1977; Lewallen, 1995), we measured multiple variables believed to influence major-changing behavior and found significant differences between major changers and relatively stable students concerning level of self-efficacy and level of psychosocial development.

The relatively low level of perceived self-efficacy by major changers suggests that they may struggle more than relatively stable students in making academic and career decisions. This

interesting finding indicates that major changers may be more prone to self-doubt when it comes to academic and vocational decisions and, as a result, change majors more often. A lower level of self-efficacy may create more anxiety regarding making long-term career decisions, especially if these decisions are perceived as permanent (Bertram, 1996).

Studies on self-efficacy expectations and career indecision reveal a moderately strong relationship between career decision making and self-efficacy. Students who are less confident (low levels of self-efficacy) in their ability to complete tasks and behaviors required for effective decision making are more likely to report being vocationally undecided (Betz & Hackett, 1981; Taylor & Betz, 1983). However, students who are more vocationally decided exhibit more confidence (high level of self-efficacy) in their ability to complete the necessary tasks related to career decision making. The findings of our study reinforce the contention that low self-efficacy expectations have a significant impact on major-changing behavior. That is, we found a strong correlation between major-changing behavior and level of self-efficacy.

Concerning students' level of psychosocial development, only one of the four LSDI-CF subscales showed significant differences or associations, and so the hypothesis that major changers would show a lower level of psychosocial development was not supported. We found differences in the mean scores for the Problem-Solving/Decision-Making subscale for major changers and relatively stable students, indicating that major changers may have more difficulty making realistic academic and vocational choices than relatively stable students.

We predicted that students who changed their majors less often (relatively stable) would be more highly developed on the Problem-Solving/Decision-Making subscale. Deciding on a major requires students to engage themselves in the decision-making process, which can be a significant challenge. According to Bertram (1996), many college students have not yet reached the developmental stage required to make a decision about a major or career. Consequently, these students lack the decision-making skills necessary to make those decisions on their own, making them more susceptible to major-changing behavior (Bertram, 1996).

With regard to level of parental education, we found no statistically significant differences between major changers and relatively stable students. In other words, no statistically significant relationships were found for the level of parental education and major-changing behavior. However, response frequencies indicated that parents of major changers were less likely to have earned a bachelor's degree than parents of relatively stable students.

Implications for Academic Advisors

To effectively develop programs to meet the needs of today's ever changing students, advisors need to assess how they identify and advise major changers. Podcasts, social networking sites (e.g., Facebook), web sites, and e-mails are only effective forms of communication when programming is purposely connected to the mission of the university. Knowing how major changers and relatively stable students differ regarding levels of self-efficacy, problem-solving, and decision-making skills can help academic and career advisors develop strategies that promote effective academic decision making and career planning.

Through research the staff conducted on deciding students and major changers, the UNI Academic Advising Office has changed academic procedures and programming. For example, it offers several self-assessment tools such as *Career Cruising* (www.careercruising.com), the *Strong Interest Inventory* (www.cpp.com), and the *Myers Briggs Type Inventory* (www.myersbriggs.org) as well as personal assessments to assist major changers with academic and career decisions. In addition, major changers can partake in experiences such as those offered through the Para-professional Advising in Residence program, where student leaders live in the residence halls and provide resources for students who are in the decision-making process. Advising holds for registration of first-year students provide opportunities for students to attend meetings across campus for information on potential majors, deciding workshops, and one-on-one appointments. Major in Minutes is a simulated speed-dating program where students meet with trained senior students in majors of interest, and a career decision-making class was designed for students unsure about majors and career opportunities.

UNI advisors used research on deciding students and major changers to affect the campus culture by creating learning outcomes for programs (e.g., advising for orientation, new student handbook, and new-faculty advisor training) and an advising syllabus for students to understand advising, their responsibilities, and the decision-making process. Advisors also use assessments as a way to promote advising as teaching and support the mission, vision, and goals of UNI. Administration also

used research on major changers as a platform for moving advising forward professionally through a campus-wide internal review of advising by the UNI cabinet, and the Provost's Office initiated a NACADA review. Based upon the results of the National Survey of Student Engagement report and the University Committee on Academic Advising, UNI produced a new mission, vision, and goal for advising. It also specifically used the research for advising major changers.

