COLLEGE STUDENTS' EXPERIENCE OF SELF-EFFICACY AND ANXIETY RELATED

TO MAJOR DECLARATION AND CAREER DECISION-MAKING

by

AMANDA M. LONG

(Under the Direction of Laura A. Dean)

ABSTRACT

Major declaration is a significant task for a college student, and the major selected typically indicates a student's intentions for pursuing a related career. However, few research studies have examined the impact of the timing of a student's major declaration in relation to their hopes for their future career. The purpose of this study was to examine if a relationship exists between when a student declares a major and that student's experience of self-efficacy or anxiety in relation to career decision-making. This study was conducted at a large, public, comprehensive institution in the Southeast, and participants received a survey comprised of demographic questions, two subscales from established instruments, and a question regarding the semester in which they declared their final major. The subscales used were the career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990) and the self-appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996). Data collection resulted in two samples for analysis: one including students with prior institutional experience (i.e., participants who completed coursework through dual enrollment or attended another institution prior to the research site) and one without (i.e., participants were all first-time students at the research site). The data were then analyzed using Spearman's

correlation coefficient. Results indicated there was no relationship between the timing of a student's major declaration and their scores on the self-appraisal subscale. However, results were mixed between the two samples regarding a relationship between the timing of major declaration and scores on the career choice anxiety subscale, where only the sample with prior institutional experience demonstrated a relationship. The relationship suggested that as major declarations are delayed, scores on the career choice anxiety subscale increase. A final analysis was performed to determine if a relationship exists between the scores on both subscales. Results indicated a significant relationship for both samples, indicating that as scores increase on one subscale, they decrease on the other. The results point to several implications for practice that emphasize the importance of early career exploration and the need to address anxiety associated with career decision-making.

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DEDICATION

To my son, Jacob.

May you develop a lifelong love of learning and may this project and others like it

enhance your future education.

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CHAPTER 1

INTRODUCTION

The selection of an academic major is a significant decision for any college student. It

signifies that a student has not only selected a course of study but has also selected a career path.

While a student's confidence in their choice of major and career could have implications for their

persistence to graduation and career success (Harder et al., 2015), the stress associated with

making the choice may lead some students to settle on a less desirable career opportunity (Voss

et al., 2019) or to feel dissatisfied with their career outcome (Iyengar et al., 2006). Given the

many academic majors and career possibilities that students must explore in order to arrive at the

best possible choice (Voss et al., 2019), it is imperative that student affairs professionals

understand the consequences of this decision-making process. Student affairs practitioners would

benefit from knowing what factors boost a student's confidence in their choice of major and

career. Inversely, student affairs practitioners must also understand what aspects of major

selection contribute to increased stress and anxiety, and how to mediate these through early

intervention.

Background

Today's college students face mounting pressure to select and commit to a major field of

study early in their degree programs. Administrators appear to draw a connection between their

graduation rates and their students' early decisions regarding academic majors. As Spight (2022)

clearly stated, "there exists a perception that an early decision about a major is an integral step in

ensuring students graduate" (p. 945). Early major declaration is often conflated with retention and progression toward graduation, and graduation rates have received greater emphasis from administrators in recent years. Graduation rates represent "the percentage of first-time, full-time undergraduate students who complete their program at the same institution within a specified period of time" (National Center for Education Statistics, 2022). Administrators often draw a line from the time a student successfully completes a degree program back to when the student first declared interest in that degree program. Undeclared students are cautioned that a delay in major declaration will result in a delay in graduation, which consequentially impacts institutional graduation rates. Indeed, raising graduation rates is a significant focus for higher education administrators, but research supporting a connection between early major declaration and graduation is minimal and outdated (Spight, 2022). In fact, some research may suggest that students benefit from being undeclared (Foraker, 2012; Wang & Orr, 2022; Wright, 2018), from changing their major only once (Wright, 2018), or from taking intentional time for career exploration before committing to a major or career path (Wang & Orr, 2022; Wright, 2018).

Entering college with a declared major does not presume a student's certainty or confidence in their decision of major. Students may select a major to simply avoid the "undeclared" or "undecided" label, which could then discourage them from capitalizing on meaningful career exploration that could lead to a more confident and intentional choice. Institutional messages regarding whether students matriculate as declared or undeclared could have the adverse effect of "othering" students who are uncertain or considering an early change of major. With some institutions requiring early major declaration, Spight (2022) warned that "this institutional practice reinforces the negative perception of matriculating as undeclared, suggesting that undeclared students take circuitous, and time-consuming, paths from entry to

degree completion to career" (p. 946). However, the National Center for Education Statistics (2017) found that about 30% of students change their major at least once within the first three years of enrollment in postsecondary education, and 10% change their major two or more times. The commonness of this experience is often not shared with students to help normalize the major changing process. There remains a significant discrepancy between the messages that college preparatory students are receiving and the likelihood of academic major switching within the college setting.

Policies that govern academic major declaration should be closely examined for the actual advantage (or disadvantage) that they provide for students. A study by Workinger (2012) regarding admissions policies around major declaration uncovered that institutions which had highly structured major declaration policies had significantly lower retention rates from the first to second year when compared with institutions having less structured policies. Such policies could make it more difficult, not less, for undecided students to select a major and move forward in a degree program. As Workinger (2012) elaborated, "requiring students to choose an academic major at the onset of their education could prove to be negative for students who have not made an informed choice" (p. 20). Indeed, research suggests that students often do not make informed decisions when selecting an academic major (Workinger, 2012; Wright, 2018). Forcing an early major decision upon students, especially without the inclusion of meaningful major and career exploration, may ultimately prove detrimental when it comes to institutional graduate rates.

Administrators may be overlooking the potential benefits of having students begin as undeclared. Some research suggests that students who begin as undeclared and then choose a major are more likely to persist within that major. Wang and Orr (2022) examined a data set from a large public research institution and found that "once undecided students declared their

degree-granting majors, they were more likely to remain in their declared majors than decided students" (p. 843). In fact, additional research supports that students who began as undeclared were more likely to graduate than their declared counterparts (Foraker, 2012; Spight, 2022; Wright, 2018). The success of undeclared students may be connected to the benefits of intentional exploration early in the college experience. Wright's (2018) study at a public university in Ohio found that "participation in a major exploratory program… was associated with fewer major switch[es] and a lowered probability of making a costly late major switch on junior or senior status" (p. 142). Wang and Orr (2022) similarly attributed the success of their undeclared students to a structured university program for major and career exploration. Spight (2022) argued that all students, both declared and undeclared, should engage in intentional major exploration following matriculation. He emphasized that students with declared majors should engage in a process to either confirm or reject their initial major decision.

Major and career exploration are necessary to ensure that students make connections between academic majors and career pathways and can make confident decisions regarding both. Current institutional practices related to major declaration and career education may not promote confidence in student decision-making. Some institutional policies, particularly those requiring early major decisions, could lead to greater anxiety around students' hopes and expectations for their futures. Academic major selection and career education are often disparate. Students may be encouraged to make quick decisions regarding a major early on, but they may not be advised to seek career coaching related to their major until much later in their degree program. More research is needed to explore if a connection truly exists between when a student declares their major and the likelihood that a student will experience confidence in their associated career decisions.

Statement of the Problem

Much research has been done that separately connects confidence and stress with academic major decision-making, but little research has explored how a student's experience of both might influence their expectations for career success. Students perceive a strong connection between their academic major and their subsequent opportunities for career pathways (Wright, 2018). Therefore, confidence and stress relative to their choice of major could extend to their hopes and concerns regarding obtaining a meaningful and satisfactory career. The goal of this research is to explore a student's experience of both confidence and stress during the career decision-making process, with the hope of uncovering whether earlier or later major declaration leads to greater expectations of career success. Prior research reveals several factors that may influence the major decision-making process, which could ultimately impact how student affairs professionals support early students who are in the process of making this significant decision.

Decision-Making Tendencies

The way students arrive at their decision of a major and career path could influence their experience of both stress and confidence. Several research studies explore student tendencies toward maximizing or satisficing in the decision-making process related to selecting a major. Iyengar et al. (2006) defined *maximizing* as seeking out the best possible solution after all possibilities have been explored, whereas *satisficing* was defined as settling for the first acceptable (or "good enough") option that presents itself. When examining undergraduate students with maximizing tendencies, Iyengar et al. (2006) found that these students experienced more stress and dissatisfaction with their career outcomes than students with satisficing tendencies. Voss et al. (2019) conducted similar research on students with maximizing tendencies using an original career maximizing scale. In contrast, their research uncovered that

"relative to general maximizing tendencies, participants expressed a greater desire to maximize their career and work decisions" (Voss et al., 2019, p. 166) compared with other possible decisions. Though participants in the Voss et al. (2019) study showed a preference for maximizing, participants in Iyengar's (2006) study with maximizing tendencies experienced greater negative affect. Student affairs professionals may need to walk a fine line when encouraging career exploration to promote maximizing for decision-making. While career exploration may be beneficial in uncovering various career options, student affairs professionals may need to frame expectations for students to help them understand the reality of achieving the best possible career option for any given major. Failure to set expectations and normalize career ascertainment as it relates to a student's major could result in greater frustration for students, particularly those who have struggled through the major decision-making process.

Major Satisfaction and Career Confidence

Other research has explored connections between a student's satisfaction with their academic major and their confidence in their career prospects. Nauta (2007) created an assessment to measure major satisfaction and found that satisfaction increased with persistence in a major over time. While some may jump to the conclusion that this suggests earlier major selection is better, this finding was also true for students who switched majors. In fact, all students showed a tendency toward increased satisfaction as graduation neared (Nauta, 2007). Nauta (2007) conjectured that students equate major satisfaction with career satisfaction, and "students who are highly satisfied with their majors likely experience little anxiety about making future career choices because they have already narrowed possible choices to those that correspond to their major" (pp. 457-458). However, Nauta (2007) also suggested that students who are dissatisfied with their major may experience greater stress and anxiety related to feeling

trapped or unenthusiastic about the career options available to them. These findings demonstrate the importance of student satisfaction with their choice of academic major, as it follows that students who are more satisfied will experience increased confidence and decreased stress.

Career Education and Factors Influencing Major Choice or Major Switching

To increase confidence in a student's choice of major, student affairs professionals must understand what factors influence major choice and how career education could enhance the decision-making process. Harder et al. (2015) stressed that assisting students in wisely selecting a career path could decrease the consequences associated with multiple major changes and increased time to graduation. Their research suggested that students select a major and career path based on their problem-solving preferences. That is, students select a career path based on the types of problems it presents and their confidence in their ability to solve those problems (Harder et al., 2015). This aligns with other research that suggests that students select a career based on preference and ability as opposed to factors about the career itself, such as expected earnings (Beffy et al., 2012). However, Wright (2018) pointed out that students may not have accurate information or expectations related to careers, which could suggest that a lack of career education may contribute to problems associated with major decision-making. As Wright (2018) noted "it appears that all students, whether they entered college undecided or not, have some degree of uncertainty when it comes to what field to major in" (p. 93). Wright's (2018) research found no difference in time to graduation between students who entered college with a declared major and those who entered undeclared. These research findings support the need for career education and exploration in order to enhance a student's confidence in the major and career decision-making process.

Purpose of the Study

The purpose of this study was to investigate the relationship between the timing of a student's academic major selection and the impact that has on a student's experience of confidence and/or stress regarding their career prospects. Universities place significant emphasis on student progression towards graduation and often encourage students to commit to a major early to reduce the time needed to graduate. However, the available research seems unclear regarding whether an early major commitment is more beneficial to the student. This research explored whether earlier major declaration related to increased or decreased confidence in a student's career prospects. This research also explored whether a student's experience of stress (related to career decision making) mediated a student's experience of confidence in their decision of major and their career opportunities. This research could have implications for how academic advisors and career advisors assist students (especially undeclared students) in evaluating potential academic majors and career options.

Research Questions

1. Do students who declare their major earlier report higher levels of confidence in their expected career outcomes?

2. Do students who declare their major later report higher levels of stress related to major and career decision-making?

3. Does increased stress (related to major and career decision-making) correlate with decreased confidence in a student's career prospects?

Theoretical/Conceptual Framework

Marcia's (1966) ego identity statuses served as the framework for this research, as major and career decision making relate strongly with Marcia's ideas regarding a young person's

experience of crisis and commitment. Whereas crisis may represent a "period of engagement in choosing among meaningful alternatives," commitment then represents "a degree of personal investment" in the decision that has been made (Marcia, 1966, p. 551). This framework is a suitable match for this research, as occupation is one of the key areas where crisis and commitment are applied in Marcia's work. Specific to this research, the experience of "crisis" will correlate with a student's self-report of stress and anxiety around major and career decision-making. It follows then that "commitment" could align with a student's alternative experience of confidence in their selection of a major and career path.

Marcia's (1966) framework provided a context for examining the results of this study. Marcia's original research suggested the existence of four ego identity statuses: identify achievement, moratorium, foreclosure, and identity diffusion (further discussed in Chapter 2). These statuses involve varying degrees of crisis and commitment relative to a student's occupational choice. This research was relevant as it explored potential connections between the timing of a student's major declaration and their subsequent experience of anxiety (crisis) or self-efficacy (commitment) relative to their career. The results of the study did indicate similarities between participants' experiences and the ego identity statuses, and Chapter 5 discusses how the results may be interpreted in alignment with Marcia's original research.

Operational Definitions

Anxiety/Stress

Anxiety may be defined as "apprehensive uneasiness or nervousness usually over an impending or anticipated ill" (Merriam-Webster, n.d., Definition 1). For this study, the anxiety under investigation was career choice anxiety, and the definition applied was synonymous with what Chartrand et al. (1990) defined as "the level of reported anxiety that is attached to the

process of vocational decision making" (p. 493). Previous literature has used both terms, "anxiety" and "stress," to indicate this specific negative affect commonly experienced with major or career decision-making, so these terms were used interchangeably in this study.

Confidence/Self-efficacy

Self-efficacy was based on Bandura's (1977) theory which states that "expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences" (p. 191). Betz and Hackett (1986) applied the term "career self-efficacy" to capture the application of self-efficacy expectations in relation to the domain of career selection. This study similarly investigated self-efficacy as it related to career choice. Bandura's (1977) definition of self-efficacy was also similar to the concept of confidence, which can be defined as "faith or belief that one will act in a right, proper, or effective way" (Merriam-Webster, n.d., Definition 1). The terms of self-efficacy and confidence have both been used in prior literature in relation to academic majors and careers, so both terms were used in the context of this study.

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Assumptions and Delimitations of the Study

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This study focused on first-time, full-time, traditional undergraduate students and their experiences with choosing a major and anticipating relevant career opportunities. The study did not account for variance in experience of students who are non-traditional, part-time, or returning students, and may not represent the unique experiences of these students related to major and career decision making. This study also did not account for other significant factors that influence major and career decision-making, such as the impact of being a full or part-time working student. Similarly, this study did not account for a student's exposure to majors, careers, or career exploration activities. While research suggests that career exploration activities could

positively impact major and career decision-making (Gordon, 2019; McMurtrie, 2022; Spight, 2022; Workman, 2015; Xu & Adams, 2020), it was beyond the scope of this study to adequately assess career exploration or exposure to majors or careers prior to major declaration.

Significance of the Study

This study was significant in that it not only examined confidence and stress related to career decision-making, but it examined these constructs relative to the timing of a student's choice of major. This study explored possible correlations between when a student selects a major area of study and the degree to which that student experiences self-efficacy and anxiety related to their anticipated career outcomes. Given the perceived connections between early major declaration and time to graduate (Spight, 2022), coupled with a heightened focus of institutions on their graduation rates, this was a timely exploration of these topics. By examining when a student declares their major, this research support other findings regarding the impact of major declaration on a student finding congruence with their major (Wilmes, 2012), on a student finding satisfaction with their major (Nauta, 2007), and ultimately, on a student's potential career outcomes based on how they choose a major or career (Iyengar et al., 2006; Voss et al., 2019). Research on timing of major declaration as it connects to career decision-making could inform many student affairs practices for working with college students to adequately prepare them for their careers.

The results of this study alluded to several opportunities for student affairs professionals to engage students in early career exploration, which has been shown to have many benefits (Germeijs et al., 2006; Harder et al., 2015; Porter & Umbach, 2006; Spight, 2022; Wang & Orr, 2022; Xu, 2013). Study results also pointed to a need to address underlying anxiety in college students, which is a prevalent issue (Eisenberg et al., 2020) and commonly associated with career

decision-making (Beiter et al., 2015; Deer et al., 2018). Addressing anxiety in college students is especially important given research findings that certain types of anxiety have been linked with poorer career development outcomes (Xu & Adams, 2020). By connecting the dots between students' experience of self-efficacy and anxiety around career decision-making with their decision of a major, this study highlights some key time frames in which interventions by student affairs professionals may be most effective.

Chapter Summary

There is still much to learn about the connection between major declaration and career success. While academic affairs professionals and student affairs professionals alike strive to promote student progression toward graduation, the messaging to students may have adverse consequences. The added pressure of an early major decision, often without intentional career education, may promote greater stress and anxiety around a student's eventual career prospects. In addition, a lack of career exploration coupled with a deterrence for major switching may also erode student confidence in their decision of major. This research examined if differences exist regarding the levels of confidence or stress that students report, based on the timing of their decision of major. Ultimately, this research sought to shed light on when major declaration most promotes confidence in student career decision-making, in the hope of providing guidance for higher education professionals engaging with students early in their degree programs.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study was to explore the potential connections between a student's experience of self-efficacy or anxiety related to career decision-making, and the timing of a student's declaration of major. For many college students, major declaration and career expectations are complimentary; students often select a major with the expectation that it will lead toward a desirable career option (Frederiksen, 2009). In this way, major and career decision-making represent significant components of a college student's development (Frederiksen, 2009). They may also represent significant factors in a student's retention and progression toward graduation, which matters given the increased priority that graduation rates have received for many institutions (Spight, 2022). Unfortunately, with "the growing cost of a degree, and the fact that it is shouldered by a student body that is increasingly lower-income, racially and ethnically diverse, and first generation, these [graduation] rates remain indefensibly low" (McMurtrie, 2022, para. 13). Additional obstacles brought on by the coronavirus pandemic and considerable staffing issues in higher education may further complicate an institution's ability to address the major decision-making and career exploration needs of its students (McMurtrie, 2022).

To leverage available resources efficiently and aid students through both major and career decision-making processes, institutions will need a deeper understanding of how major declaration and career prospects are related. This should include an understanding of what aspects of institutional parameters regarding major declaration contribute to either stress or

confidence relative to a student's future career. Essentially, institutions need to inspect the veracity of the notion that an early major declaration will lead toward an increased likelihood to graduate or an enhanced probability of landing a desirable career. An examination of existing literature will show what is already known about major decision-making, career decision-making, and the role that stress and confidence play in connection with these two critical rites of passage in a college student's experience.

Career Services for College Students

Career services, as a campus-based offering for college students, can trace its roots back to the 1920s. Colleges and universities had not yet established centralized offices to serve student needs, until Dr. Walter Dill Scott was invited to become president of Northwestern University (his alma mater) and established a personnel office (Torres et al., 2016). Applying his background in personnel psychology, Dr. Scott employed this office to address, among many things, job placement for students (Biddix & Schwartz, 2012). As Torres et al. (2016) noted, "the work in the personnel office intentionally connected students with careers at graduation" (p. 26). The higher education boom of the post-war 1940s allowed the work of personnel offices to evolve into what is now student affairs (Torres et al., 2016), and created a need for "specialized professionals with formal training in the field of personnel work" (Biddix & Schwartz, 2012, p. 293).

The modern career services center has moved away from the job placement services original to the early personnel offices. The sheer magnitude of large public institutions and the growing number of students attending college have likely contributed to the self-service model that many campuses now employ (McMurtrie, 2022). However, this model places the burden on students to seek out the services they need within an already complex system (McMurtrie, 2022).

Even though a majority of college-going individuals reference career outcomes as their main reason for enrolling in higher education (Strada Education Network & Gallup, 2018b), according to a 2017 college student survey, nearly 40% of college students had never visited their career center (Strada Education Network & Gallup, 2018a). It seems that students may lack awareness of the type of services available through the career center, let alone how to obtain those services. This may also be connected to a larger divide between the functions of academic affairs and student affairs, where the functions of student affairs need greater visibility across their institutions. An article by the National Association of Colleges and Employers (NACE) expressed a deep desire for career services professionals to collaborate with the individuals and functions of the institution where learning and career development combine (Studley, 2016). These professionals recognize the need for the institution to work collectively to promote the career success of its students.

As students "equate their choice of a college major with the choice of a lifetime career" (Wright, 2018, p. 140), strengthening connections between academic affairs and the work of career services would make sense. While administrators continue to be invested in graduation rates (Spight, 2022), even though graduation rates remain incredibly low (McMurtrie, 2022), this strategy would serve to connect career readiness across an institution to promote greater efficacy in generating positive student outcomes (Studley, 2016). Institutions may also need to consider whether graduation rates are sufficient with regard to student outcomes. As Xu (2013) stated, "institutional effectiveness, in a more complete sense, may be better evaluated from the perspective of how effectively higher education institutions prepare students for a congruent and rewarding career" (p. 378). If the path toward a rewarding career begins at major declaration, then more must be done to ensure that students have the tools and resources necessary to make

an informed decision regarding their academic major (Porter & Umbach, 2006; Wright, 2018). This study seeks to further connect the dots between major declaration and student perceptions of their career prospects, with a goal of exploring what factors may promote greater self-efficacy in college students for achieving a satisfying career outcome.