Our study demonstrated that major changers and relatively stable students, to a large extent and despite certain distinctions, are more alike than different with regard to the factors that contribute to selecting and changing majors. Although we found some significant differences, the results support the conclusion of Holland and Holland (as cited by Lewallen, 1995):

> Attempts to comprehend the vocational decisiveness of some students and the indecisiveness of others are characterized by conflicting findings, negative findings, or negligible findings. Although vocationally undecided students have been assessed in many ways and with a vast range of variables, few clear and compelling differences emerge. Instead, the most striking outcomes of these studies are that decided and undecided high school and college students are much more alike than different and that the relatively few differences are conflicting and confusing. (p. 28)

Although further research is required to gain a more complex and comprehensive understanding of factors that distinguish major changers from relatively stable students, we attempted to provide a more widespread understanding and appreciation for the characteristics of a major changer. Taking another glimpse into the minds of students only serves to strengthen the methods advisors employ to assist them. For example, academic advisors and career counselors can try to focus more on the process of choosing a major and less on the outcomes (Bertram, 1996). Giving students the skills to make informed decisions will allow them to engage in the process of decision making.

According to Gordon (1995), advisors and students tend to see the role of an academic advisor as a problem solver or trouble shooter. Gordon (1995) argued that advisors often dispense information to students as if this were the main goal of the advisor-student relationship. More than 30 years ago, Crookston (1972) advanced the idea that advising is a form of teaching. Just as professors teach their students skills and content, advisors also teach students skills such as decision making and critical thinking as well as content such as that associated with curriculum and academic regulations (Koring, Killian, Owens, & Todd, 2004).

According to Bertram (1996) the saying "seeing is believing" rings true for most college students: They learn by watching. Therefore, advisors must try to view the academic world from a major-changer's perspective. We attempted to learn about the factors that influence major-changing behavior in hopes of gaining new insights into how to better serve this population of students. By recognizing the factors that motivate students to change majors, advisors can begin to develop decision-making and problem-solving strategies to help students during this important transitional period.

Future Research

Before evaluating the significance of future research, advisors must first ask, "What does it mean to be a major changer?" With few studies conducted on this population of students, the answer remains unclear. As Gordon states (as cited in Lewallen, 1995), "There are as many reasons for being undecided as there are students" (p. 28). To date, all evidence indicates that major changers are fairly typical students on measures of background, academic ability, experience, and the like (Lewallen, 1995). To continue studying this population of students, advisors need to find out if major-changing students are unique in some way (Lewallen, 1995). Unlike those conducting previous research on the major-changer population, we examined differences and similarities between major changers and relatively stable students from a multivariable perspective. We also examined the process of students engaged in selecting a major and the factors that contribute to that decision. To date, no other researchers had explored levels of self-efficacy, psychosocial development, or parental education to ascertain if these factors impact major-changing behavior.

Future research that contributes to our findings on factors that distinguish major changers from relatively stable students would enhance advisor understanding of major changers and how the college environment can enhance their development. For example, identifying how colleges and universities handle and advise major changers would prove a worthy research endeavor because most institutional policies and procedures, as well as advising practices, have the potential to impact how students make academic decisions.

Due to the nature of this study, we utilized a quantitative instrument to assess the factors that distinguish major changers from relatively stable students and to examine levels of self-efficacy, psychosocial development, and parental education between these two groups of students. However, we recommend that researchers undertake the following future studies:

1. Further investigation and adaptation of the instrument is a reasonable next step in examining the factors that distinguish major changers from relatively stable students.
2. Replication of the study using random samples, extended geographical locations, and other population groups would increase its generalizability.
3. Investigations should be conducted using qualitative methods. Although the risk of the impact of social desirability on responses is higher with qualitative approaches, interviewing participants may yield more information regarding factors that contribute to major-changing behavior and would provide a unique perspective on these students.
4. Extending the research to include other population groups, rather than the use of a single institution, could be advantageous. Future researchers will want to expand the study across institutions, such as liberal arts and research as well as specialized and professional colleges and universities.
5. Conducting a longitudinal study on this topic (e.g., tracking students as they make multiple major changes as well as exploring issues of persistence toward graduation) would add significantly to the findings of this study.

References

Babbie, E. (2007). *The practice of social research* (11th ed.). Belmont, CA: Thomson Wadsworth.

Bertram, R. M. (1996). The irrational nature of choice. *NACADA, 16*(2), 19–24.

Betz, N., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology, 28*(5), 399–410.

Crookston, B. B. (1972). A developmental view of academic advising as teaching. *Journal of College Student Personnel, 13*(1), 12–17.

Firmin, M. G., & MacKillop, L. M. (2008). Frequent major changing: Extrinsic and intrinsic factors. *NACADA, 28*(2), 5–13.

Gordon, V. N. (1984). *The undecided college student: An academic and career advising challenge.* San Francisco: Charles C. Thomas.

Gordon, V. N. (1995). Advising first-year undecided students. In M. L. Upcraft & G. L. Kramer (Eds.), *First-year academic advising: Patterns in the present, pathways to the future* (Monograph No. 18) (pp. 93-100). Columbia, SC: University of South Carolina, National Resource Center for the First-Year Experience & Students in Transition.

Gordon, V. N., & Polson, C. (1985). Students needing academic alternative advising. *NACADA Journal, 5*(2), 77–84.

Gordon, V. N., Newton, A., & Kramer, G. (1985). *Advising students in oversubscribed and selective majors.* (NACADA Task Force Report). Manhattan, KS: National Academic Advising Association.

Holland, J. L., & Holland, J. E. (1977). Vocational indecision: More evidence and speculation. *Journal of Counseling Psychology, 24*, 404–15.

Koring, H., Killian, E., Owens, J. & Todd, C. (2004, July). *Advising as teaching: Synergistic praxis for student and faculty development.* The Mentor, 6(3). Retrieved from www.psu.edu/dus/mentor/040728hk.htm

Lewallen, W. C. (1993). The impact of being "undecided" on college-student persistence. *Journal of College Student Development, 34*(2), 103–12.

Lewallen, W. C. (1995). Students decided and undecided about career choice. *NACADA Journal, 15*(1), 22–29.

London, H. B. (1992). Transformations: Cultural challenges faced by first-generation college students. In L. S. Zwerling & H. B. London (Eds.), *First-generation students: Confronting the cultural issues.* New Directions for Community Colleges Series, No. 80 (pp. 5–11). San Francisco: Jossey-Bass.

National Academic Advising Association (NACADA). (2010). *NACADA CUES Major-changer Survey.* Retrieved from the NACADA web site: www.nacada.ksu.edu/Clearinghouse/Research_Related/CUES-major-changer.htm

Osipow, S. H. (1983). *Theories of career development.* Englewood Cliffs, NJ: Prentice-Hall.

Pascarella, E. T., & Terenzini, P.T. (1991). *How college affects students: Findings and insights from twenty years of research.* San Francisco: Jossey-Bass.

Picklesimer, B. K. (1991). *The development and evaluation of the Life-Skills Development Inventory – College Form* (Unpublished doctoral dissertation). University of Georgia, Athens.

Pierson, R. (1962). Changes of majors by university students. *Personnel and Guidance Journal, 60*, 496–500.

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35–37). Windsor, UK: NFER-NELSON.

Taylor, K. M., & Betz, N.E. (1983). Applications of self-efficacy to the understanding and treatment of career indecision. *Journal of Vocational Behavior, 22*, 63–81.

Theophilides, C., Terenzini, P., & Lorang, W. (1984). Freshmen and sophomore experiences and changes in major field. *Review of Higher Education, 7*, 261–78.

Titley, R., & Titley, B. (1980). Initial choice of college major: Are only the "undecided" undecided? *Journal of College Student Personnel, 21*, 293–98.

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We would like to take this opportunity to thank our colleagues in the Office of Academic Advising for their work with assessment and programming for deciding students.