Early Exploration

Research across multiple areas of higher education has concluded that college students would benefit from greater emphasis on early career exploration (Germeijs et al., 2006; Harder et al., 2015; Porter & Umbach, 2006; Spight, 2022; Wang & Orr, 2022; Xu, 2013). College students, in general, need to invest more time into the exploration of a major prior to committing to it. Failure to do so may have negative consequences associated with costly major switching (Harder et al., 2015). Early career exploration should include a thorough review of the advantages and disadvantages of selecting that major over similar majors, as well as an adequate understanding of the associated career pathways (Xu, 2013). One of the goals of early career exploration should be to ameliorate the anxiety often associated with making the significant decision of choosing a major. Indecision related to majors or careers may be seen as a risk factor (Germeijs et al., 2006), and early career exploration could potentially mitigate the number and cost of unnecessary major switches (Harder et al., 2015).

Many recommendations related to early career exploration implicate existing or additional professional staff to address the growing needs of students in this area (Germeijs et al., 2006; Porter & Umbach, 2006; Spight, 2022). This could prove difficult given the significant staffing shortages brought on by the COVID-19 pandemic (McMurtrie, 2022) and a general stagnation around the expansion of college career centers (Studley, 2016). Career exploration need not be the sole work of the career center, however. Existing research supports the efficacy

of career exploration within academic advising (Spight, 2022; Workman, 2015), learning communities (Wilmes, 2012), or university studies programs (Wang & Orr, 2022). Spight (2022) extends this notion by suggesting that academic advisors (whether faculty or staff) should conduct major exploration with every student, including those who have already declared a major. He recommends "advising each declared student through a process of confirming their major, revising that decision, or rejecting it to explore and find a new major more aligned to fit the student" (Spight, 2022, p. 958). Where resources may be scarce, institutions may need to examine opportunities to incorporate career exploration into existing programs, services, and resources targeted at early college students.

Hesitation around the insistence of career exploration activities may be linked with concerns regarding students beginning their college career as undeclared. There exists a commonly held belief that students who start college as undeclared are more likely to drop out (Spight, 2022), and emphasizing early career exploration may be viewed as encouraging students to begin with or maintain an undeclared status. However, Spight (2022) recommends that institutions "embrace exploration with the understanding that students who start as undecided face no greater risk of failing to find their way" (pp. 959-960). Indeed, recent research has shown that beginning college as "undecided" does not negatively impact a student's ability to remain in that major (Wang & Orr, 2022) or to graduate within 4 years (Spight, 2022; Wright, 2018). What current literature reveals about major declaration for college students seems to further uphold the necessity of adequate early career exploration for all.

Major Declaration

Students often equate major declaration with selecting a career pathway (Frederiksen, 2009; Wright, 2018), which further upholds the significance of this decision in the life of a

college student. All students, including those with a declared major, seem to have some level of uncertainty regarding their declaration of major (Wright, 2018), which makes this an important area of intervention for colleges and universities. There is ample opportunity to intervene early with students in the major declaration process, either to help undeclared students explore viable options, or to confirm that declared students have truly selected a major that is a good fit. If the belief holds that major declaration is tied to retention and progression to graduation, institutions would do well to investigate how students approach this critical decision and what factors would support informed decision-making (Wright, 2018).

Undeclared Students

While major declaration policies and practices vary, many students are asked about their interest in a major before completing their college orientation program, let alone before having the opportunity to engage in early exploration. This practice of emphasizing early major declaration further promotes negative perceptions regarding an undeclared status (Spight, 2022). A general perception exists that students who enter college as undeclared are less likely to graduate in four years, though recent research does not support this (Foraker, 2012; Spight, 2022; Wright, 2018). Given the importance that institutions place on this decision, it is surprising then that research on the perceived benefits of early major declaration is minimal and outdated (Spight, 2022). Workman (2015) even concluded that students are "mostly comfortable with their undecided status" (p. 9).

Current research shows that students who begin as undeclared may actually perform better when it comes to graduation rates (Foraker, 2012; Spight, 2022). Foraker (2012) found that students who started as undeclared and selected a major prior to the end of their second year had the highest graduation rates (83.4%) when compared with those who kept their first major

(72.8%), and those who changed majors only once (71.7%). Spight's (2022) study confirmed these results, finding that "there existed... a higher likelihood that an undeclared student would graduate, as measured within 6 years, than their declared peers" (p. 957). Concerning 4-year graduation rates, there does not appear to be a statistically significant difference between students who started as undeclared and students who started as declared (Spight, 2022; Wright, 2018). Further, students who began as undeclared and then selected a major may be more likely to remain with that major than their counterparts who started as declared (Wang & Orr, 2022).

While current research demonstrates that undeclared students have unfairly been the target of negative perceptions, that is not to say that being undeclared is without consequence. Wilmes (2012) found that students who entered college as undeclared were less likely to find congruence between their academic major and their job up to a year post-graduation. While Wilmes (2012) could not point to other research to confirm this finding, the suggestion was that students who began as undeclared may have less exposure to different environments associated with their major and career, or that their choice of major simply represents their first choice and not necessarily the best choice for their personality. Incoming students, feeling the pressure to commit to a major, may impulsively select an academic pathway ill-suited for their goals and interests. An article in *The Chronicle of Higher Education* similarly points to this issue, noting that it may be especially problematic for first-generation students and working students; these students may lack direction concerning their academic major due to having less exposure to different professional careers (McMurtrie, 2022). This matters as "positive career outcomes [are] associated with individuals who have an occupation closely related to their college major, such as a better income profile and greater job satisfaction" (Xu, 2013, p. 349). Undeclared students, even if graduating on time, may have different career outcomes from their counterparts who

committed to majors earlier. There also appears to be a threshold beyond which maintaining an undeclared status becomes harmful, as Foraker (2012) also found that the students with the lowest graduation rates (62.6%) were those who were undeclared beyond the first two years.

Major Switchers

Like undeclared students, students who change their major seem to have a similar reputation for negative outcomes, though it is not supported by recent research (Foraker, 2012; Wright, 2018). There does not appear to be data to show the actual prevalence of major switching, and institutions in general do not seem to capture this information. This may be due to a lack of consensus on what constitutes a major change (e.g., whether a switch from undeclared to declared counts as a major change or whether only changes from one major to another are counted). Institutions also seem reticent to capture and retain historical data on major declaration in general, though anecdotally, major changing appears to be common among most college students.

There seems to be great concern over students who change their major multiple times, but less consideration for what interventions could reduce the number of major switches. Wright (2018) found no difference in the graduation rates of students who had changed their major multiple times when comparing them with students who had never changed majors. Similarly, Foraker (2012) noted that major changes confined to a student's first three semesters seem to have no impact on time to graduation. It's also worth noting that changing majors does not imply a student could not find satisfaction with a new major; rather, Nauta (2007) pointed out that major satisfaction rose as a student neared graduation, regardless of whether the student was in their original major or not. What should garner more consideration are the reasons behind major switches. Wright (2018) points to academic performance as a key indicator, noting that students

self-reported it as the number one cause for changing majors and seemed to glean that poor

academic performance in major-specific courses suggested incongruence with their current

major.

Literature related to major-changing behavior again points to the importance of early

intervention as a means to reduce the number of unnecessary major switches (McMurtrie, 2022;

Wang & Orr, 2022; Wright, 2018). Early alert programs could aid in identifying students who

are at risk of poor academic performance in major-related areas. Even more proactive could be

an emphasis on assessments for incoming or first-year students to help identify academic

strengths and weaknesses for students. Programs focused on major exploration have proven to

decrease the total number of major switches and reduced the likelihood of a student making a

major switch after the second year (Wright, 2018). A revised perspective on major changing

coupled with enhanced resources for major exploration may go a long way in serving students

who have not yet found their best fit for a major.

Major Satisfaction

In the discussion of major declaration and major switching, little consideration is often

paid to students' satisfaction with their choice of academic major. However, major satisfaction

may be a key to evaluating the efficacy of early career or major interventions (Nauta, 2007).

Major satisfaction underscores the importance of helping students make informed decisions

regarding their field of study and, consequentially, their career pathway. A focus on informed

decision-making to promote major satisfaction may even translate to greater satisfaction with the

overall undergraduate experience (Porter & Umbach, 2006). Major satisfaction could also have

positive outcomes for career satisfaction. As Nauta (2007) discussed, "students who are highly

satisfied with their majors likely experience little anxiety about making future career choices

because they have already narrowed possible choices to those that correspond to their major"
(pp. 457-458). Indeed, major satisfaction may provide a key indication of congruence between a
student's interests and abilities, but also their potential career success.

In the same vein, major dissatisfaction may also provide some important clues regarding
students who are ill-aligned with their selected fields of study. Where there may be negative
perceptions of being undeclared (Spight, 2022) and the presence of policies requiring an early
major declaration, students may feel pressured to make a major decision that is ill-suited to meet
their needs. As Workinger (2011) points out, "since academic majors are not always chosen
based on sound research and matched with students' interests and aptitudes, it is likely that some
students will not be satisfied with their choice" (pp. 19-20). It follows then that institutions with
increased emphasis on early major declaration without the accompanying support of early major
and career exploration may contribute to a greater prevalence of major dissatisfaction among
students. This may also lead to increased dissatisfaction where careers are concerned. In
opposition to an earlier statement, Nauta (2007) also found that students who were dissatisfied
with their major experienced greater anxiety related to their career prospects, particularly "if they
feel 'locked in' to their current field of study and believe that they must choose among
unsatisfactory alternatives" (p. 458). If students end up in a job that is not congruent with their
major, then they may also experience greater dissatisfaction with certain aspects of their career
(Xu, 2013). When considering the potential connections between academic majors and career
outcomes, major satisfaction is another area that should be investigated and evaluated.

Decision-Making

One of the most important aspects of selecting a major or career path is a student's ability
to effectively engage in decision-making. For some students, decision-making can be frustrating,

especially if a student is inexperienced in making the types of decisions associated with major

and career selection, or if a student is uncertain of their goals (Workman, 2015). Academic and

career decision-making may prove especially challenging for college students in general, given

the lengthiness of the decision-making process (Workman, 2015). However, the available

literature on decision-making (as it relates to choosing a major or career) may provide insights

on how institutions can improve the academic and career decision-making processes for students.

Since all college students are engaged in some form of career or academic planning (Gordon,

2019), all students could benefit from guidance, resources, or support to enhance their ability to

make an informed decision.

Major Decision-Making

As stated previously, all students appear to enter college with some level of uncertainty

regarding their major (Wright, 2018) and navigating the indecision associated with major

decision-making is an important component of student development (Frederiksen, 2009).

Choosing a major often involves weighing through a considerable number of divergent options

(Voss et al., 2019), so selecting the major that will be the best fit can seem like a daunting task.

Combined with the pressure to commit to a major early, it is no surprise that there are many

aspects of major decision-making that prove challenging for college students. To start, students

enter college with varying degrees of readiness for making such a significant decision. Students

have differing levels of experience when it comes to decision-making (Workman, 2015),

disparate exposure to professional careers (McMurtrie, 2022), and varying degrees of

indecisiveness as a personality characteristic (Germeijs et al., 2006). Regarding indecisiveness in

particular, Germeijs et al. (2006) found that high school students with higher levels of

indecisiveness at the start of their senior year were likely to have lower levels of commitment to

their selected field of study. This indecision may then have a cascading effect on the major decision that students eventually make, as Porter & Umbach (2006) found that higher levels of uncertainty regarding major made it less likely that a student would select a STEM-based major.

Selecting a major may represent the first in a series of difficult decisions that a student must make in order to ultimately land in their chosen career. Indeed, many college students equate the major that they select with what they expect will be their lifetime career (Frederiksen, 2009; Wright, 2018). This is further complicated by the fact that students may be reluctant to select a major (even if it is one of interest) if the connections to a career are not apparent (Gordon, 2019). In this way, major decision-making and career decision-making are inextricably linked, and difficulty in deciding on one could bleed into difficulty deciding on the other.

Career Decision-Making

Selecting a career pathway is another critical decision for undergraduate students (Harder et al., 2015). Whether this decision occurs before, simultaneously, or after a student selects an academic major, college students recognize that finding a suitable career is one of the most important outcomes for their degree (Strada Education Network & Gallup, 2018b). Given the weight of this decision, we should not assume that students struggling with choosing a career simply lack the motivation to do so (Germeijs et al., 2006). Previous studies, in fact, demonstrate that indecision related to careers is common for students (Cohen et al., 1995; Frederiksen, 2009; Kelly & Lee, 2002). Literature on indecision relevant to careers points to several potential sources, including a lack of information (Kelly & Lee, 2002), general difficulty with making decisions (Germeijs et al., 2006; Kelly & Lee, 2002; Workman, 2015), or aversion to ambiguity (Xu & Adams, 2020). In order to help students through the career decision-making process, it may be necessary to address one or more of these factors.

A factor analysis completed by Kelly and Lee (2002) concluded that a lack of information represented the most preeminent factor within the domain of career decision issues. This reinforces the need for early exploration regarding majors and careers, which was acknowledged earlier in this chapter. Students would benefit from an enhanced focus on interventions to aid in the gathering of information about major and career options, whether through academic advising (Porter & Umbach, 2006; Spight, 2022), programs for university studies (Wang & Orr, 2022), or more active forms of engagement in the exploration process, such as assessments (Workman, 2015) or field experiences (Wright, 2018). Addressing a gap in information or knowledge may prove easier than addressing issues for students who are inherently indecisive. Germeijs et al. (2006) studied indecisiveness as a personality trait, with the goal of examining its influence on college-bound students from the beginning to the end of twelfth grade. They discovered that higher levels of indecisiveness led to lower levels of commitment - a finding which resembled Xu & Adams's (2020) study of ambiguity aversion in college students. Generally speaking, there is significant ambiguity associated with selecting a career path, and students have limited information and experience upon which to base this decision. Xu & Adams (2020) found that students with higher levels of ambiguity aversion also had higher levels of commitment anxiety, which led to poorer outcomes for career development by the end of college. Both studies point to the detriment of indecisive tendencies on the career decision-making process, and they suggest that students may have differing levels of struggle with this upon entry to college.

How students arrive at a decision may also influence whether a student is successful in selecting a career path. Previous studies point to different strategies that students may employ in order to land at their best career option. Harder et al. (2015) suggested that students select a

career based on their problem-solving preferences; that is, that students seek out careers that present them with the types of problems they wish to solve on a daily basis. In this case, a good match between a student and their selected career is one in which a student experiences greater efficacy in solving the problems that the career presents (Harder et al., 2015). Other students may prefer a maximizing approach when making career decisions (Iyengar et al., 2006; Voss et al., 2019). Maximizing involves "seeking out, evaluating, and comparing different options in search of the very best alternative" (Voss et al., 2019, p. 156). This would involve an enormous amount of research and consideration regarding all the possible career options (Voss et al., 2019), and students may have difficulty determining when, in fact, they have found the best possible option. On the other hand, some students may be so overwhelmed by the possibilities that they are willing to settle for a career that is "good enough" (Iyengar et al., 2006; Voss et al., 2019). Knowing how students approach this decision-making task would likely influence how student affairs professionals can be effective in supporting a student through this process.

To address problems associated with career decision-making, student affairs professionals should consider the resources already available to them, along with other recommendations supported by previous studies. All types of career assessments have been developed and improved based on the study of career indecision (Kelly & Lee, 2002), and taking a career assessment may be a more active form of engagement in career exploration that will help a student learn more than a simple conversation with an advisor (Workman, 2015). Professionals aiding students in career decision-making should also tailor their guidance to their students' preferences (Voss et al., 2019). Students employing a maximizing approach may be willing to invest more time in their career decision-making and may be more likely to turn down some opportunities in favor of better options (Voss et al., 2019). It would be important for

advisors working with students to attend to how students approach the decision-making process. Advisors should also consider if a student's approach to career decision-making stems from an aversion to ambiguity – that a student may struggle to move towards an ideal career because of the amount of ambiguity surrounding the decision. In this case, it may be more helpful to ensure that students approach decision-making with flexibility, balancing their anticipated goals for a career with an openness to exploring many options (Xu & Adams, 2020). Research has also suggested that students benefit from experiential activities associated with careers (Workman, 2015; Wright, 2018), and advisors should consider students' abilities to engage in job shadowing or internships as a means to move towards a career decision (Wright, 2018). These types of activities may also help students move closer toward congruence between their academic major and career post-graduation, which has shown to have many positive outcomes for a student's career (Xu, 2013). Applying the lessons learned from previous research associated with career decision-making may alleviate some of the anxiety commonly associated with this decision.

Anxiety and Stress

There is no question that overcoming anxiety continues to be a challenge for many college students. According to a 2020 report, nearly one third of all college students suffer from an anxiety disorder (Eisenberg et al., 2020). An article in *The Chronicle of Higher Education* identified the growing cases of anxiety on college campuses as a crisis that has been escalating for decades (Stearns, 2022). While not all anxiety can be tied directly to major and career decision-making, planning for life post-graduation is a significant source of anxiety for college students (Beiter et al., 2015; Deer et al., 2018).

Regarding terminology, the terms "anxiety" and "stress" both appear in literature to describe some of the challenges students encounter in choosing a major and career. Previous

studies related to major and career decision-making tend to examine anxiety as either a

personality trait (Germeijs et al., 2006; Kelly & Lee, 2002) or as a consequence of making such

significant decisions (Workman, 2015; Xu & Tracey, 2017; Xu & Adams, 2020). Further,

"anxiety" and "stress" in the literature are also commonly associated with indecision

(Frederiksen, 2009; Germeijs et al., 2006) or uncertainty (Porter & Umbach, 2006; Workinger,

2011; Wright, 2018) related to majors or careers. The use of the term "anxiety" does not

necessarily imply a diagnosis of an anxiety disorder and may be used interchangeably with the

term "stress" when characterizing this negative affective experience.

Beiter et al. (2015) found that upperclassmen appear to experience significantly higher

anxiety than first- and second-year students. This finding appears to correlate with the earlier

mentioned finding that post-graduation plans represent a significant source of anxiety for college

students (Beiter et al., 2015). Planning for life after college usually centers around finding

gainful employment associated with one's studies, which can be tied back to both a student's

selection of major and career. Junior year, in particular, may be tied to several significant major

and career decisions. Many institutions require students to select a major by their junior year (at

the latest), and junior year is also a significant time for students to qualify for or complete

internships related to their field of study. As this study examined the significance of the timing of

major declaration as it related to the experience of anxiety, it is important to consider what is

known about college students' experience of anxiety in relation to selecting a major and

choosing a career path.

Regarding Major Selection

The decision of a major is commonly associated with stress and anxiety in college

students (Workinger, 2011; Wright, 2018). First year students may be especially prone to stress

about major selection (Workinger, 2011) as they are confronted with this decision from the moment they choose to enroll in college. As some research has already shown that pushing an early major decision may not be beneficial (Spight, 2022; Wright, 2018), this practice may be creating undue stress on early college students. These students are already navigating a significant amount of change related to transitioning to college. The necessity of having a firm choice of major at the same time may be unnecessarily increasing the anxiety of these students, especially if these students lack the information necessary to make an informed choice (Kelly & Lee, 2002; Spight, 2022; Workinger, 2011; Wright, 2018).

There is also concern about the lingering effects that a poor early major choice can have as a student progresses through college. Nauta's (2007) research on major satisfaction revealed a potential link between major dissatisfaction and increased anxiety around career decision-making. She found that students who are unsatisfied with their major "may experience considerable anxiety about making career decisions if they feel 'locked in' to their current field of study and believe that they must choose among unsatisfactory alternatives" (Nauta, 2007, p. 458). Anecdotal evidence suggests that many students may reach a "point of no return" regarding their major, where even if they are unsatisfied with their major choice, they have completed too many specific (i.e., non-transferable) degree requirements to change course. Given the vast array of career possibilities that students may or may not see linked to their major (Gordon, 2019), it is easy to see how anxiety around a choice of major could evolve into anxiety about the choice of career path.

Regarding Career Selection

Career indecision appears to be a well-documented factor associated with stress and anxiety around career decision-making (Cohen et al., 1995; Frederiksen, 2009; Germeijs et al.,

2006; Kelly & Lee, 2002). Germeijs et al. (2006) discovered that high school students who had higher levels of "indecisiveness" had greater anxiety related to choosing a career, which in turn meant they were less likely to complete the tasks associated with making this critical decision. Indeed, students who struggle more with indecision appear to similarly struggle with completing the basic tasks of major and career exploration that would seem to help them settle on a decision. Cohen et al. (1995) also identified a subtype of individual that appears to struggle significantly with choice anxiety as it relates to career indecision. Similar to Germeijs et al. (2006), their research also revealed that individuals with a high degree of choice anxiety were less likely to seek out career-related information and showed low levels of identity with a particular vocation (Cohen et al., 1995). In both instances of these studies, the researchers suggested that students must first address the anxiety associated with making a career decision before they could expect to move forward in the decision-making process.

Xu & Adams (2020), in their study of students' aversion to ambiguity in the career decision-making process, examined the role of commitment anxiety. Their research found that students with higher aversion to ambiguity experienced poorer career outcomes, due in part to lower levels of commitment to a career path (Xu & Adams, 2020). Earlier research uncovered a reciprocal relationship between ambiguity aversion and career indecision, where one seemingly predicted the other (Xu & Tracey, 2017). This makes sense when career decision-making is viewed as a series of decisions and feedback loops, rather than a linear and straightforward process (Xu & Tracey, 2017). In this case, students who struggled with commitment anxiety were more likely to maintain an undecided career status, which in turn, led to increased anxiety and further aversion to ambiguity (Xu & Tracey, 2017). As noted earlier, this collective research points to a connected relationship between the experience of anxiety around career decision-

making and the simultaneous experience of indecision or uncertainty related to a student's career prospects.

Career Anxiety and the Career Factors Inventory

Given this study's focus on anxiety as it relates to major and career decision-making, the career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990) is of particular interest. The Career Factors Inventory defines career choice anxiety as "the level of reported anxiety that is attached to the process of vocational decision making" (Chartrand et al., 1990, p. 493). The Career Factors Inventory has been used in numerous studies to examine anxiety and indecision relative to career decision-making (Cohen et al., 1995; Frederiksen, 2009; Germeijs et al., 2006; Germeijs et al., 2012; Kelly & Lee, 2002). Germeijs et al. (2006) and Germeijs et al. (2012) provide examples of the utilization of a single subscale (Career Choice Anxiety) of the Career Factors Inventory (Chartrand et al., 1990) coupled with additional scales in the context of a research study.

Confidence and Self-Efficacy

Imperative to an understanding of students' major and career decision-making is an understanding of students' perceived self-efficacy in accomplishing critical major and career decision-making tasks. Self-efficacy theory posits that "people process, weigh, and integrate diverse sources of information concerning their capability, and they regulate their choice behavior and effort expenditure accordingly" (Bandura, 1977, p. 212). Following Bandura's (1977) theory of self-efficacy and behavioral change, many researchers have examined college students' self-efficacy in relation to an academic major (Harder et al., 2015; Nauta, 2007; Wright, 2018) and success in career decision-making (Betz & Hackett, 1986; Conklin et al., 2013; Harder et al., 2015). Available literature on various factors impacting college student self-

efficacy may provide a broader context for understanding how the timing of a major declaration could positively or negatively influence self-efficacy.

Related to Academic Majors

When considering how students experience self-efficacy in the context of their academic major, major satisfaction may be a critical component. Nauta (2007) stated that "students who are highly satisfied with their majors likely experience little anxiety about making future career choices because they have already narrowed possible choices to those that correspond to their major" (pp. 457-458). Given that the process of choosing a major is incredibly lengthy (Workman, 2015) and involves weighing through many diverse options (Voss et al., 2019), it follows that the finalization of choosing a major may lend itself to promoting self-efficacy. Further, as students link their selection of a major with the selection of a career path (Wright, 2018), the experience of self-efficacy within a major may promote career self-efficacy. Nauta (2007) elaborated that major satisfaction, and other positive affective experiences within a major, have the capacity to promote confidence in career-related decisions.

Research has also demonstrated that student self-efficacy may have a reciprocal relationship with academic performance, as academic performance has been linked with a student's perceived major-specific ability (Harder et al., 2015; Wright, 2018). Poor academic performance is an antecedent for major switching (Wright, 2018), where poor performance may suggest to a student that they lack the ability (i.e., the efficacy) to succeed within an academic major. This could further suggest to a student that they similarly would not succeed in careers associated with that major (Harder et al., 2015). This is the inverse of Nauta's (2007) research which demonstrated that students who experience satisfaction and positive affect associated with their major are likely to increase their self-efficacy. A logical conclusion of Nauta's (2007)

research might be that the positive affect associated with good academic performance would also increase self-efficacy. For students considering their career options, academic performance in a major may be seen as a key indicator of whether that student will succeed in a career path associated with that major. In this regard, academic self-efficacy and career path self-efficacy may be directly linked.

Related to Careers

It can be difficult to distinguish a true difference between academic self-efficacy and career self-efficacy, as research tends to link them together (Conklin et al., 2013; Harder et al., 2015, Wright, 2018). In fact, Harder et al. (2015) defined career path self-efficacy as "a student's belief that he or she will be successful in their major and post-graduation career" (p. 343). Conklin et al. (2013) extended this notion in their study of a relationship between career self-efficacy and affective commitment to a major. Affective commitment was defined as "feelings of pride, enthusiasm, and strong identity with a field of study" (p. 69) and was shown to be strongly related to a student's perception of their own fit within their major. Combined, affective commitment and perception of fit were strongly related to higher career decision self-efficacy (Conklin et al., 2013). It makes sense that students with higher affinity to their field of study and the belief that they belong in their major would similarly believe they would succeed in a career associated with that major. Conklin et al. (2013) further concluded that higher affective commitment to a major would result in higher expected satisfaction and performance within a career. This reiterates the concept that positive affective experiences related to a student's major promote self-efficacy in their future careers (Conklin et al., 2013; Nauta, 2007).

Research has also shown that career self-efficacy is related to certain activities that students participate in as it relates to career exploration. Pesch et al. (2017) demonstrated that

participation in more career exploration activities (such as internships or career fairs) led to an increase in a student's perceived knowledge of the day-to-day activities of their selected career, which in turn promoted higher confidence in their choice of career. Pesch et al. (2017) further elaborated that the more knowledgeable a student feels about their chosen career, the more likely they are to seek out more information related to that career, reinforcing the cycle of career exploration and career confidence. The increase in knowledge regarding a career appears to encourage further career exploration and information-seeking, which supports career self-efficacy. These findings also support the proposition that students may learn more from active career exploration (Workman, 2015), and further underlines the need for early career exploration. Additionally, the gaining of knowledge and experience relevant to a future career could serve as a form of ambiguity management that would ease a student's commitment anxiety regarding a major and career path (Xu & Adams, 2020).

The Career Decision Self-Efficacy Scale

Taylor and Betz (1983) applied Bandura's (1977) self-efficacy theory to "the specific tasks and behaviors required in making career decisions" (p. 65). They applied their original research to the development of the Career Decision-Making Self-Efficacy Scale (CDMSE; Taylor & Betz, 1983). To measure their concept of career decision self-efficacy, they created a scale comprised of 50 task-related items divided equally among five subscales: self-appraisal, occupational information, goal selection, planning, and problem solving (Taylor & Betz, 1983). Respondents rated their level of confidence in relation to each scale item on a 10-point continuum, ranging from "complete confidence" to "no confidence" (Taylor & Betz, 1983). The CDMSE was later adapted into a shorter version that was titled the Career Decision-Making Self-Efficacy Scale – Short Form (CDMSE-SF), which contained only 25 scale items and

retained the original 10-point response continuum (Betz et al., 1996). A number of published studies have utilized the Career Decision Self-Efficacy Scale in its short form to examine the self-efficacy of college students in relation to career decision making (Conklin et al., 2013; Deer et al., 2017; Germeijs et al., 2012; Işik, 2012; Jadidian & Duffy, 2012).

<div align="center">**Major Choice and Career Selection within College Student Development**</div>

Several models of psychosocial identity development were considered for this study, as the psychosocial approach is centered on "the important issues that people face as their lives progress, such as…what to do with their lives" (Patton et al., 2016, p. 287). This speaks directly to the importance of career selection as a significant component of individual identity development. Further, psychosocial identity development acknowledges that development occurs through successive stages marked by age-appropriate developmental tasks (Patton et al., 2016). Several psychosocial theories associate young adults (i.e., college-aged individuals) with the developmental task of selecting a career path, and an individual progresses to the next stage of development when they have successfully resolved this task. James Marcia (1966) specifically investigated identity development in the context of choosing a career, and his model of ego identity statuses will serve as the framework for this study.

Marcia's Ego Identity Statuses

The language of Marcia's (1966) ego identity statuses seems to capture the approaches that an individual might take toward career decision-making, and Marcia applied his findings to define identity status in relation to career choice. Marcia's (1966) research, which evolved from Erikson's (1956, 1963) concepts of identity diffusion and ego identity, described four distinct ego identity statuses: identity achievement, moratorium, foreclosure, and identity diffusion. Identity achievement is marked by "a strong degree of commitment to occupational and

ideological choices" (Orlofsky et al., 1973, p. 211). Individuals in the moratorium status appear

to be in the midst of crisis, as they experience increased turmoil regarding their decisions

coupled with a lack of commitment (Orlofsky et al., 1973). Foreclosure as an identity status

represents an "endorsement of authoritarian values" (Marcia, 1966, p. 557) in which individuals

express a strong commitment to a choice, but the choice originated from a parental figure

(Orlofsky et al., 1973). Lastly, identify diffusion is characterized by a general aversion to

commitment in which an individual may or may not have engaged in the appropriate decision-

making processes, but also expresses no desire to do so (Orlofsky et al., 1973). Each of these

statuses could easily represent a college student at various stages of career decision-making,

from a young student who has not explored career options beyond those suggested by a parent

(foreclosure) to a student who has completed ample career exploration and demonstrates clear

commitment to both their major and selected career (identity achievement).

According to Marcia (1966), identity status is determined on the basis of two variables:

crisis and commitment. Crisis represents "the adolescent's period of engagement in choosing

among meaningful alternatives" while commitment represents "the degree of personal

investment the individual exhibits" (Marcia, 1966, p. 551). As seen in the previously referenced

literature, major and career decision-making often involve selecting among alternatives (Gordon,

2019; Kelly & Lee, 2002; Nauta, 2007; Wright, 2018; Voss et al., 2019; Xu, 2013), which speaks

directly to the experience of crisis described by Marcia (1966). Similarly, the degree to which a

student experiences commitment to their chosen field may be mediated by the anxiety (Deer et

al., 2018; Frederiksen, 2009; Germeijs et al., 2006; Kelly & Lee, 2002; Workinger, 2011; Xu &

Adams, 2020) or the self-efficacy (Betz & Hackett, 1986; Conklin et al., 2013; Deer et al., 2018;

Harder et al., 2015) they experience in relation to career decision-making. Crisis and

commitment also appear to relate to two of the identified variables in this study, anxiety and self-efficacy. In this way, Marcia's framework provided a template for interpreting the results of the study in response to the research questions. The degree of anxiety or self-efficacy a student experienced in relation to the timing of major declaration provided clues for the ego identity status most related to the student's experience. This provided another layer for understanding the study's findings and relating them to implications for student affairs practice.

Critiques

One major criticism of Marcia's research is the degree to which it accurately conceptualizes Erikson's work (Côté & Levine, 1988; van Hoof, 1999). The primary concern is related to construct validity, and the extent to which the identity statuses accurately measure the construct of identity (Côté & Levine, 1988; van Hoof, 1999). There are questions regarding the assumptions underlying the connection of the variables (crisis and commitment) to the identity statuses, and further research is needed to confirm these theoretical underpinnings (Schwartz, 2002). Côté and Levine (1988) noted in their critique that Marcia's original framework was published prior to Erikson's complete formulation of his theory, which might suggest that Marcia's work lacked the full array of information and understanding necessary to fully comprehend Erikson's vision into the ego identity statuses. Van Hoof (1999) further suggested that, in actuality, there exists only a slight overlap between Erikson's work and Marcia's, though researchers associated with identity status seem reticent to acknowledge it. Marcia's work is credited with spawning an array of research on identity (Schwartz, 2002), which might further complicate researchers' desires to poke holes in the original theory.

Another common criticism of Marcia's (1966) original research on ego identity statuses is that it was developed using a sample of only males. There is uncertainty as to whether the

identity statuses accurately capture the experiences of female students. In particular, there is concern regarding whether the domains identified in the original research (occupation, religion, and politics) would be appropriate for female identity development (van Hoof, 1999). There is generally a dearth of research on the psychosocial identity development of women (Patton et al., 2016), so there are few comparable models to examine. Marcia (1980) did later address the identity statuses in relation to women, but the considerations underpinning his conclusions were based on very limited research.

Another significant and relevant criticism is the degree to which the university setting impacts a student's transition through the ego identity statuses (Côté & Levine, 1988). Arguably, college provides students with a variety of opportunities to explore their options for future identity commitments, including the selection of a career. However, university policies and processes may be seen as a sort of imposed moratorium on identity development (Côté & Levine, 1988). For example, a student's advancement through a degree program may be predicated on the forced decision of an academic major within a given time frame, and this imposition may or may not provide adequate time for exploration. The suggestion is that any identity achievement accomplished within the university setting has been "untested," and may not hold up outside of this environment (Côté & Levine, 1988). All the above-mentioned critiques are valid concerns related to the use of this framework, and they will be considered when applying the findings of this study.

Chapter Summary

Major declaration and career planning for college students are not new areas for research. Much research has already been conducted on many types of major declaration behaviors, including the impact of being undeclared, the consequences of major switching, and the

importance of major satisfaction. Additional research has explored decision-making in relation to both choosing a major and selecting a career pathway. Some of this research has considered how anxiety affects students' abilities to make sound decisions, while other studies have examined factors that promote greater self-efficacy in decision-making. What has received less attention from the research community is the potential connection between a student's declaration of major and that student's expectations for their future career. Building upon the wealth of available research, this study examined if a relationship exists between when a student declares their major, and how confident or anxious that student feels with regard to their career opportunities.

CHAPTER 3

METHODOLOGY

The purpose of this study was to examine the potential connections between the timing of

a student's declaration of major and that student's experience of confidence or anxiety relative to

their future career. This chapter provides a rationale for the selected methodology in addition to a

thorough description of the procedures, instrumentation, and data collection methods for this

study. The chapter will conclude with an explanation of how the data was analyzed relative to

these research questions:

RQ1: Do students who declare their major earlier report higher levels of confidence

related to major and career decision-making?

RQ2: Do students who declare their major later report higher levels of stress related to

major and career decision-making?

RQ3: Does increased stress correlate with decreased confidence related to major and

career decision-making?

Site

This research will be conducted at Kennesaw State University (KSU), which is located

across two campuses in the metro-Atlanta area of the state of Georgia. KSU is a large, four-year,

public, primarily nonresidential institution with a R2 Carnegie designation for doctoral research

(Carnegie Classification of Institutions of Higher Education, 2020; Kennesaw State University,

2022). KSU has more than 39,000 undergraduate students, and 80% of these students fall within

the traditional age range of 18-24 (Kennesaw State University, 2021). KSU also enrolls a diverse

student body, with 50% of students identifying as non-White (Kennesaw State University, 2021). KSU only reports gender as either male or female and institutional data shows the undergraduate student population as 50.1% female and 49.9% male (Kennesaw State University Institutional Research, 2022). In addition, 38% of KSU's undergraduate students identify as first-generation (Kennesaw State University Institutional Research, 2022), meaning that students have self-identified that neither of their parents ever completed a four-year college degree program (Kennesaw State University First-Gen, 2022). As a comprehensive institution, KSU is also an appropriate site for examining major declaration, given its wide array of undergraduate degree programs. KSU offers 75 unique undergraduate majors spanning the areas of business, engineering, fine arts, science, humanities, liberal arts, and more. KSU's sizable undergraduate population made it a prime candidate for collecting a considerable number of survey responses, and the diversity of the student body offered promise that the results of the study could be applicable to students of a variety of racial and ethnic identities. Further, the variety of undergraduate degree offerings suggested that major declaration could be explored across many fields of study, and the results of the study could apply to students of different academic disciplines.

Data regarding the major declaration behavior of KSU students, including when students typically declare a major and how often they change majors, was sought as a point of comparison for the statistics reported in the literature. However, this data does not appear to exist for most institutions, including KSU. This points to a broader issue across higher education in general, and it may relate to disparities regarding what qualifies as a major change, along with a general dearth of research on students entering college as declared or undeclared (Spight, 2020). What is known is that KSU's six-year graduation rate is currently 49% and the four-year graduation rate

is only 17% (National Center for Education Statistics, n.d.). Raising graduation rates is also an identified goal outlined in the current strategic plan for KSU (Kennesaw State University Strategic Planning, 2022). This further makes KSU an interesting site for examining the timing of major declaration, given the literature on timing of major declaration and graduation rates identified in Chapter Two.

Sample

This research incorporated a combination of criterion sampling and maximum variation sampling to achieve a sample with diverse experiences related to selecting a major and career pathway. Criterion sampling involves recruiting participants based on at least one criterion that is of interest to the researcher (Jones et al., 2022), and inclusion and exclusion criteria are described below. On the other hand, maximum variation sampling involves seeking a high degree of variation in participants based on a topic of interest (Jones et al., 2022). In this case, this study sought variation in experiences of when students declared their major to discern whether the timing of major declaration correlated with an experience of stress or confidence regarding career opportunities.

Inclusion Criteria

To qualify for participation, participants had to be first-time, traditional, undergraduate students enrolled at the research site. In alignment with IPEDS (2021), first-time students will be qualified as students with no previous postsecondary experiences who are enrolling in an undergraduate program at their institution for the first time. Dual-enrollment students and transfer students would not qualify as first-time students, based on this definition. However, the responses collected to the survey demonstrated that the first-time student qualifier was not well defined for participants. This led to a decision to incorporate an additional sample into the

research findings that did include students who were not first-time students (which is discussed in Chapter 4). The study also required participants to be traditional students, or those who enrolled full-time in an undergraduate program immediately following high school who are under the age of 25, as indicated by the opposite of the definition of nontraditional students provided by the National Center for Education Statistics (n.d.). Given the emphasis of this research on major declaration and KSU's promotion of major exploration academic advising at the 30+ credit hour mark (Kennesaw State University Owl Advising, 2022), eligible participants must also be those classified as sophomores and above (with at least 30 credit hours completed). However, student responses will only be included if they have a declared major.

Exclusion Criteria

Given the inclusion criteria above, participants were excluded from this study if they were enrolled in a graduate program, or if they were beyond the age defined for the traditional student population (age 25 and over). Participants were also excluded if they had completed less than 30 credit hours, as this study hoped to capture responses for students who had likely declared their final academic major. KSU promotes a model of major exploration academic advising once a student surpasses 30 credit hours, with an increased emphasis on confidence in the major declaration decision (Kennesaw State University Owl Advising, 2022). This criterion reinforced that students were able to appropriately reflect upon their experience of declaring a major. As noted above, non-first-time students were initially excluded from the study, but given the lack of definition for this criterion in both the study promotions and consent document, this was reconsidered when evaluating samples for analysis.

Instrumentation

Career Factors Inventory – Career Anxiety Subscale

The Career Factors Inventory (Chartrand et al., 1990) was developed as a multi-faceted tool for measuring career indecision. The tool contains 21 items and identified four unique factors that primarily contribute to difficulty in career decision-making. The factors are clustered into two groups: the affective group (consisting of the career choice anxiety and generalized indecisiveness scales) and the informational group (consisting of the need for self-knowledge scale and the need for career information scale).

An advantage of the CFI is that the stability of the factor structure allows for utilization and/or combination of individual subscales (Kelly & Lee, 2002). Chartrand et al. (1990) performed confirmatory factor analyses on the Career Factors Inventory and found that internal consistency reliability coefficients for each of the four factors fell within a range of .73 to .86. The highest (.86) was the coefficient for the career choice anxiety subscale. Additional research has supported the soundness of the Career Factors Inventory as a measure of career indecision (Chartrand & Nutter, 1996; Dickinson & Tokar, 2004; Kelly & Lee, 2002). Further, the stability of the four-factor structure allows for more flexibility in the application of the instrument (Chartrand & Nutter, 1996; Kelly & Lee, 2002). Given the available research on this instrument and the confirmed structure of its factors, the career choice anxiety subscale appears to be a solid measure of anxiety as it relates to career indecision.

The Career Decision Self-Efficacy Scale

The Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996) or CDSE-SF for short, was developed as a shorter form of the longer Career Decision Self-Efficacy Scale (Taylor & Betz, 1983). The CDSE-SF contains 25 total items (half the length of the original

scale) that are split among 5 subscales: self-appraisal, occupational information, goal selection, planning, and problem solving. Items are rated on a five-point scale to examine the degree of confidence the respondent feels in relation to each scale item, ranging from "no confidence at all" to "complete confidence" (Betz et al., 1996). For the purpose of this study, the items found within the self-appraisal subscale seemed most relevant, and this subscale was incorporated into the research survey.

Betz et al. (1996) demonstrated the efficacy and comparability of the short form of the CDSE-SF in relation to the long form. Their coefficient alphas for each subscale ranged from .73 to .83, showing sufficient reliability. Betz et al. (2005) also confirmed the suitability and validity of the 5-point response continuum in comparison to the 10-point scale used in the original research. These findings have been further supported by additional research, which has similarly confirmed the reliability and fitness of the CDSE-SF (Lo Presti et al., 2012; Miller et al., 2009). Based on this information, the self-appraisal subscale of the CDSE-SF appears to be an appropriate measure for this study.

Major Declaration

For the assessment of major declaration, participants were asked to select the available time frame that most represents when they believe they declared their major. For students with one or more major changes, the question verbiage asked participants when they declared their "final academic major" to ensure that students select the time frame that represents their last major declaration, and not their initial major declaration. Time frames were divided and explained as follows: prior to the first semester of the first year (i.e., during the orientation period or prior to the first day of college courses), first semester of the first year (e.g., fall semester of the first year for most traditional students), second semester of the first year (e.g., spring

semester of the first year for most traditional students), third semester of the first year (e.g., summer semester or the time between the first and second year), first semester of the second year, second semester of the second year, third semester of the second year, first semester of the third year, second semester of the third year, third semester of the third year, first semester of the fourth year, second semester of the fourth year, third semester of the four year, or after the completion of the fourth year. In addition, students were asked to report their major to determine if the respondents reflected the diversity of major offerings at the research site.

Demographics

To ensure that participants were truly qualified to participate in the study, a key demographic question was the assessment of participants' class level as defined by completed credit hours. Students had to be at least a sophomore (with a minimum of 30 credit hours) to qualify for participation. Participants were also asked to identify the age range to which they belonged, to ensure they aligned with the definition of a traditional student as outlined in the inclusion criteria. Participants were then asked about their enrollment status (part-time or full-time), as only full-time students qualified for participation based on the inclusion criteria. Participants were also asked if they had previously enrolled at another institution other than the study site (Kennesaw State University). This was helpful in identifying the percentage of students who were first-time students in the respondent pool. Given Kennesaw State University's diverse student population and significant percentage of first-generation students, participants were asked to share their race/ethnicity and they were asked if they identified as a first-generation student. In addition, to discern whether participants matched institutional data, participants were also asked how they identify their gender.

Procedures

To assess the identified research questions, a survey was created in the Qualtrics platform to gather data on when students declared their major and their ratings of confidence or stress relative to their career decision-making. The survey incorporated both established scale questions derived from the Career Factors Inventory Anxiety Subscale and the Career Decision Self-Efficacy Scale, in addition to original questions to assess the timing of major declaration and student demographics (see Appendix A). A recruitment email was created to describe the aims of the study to potential research participants (see Appendix D).

Upon receiving approval from the Institutional Review Board, the survey was promoted to students through a variety of communication methods (see Data Collection Methods). Interested students accessed the survey through a direct link or QR code, and the survey was scaled so that it could be completed on any device with an internet connection. The recruitment email advised of the eligibility requirements for students to participate and included a survey link that directed respondents to the informed consent. Respondents had to review and agree to the informed consent before they could access the survey. Responses were submitted anonymously, though students had the option of sharing an email address to be eligible for one of the incentives (described in detail under Data Collection Methods). All responses were collected and saved within the Qualtrics platform.

Data Collection Methods

The selected site for this study does not allow researchers to contact potential research participants (i.e., students) directly via email. Therefore, this study incorporated a variety of data collection methods in order to reach the target population of research participants. These methods included use of a student messaging system (which operates similar to a student email

newsletter and requires internal approval from staff at the research site), sharing a promotional flyer and social media graphic, and distributing the recruitment email and survey link to a collective of assistant and associate deans aligned with academic advising for each of the colleges at the research site. All data collection methods ensured that participants' identities were protected and that survey responses were collected anonymously.

Informed Consent

Before initiating the survey, all participants were directed to view the consent letter (see Appendix A) outlining the purpose and details of the study, the content of the study survey, participation eligibility, how to enter the drawing for the incentive, how to contact the primary researcher, and other specifics regarding study participation. By clicking on "begin survey," participants were declaring that they understood the information within the letter and were voluntarily consenting to participate in the study.

Open Recruitment

Participation in this study was open to all students who met the inclusion criteria, but the data collection methods available did not allow for the researcher to share the survey with only students who met the inclusion criteria. Participants were largely recruited through open and public recruitment methods, including posting through a student messaging system and sharing survey information via flyers and social media. Some participants may have received information about the study via an email from an academic advisor or other staff member, but a participant's decision to participate or not participate had no bearing on their grades or class standing, as participation was anonymous.

Student Messaging System

Kennesaw State University utilizes an internal student messaging system called "KSU Student Inform" to collect notifications and announcements to share with students each week. Submissions to this system are reviewed and approved by KSU staff members before they are compiled into a newsletter that is distributed each Monday to all currently enrolled KSU students (Kennesaw State University, 2017). A brief version of the recruitment email was provided as the "message" portion of the submission (which has a word limit of 250) along with a direct link to the research survey (see Appendix F). Submissions were made to the KSU Student Inform system three times during the recruitment period.

Flyers

A promotional flyer was created to advertise the basic components of this study and to notify students of the opportunity to receive an incentive for participating in this research. Flyers were shared with assistant and associate deans of the academic colleges to distribute and post as they saw fit during the recruitment period.

Social Media

Several KSU offices and departments utilize the Instagram social media platform to share information with a large audience of followers (most of whom are presumed to be KSU students). A social media graphic was also shared with the assistant and associate deans of the academic colleges to include on their college-specific social media accounts, or to share through other KSU-affiliated accounts as they deemed appropriate.

Academic Advising Network

The assistant or associate deans of the academic colleges are part of a "strategic advising council" that meets regularly to share valuable information across academic advising units and

other advising related centers and departments (such as career services, the writing center, and tutoring services). Given this group's connection with the network of academic advisors across the research site, the recruitment materials (including the recruitment email, flyer, and social media graphic) were shared with this group along with the request that they share it with their academic advising units as they deemed appropriate. The expectation was that these materials were then passed on to large groups of students connected to the academic advising units.

Methodological Design

Surveying

This study utilized a quantitative nonexperimental survey design to explore the relationship between the timing of a student's declaration of major and that student's experience of anxiety or confidence relative to their career. Respondents completed a brief web-based survey to assess their eligibility for participation, the timing of their major declaration, and their perceptions regarding their self-efficacy or anxiety as it related to their career. The incorporation of different available technologies (such as the web-based Qualtrics platform and QR codes in marketing materials) promoted ease of access for potential survey respondents. The indirect nature of the web-based survey also promoted the goal of reaching "a larger and more diverse sample quickly" (Biddix, 2018, p. 168).

As noted earlier in the chapter, this study utilized both maximum variation and criterion sampling to achieve the random sample needed for this survey design. According to Biddix (2018), the results of a survey distributed to a random sample can generally be used to draw inferences about a population. Further, these inferences could have significant implications for practices and policies within student affairs (Biddix, 2018). This research was designed to explore whether an early or late major declaration affected a student's experience of self-efficacy

or anxiety related to their career. The findings from the survey results were then interpreted and applied to inform future student affairs practices, which could potentially include the revision of policies around academic major declaration, the dedication of additional resources to early academic or career advising, or the alteration of expectations for major and career decision-making of students.

Incentives

A noted disadvantage of web-based surveys is the potential for lower response rates (Biddix, 2018). To encourage participation in this research by eligible students, this study incorporated the use of incentives to enhance the likelihood of response. Previous research has demonstrated the positive impact that incentives can have on survey results. Laguilles et al. (2011) found that incentives significantly increased response rates and completion rates for web surveys, when directly compared with a control group that received no incentives. Heerwegh (2006) found similar results, and suggested that the use of an incentive boosted word-of-mouth promotion of a web survey, as student respondents communicated with other students about the possibility of winning the incentive prize. In both studies, an incentive group was given the opportunity to win one of several gift cards of a moderate amount. The incentive for this study included a drawing to win one of 10 Amazon gift cards, with each gift card having a value of $50.

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Data Analysis

</div>

Descriptive Statistics

Data analysis began with an examination of the descriptive statistics of the research respondents. Frequency distributions were provided regarding class level, race/ethnicity, gender identity, and first-generation student status. A frequency distribution was also provided for the

timing of participants' major declaration to examine how the sample was divided among these categorizations. These analyses provided an overview of the general characteristics of the students who participated in this study. As a single-campus study, these descriptors served as a reference point in determining how representative the sample group was of the overall student population from which the sample was drawn.

Correlations

In order to conduct correlational analysis, the timing of major declaration was converted into an ordinal scale with numbers corresponding to each sequential category (e.g., "1" for declarations happening prior to first semester of Freshman Year, "2" for declarations happening first semester of Freshman Year, "3" for declarations happening second semester of Freshman Year, etc.). In addition, participant scores were summed for the individual subscales incorporated into the survey. Higher scores on the Career Anxiety subscale indicated higher anxiety related to career decision-making, and higher scores on the Self-Appraisal subscale indicated stronger confidence in one's self-appraisal as it relates to career decision-making. To answer the proposed research questions, analyses will be performed as outlined below:

RQ1: Do students who declare their major earlier report higher levels of confidence related to major and career decision-making?

- A Spearman's correlation coefficient was calculated using the coded responses from the timing of major declaration categories and the summed score on the Self-Appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996) to examine if a relationship existed between these two variables.

RQ2: Do students who declare their major later report higher levels of stress related to major and career decision-making?

- A Spearman's correlation coefficient was calculated using the coded responses from the timing of major declaration categories and the summed score on the Career Anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990) to examine if a relationship existed between these two variables.

RQ3: Does increased stress correlate with decreased confidence related to major and career decision-making?

- A Spearman's correlation coefficient was calculated using the summed scores from both the Career Anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990) and the Self-Appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996) to examine if a relationship existed between these two variables.

CHAPTER 4

RESULTS

This chapter presents the results of the statistical analyses conducted to address each of

the research questions for this study. To understand the potential relationship between the timing

of a participant's major declaration and the participant's experience of stress/anxiety or

confidence/self-efficacy, respondents were asked to complete a short survey which included: two

subscales of previously validated research instruments, a question regarding when they declared

their major, and a series of demographic questions. The first subscale, identified as the "Anxiety

Subscale" in this chapter, represents the career choice anxiety subscale of the Career Factors

Inventory (Chartrand et al., 1990). The second subscale, identified as the "Self-Efficacy

Subscale," represents the self-appraisal subscale of the Career Decision Self-Efficacy Scale –

Short Form (Betz et al., 1996). Correlational analyses were performed between the timing of

major declaration and the Self-Efficacy Subscale score, between the timing of major declaration

and the Anxiety Subscale score, and between the scores of the Anxiety Subscale and the Self-

Efficacy Subscale. The results, along with additional findings, are outlined within this chapter.

Sample

Responses to the research survey were collected primarily via an email announcement.

Potential participants received a weekly email digest which included an advertisement for

participation in this research study, along with several other announcements and promotions. A

total of 226 valid responses were collected over the course of a three-week period early in the

spring 2023 semester. However, a substantial majority of responses did not meet the inclusion

criteria. The consent letter for the survey outlined that eligible participants must be "at least 18 years old, an undergraduate student, a first-time and full-time student, and have completed at least 30 credit hours." Only 66 of the collected responses effectively met all of these requirements. The criterion that eliminated the most responses from inclusion was that of participants holding the status of a first-time college student, meaning that participants had not completed any college-level coursework at another institution. Only 46% of participants reported no college-level coursework prior to entering the research institution.

Table 1

Frequency Distribution of College-Level Coursework Completed at Prior Institution for All Survey Responses

Response	N	%
No	104	46.0
Yes	72	31.9
Yes, for dual enrollment only	50	22.1

Given this outcome, the sample was examined both with and without the inclusion of the first-time status criterion. Removing the first-time status criterion while keeping the remaining criteria that participants be of traditional student age (18-24 years old), enrolled full-time, and have completed at least 30 credit hours created a sample of 153 participants. This additional sample was compared with the sample that met all inclusion criteria for additional analysis.

Participant Demographics

Multiple demographic questions were incorporated into the research survey, including questions intended to identify responses that do not meet the inclusion criteria. Respondents were asked to identify their current class level, their age range, their current enrollment status, their first-time student status, their race/ethnicity, their gender identity, and their first-generation student status. Respondents who identified as Freshmen or Graduate Students were excluded from the analysis as they did not meet the criteria of having at least 30 credit hours completed or having an undergraduate student status. Respondents who identified as either under 18 or over 25 were also excluded from analysis, as they do not align with the age of a traditional student outlined in Chapter 3. As the survey was intended to explore results for full-time college students, responses were also excluded from analysis if the respondents identified as enrolled part-time.

As noted above, the responses collected included an unexpected majority of non-first-time students, which significantly reduced the sample size for analysis. An additional sample was examined that excluded the first-time college student criterion, and this sample was identified as including students with prior institutional experience (noted as "with prior institution"). The demographics of this sample were then compared with the sample that met all inclusion criteria, which was identified as having only participants without prior institutional experience (noted as "without prior institution").

Table 2

Participant Demographics for Samples With and Without Prior Institutional Experience

Demographic Category	Without Prior Institution		With Prior Institution	
	N	%	N	%
Class Level				
Sophomore	20	30.3	56	36.6
Junior	24	36.4	53	34.6
Senior	22	33.3	44	28.8
Race Ethnicity				
American Indian/Alaskan Native	0	0	1	0.7
Asian	4	6.1	10	6.5
Black/African American	22	33.3	40	26.1
Hispanic/Latino	3	4.5	11	7.2
Prefer not to say	3	4.5	4	2.6
Two or more	11	16.7	20	13.1
White	23	34.8	67	43.8
Gender				
(blank)	0	0	1	0.7
Female	52	78.8	119	77.8
Male	10	15.2	22	14.4
Nonbinary	3	4.5	8	5.2
Prefer not to say	1	1.5	3	2.0

First Generation

(blank)	0	0	1	0.7
No	54	81.8	109	71.2
Yes	12	18.2	43	28.1
Total	66	100.0	153	100.0

The sample with prior institutional experience (N = 153) had a higher percentage of sophomores than the sample without prior institutional experience, though the overall distribution of class levels remained similar. There were also slight variations in the race/ethnicity breakdown of both samples, with the prior institutional experience sample having a higher percentage of White participants and a lower percentage of Black/African American participants. Gender identity for respondents was very consistent across both samples, and the sample with prior institutional experience had a higher proportion of first-generation students.

Descriptive Statistics

A frequency distribution of when students declared their major was pulled to examine the spread of results across the different response options provided. Participants were given a total of 14 possible responses, starting with "prior to first semester of your first year" (1), "first semester of your first year" (2), "second semester of your first year" (3), "third semester of your first year" (4), "first semester of your second year" (5), and so on until the final response option of "after your fourth year" (14). Again, this distribution was pulled for both identified samples to explore the differences between them, given the differences in sample size. The results were two negatively skewed distributions with more recorded responses for the first three response options than for the remaining response options available. The second sample, which included students

with prior institutional experience, captured significantly more responses during the third year and had some responses in the fourth year, compared with the first sample that captured no responses during the fourth year.

Table 3

Frequency Distribution for When Participants Declared Their Major for Samples With and Without Prior Institutional Experience

	Without Prior Institution		With Prior Institution	
When Declared Major	N	%	N	%
Prior to First Year				
1	30	45.5	67	43.8
During First Year				
2	12	18.2	16	10.5
3	7	10.6	23	15.0
4	0	0	2	1.3
During Second Year				
5	6	9.1	11	7.2
6	5	7.6	13	8.5
7	1	1.5	1	0.7
During Third Year				
8	1	1.5	9	5.9
9	2	3.0	6	3.9
10	1	1.5	1	0.7

During Fourth Year

11	0	0	0	0
12	0	0	1	0.7
13	0	0	1	0.7

After Fourth Year

14	1	1.5	2	1.3

Both samples were also compared regarding their mean scores on the Anxiety Subscale and Self-Efficacy Subscale. Both samples had very similar means and standard deviations for both subscale scores.

Table 4

Comparison of Means for Anxiety Scale Scores

	N	Min.	Max.	M	SD
Without Prior Institution	66	8	29	17.05	4.73
With Prior Institution	153	6	30	17.54	4.75

Table 5

Comparison of Means for Self-Efficacy Scale Scores

	N	Min.	Max.	M	SD
Without Prior Institution	66	10	24	18.48	2.99
With Prior Institution	153	10	24	18.59	2.66

Research Question 1

RQ1: Do students who declare their major earlier report higher levels of confidence related to major and career decision-making?

Spearman's rank correlation was computed to assess the relationship between the timing of major declaration and the participant's total score on the self-appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996). This computation was completed twice: first for the sample that met all inclusion criteria (N = 66), and second for the sample that included students with prior institutional experience (N = 153). The results of the first analysis revealed there was no significant relationship between the two variables, $r(64) = 0.237$, $p = .055$. The results of the second analysis also revealed no significant relationship between the two variables, $r(151) = -.075$, $p = .355$.

Table 6

Spearman's Rank Correlation for When Participants Declared Their Major and Their Scores on the Self-Efficacy Scale

Variable	Mean	SD	N	r	Sig
Without Prior Institution					
Self-Efficacy Subscale Score	18.49	2.99	66	.237	.055
When Declared Major					
With Prior Institution					
Self-Efficacy Subscale Score	18.59	2.66	153	-.075	.355
When Declared Major					

Though no significant relationship was found, the difference in the direction of the relationship for each sample suggests the need for a much larger sample to adequately assess how these variables may be related. For further examination, a comparison of the mean scores on the self-efficacy subscale by when participants declared their major was reviewed. Those results are listed in the table below.

Table 7

Comparison of Means for Self-Efficacy Scale Scores by When Participants Declared Their Major

When Declared Major	Without Prior Institution			With Prior Institution		
	N	M	SD	N	M	SD
Prior to First Year						
1	30	17.77	2.88	67	18.83	2.68
During First Year						
2	12	18.33	2.74	16	18.25	2.54
3	7	19.14	4.34	23	17.96	3.40
4	-	-	-	2	16.00	1.41
During Second Year						
5	6	20.67	2.66	11	19.09	2.66
6	5	17.20	1.30	13	17.54	1.94
7	1	20.00	-	1	20.00	-
During Third Year						

8	1	22.00	-	9	19.33	1.22
9	2	21.50	3.54	6	20.33	3.08
10	1	20.00	-	1	20.00	-
During Fourth Year						
11	-	-	-	-	-	-
12	-	-	-	1	18.00	-
13	-	-	-	1	18.00	-
After Fourth Year						
14	1	18.00	-	2	18.00	.00

The first sample (N = 66) appears to show mean scores on the Self-Efficacy Subscale rising during the second and third year, with a drop during the second semester of the second year. However, the number of responses captured during these periods are too small to suggest a relationship. The second sample (N = 153) shows a similar pattern, with mean scores rising at the beginning of the second year, a similar drop within the second semester of the second year, followed by a similar climb into the third year. Though the second sample had more responses than the first during this period, the numbers are still too small to suggest a relationship.

Research Question 2

RQ2: Do students who declare their major later report higher levels of stress related to major and career decision-making?

Spearman's rank correlation was computed to assess the relationship between the timing of major declaration and the participant's total score on the career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990). As with the previous research question, this

computation was completed for both of the identified samples: the sample without prior

institutional experience (N = 66) and the sample with prior institutional experience (N = 153).

The results of the first analysis revealed no significant relationship between the two variables,

$r(64) = -.054$, $p = .669$. However, the results of the second analysis did reveal a significant

relationship between the variables, $r(151) = .206$, $p = .010$. This finding represents a weak

positive correlation with high significance.

Table 8

Spearman's Rank Correlation for When Participants Declared Their Major and Their Scores on

the Anxiety Scale

Variable	Mean	SD	N	r	Sig
Without Prior Institution					
Anxiety Subscale Score	17.05	4.73	66	-.054	.669
When Declared Major					
With Prior Institution					
Anxiety Subscale Score	17.54	4.75	153	.206	.010
When Declared Major					

Similar to the results of the first research question, the results of the relationships

between the variables point in different directions between the two samples. However, unlike the

earlier results, the results of the correlational analysis for the sample with prior institution

reached significance. These results suggested a positive relationship between the variables,

indicating that as major declarations happened later, scores on the Anxiety Subscale increased.

The mean scores for the Anxiety Subscale across the different levels for major declaration were compared, and those results are listed below.

Table 9

Comparison of Means for Anxiety Scale Scores by When Participants Declared Their Major

When Declared Major	Without Prior Institution			With Prior Institution		
	N	M	SD	N	M	SD
Prior to First Year						
1	30	16.83	4.74	67	16.48	4.63
During First Year						
2	12	18.92	4.87	16	18.81	4.43
3	7	18.71	4.11	23	17.30	4.80
4	-	-	-	2	18.00	.00
During Second Year						
5	6	14.83	3.97	11	17.18	4.92
6	5	16.40	5.50	13	19.85	5.40
7	1	17.00	-	1	17.00	-
During Third Year						
8	1	17.00	-	9	21.44	2.96
9	2	13.50	7.78	6	16.83	4.96
10	1	10.00	-	1	10.00	-
During Fourth Year						
11	-	-	-	-	-	-

12		-	-	-	1	15.00	-
13		-	-	-	1	17.00	-
After Fourth Year							
14		1	20.00	-	2	22.00	2.83

Unlike the comparison of means for the first research question, there is greater disparity between the scores of the two samples here. In the first sample (N = 66), the mean scores begin to rise in the first year, and then drop drastically in the first semester of the second year and stay lower up until after the fourth year. In the second sample (N = 153), the mean scores start off in a similar pattern with a rise in the first semester of the first year. However, the mean scores then alternate between dropping and rising through the first two years, and jump significantly at the start of the third year before tapering off again. Both samples had their lowest and highest scores in the same time periods, with the lowest scores reported during the third semester of the third year and the highest reported after the fourth year. As with previous analyses, there are far fewer scores to draw comparisons from in the third and fourth years.

Research Question 3

RQ3: Does increased stress correlate with decreased confidence related to major and career decision-making?

Spearman's rank correlation was computed to assess the relationship between the scores on the career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990), or the Anxiety Subscale, and the self-appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996), or the Self-Efficacy Subscale. In keeping with previous analyses, these computations were performed for both identified samples to assess any variation

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in the results. The results of the first analysis revealed a significant negative relationship between the variables, $r(64) = -.270$, $p = .029$. The results of the second analysis revealed an even more significant negative relationship, $r(151) = -.284$, $p = <.001$. Both correlation coefficients suggest relatively low or weak negative associations between the variables, but both also reached a level of significance. The significance level of the second analysis provides even stronger evidence that one variable increases as the other decreases and suggests this would likely be true for the population.

Table 10

Spearman's Rank Correlation for Anxiety Scale Scores and Self-Efficacy Scale Scores

Variable	Mean	SD	N	r	Sig
Without Prior Institution					
Anxiety Subscale Score	17.05	4.73	66	-.270	.029
Self-Efficacy Subscale Score	18.49	2.99			
With Prior Institution					
Anxiety Subscale Score	17.54	4.75	153	-.284	<.001
Self-Efficacy Subscale Score	18.59	2.66			

Unlike previous analyses, both samples point toward a relationship in the same direction, and both correlations reached significance. The results suggest that as scores on the Anxiety Subscale go up, scores on the Self-Efficacy Subscale go down, and vice versa.

Additional Analyses

The number of non-first-time students in the response pool (and the subsequent inclusion of the additional sample of participants with prior institutional experience) called into question whether differences might exist in the mean scores on both subscales between the prior institutional groups. The prior institutional groups were defined as "No" (meaning the participant is a first-time student at the research site and has not completed college-level coursework at another institution), "Yes" (meaning the participant has completed college-level coursework at another institution prior to enrolling at the research site), and "Yes, for dual enrollment only" (meaning the participant has only completed college-level coursework through a dual enrollment program). A one-way analysis of variance (ANOVA) was calculated to explore the differences in the means of the subscale scores between the prior institutional groups. As shown in Table 12, there was not a statistically significant difference in mean anxiety scale scores between at least two of the groups ($F(2,150) = 1.164$, $p = .315$), and there was also not a statistically significant difference in mean self-efficacy scale scores between at least two of the groups ($F(2,150) = .312$, $p = .732$).

Table 11

Descriptives Statistics for Mean Scores on the Anxiety Scale and Self-Efficacy Scale by Prior Institutional Group

					95% Confidence Interval			
Prior Institution	N	Mean	SD	Std. Error	Lower	Upper	Min.	Max.
Anxiety Scale No	66	17.05	4.73	0.58	15.88	18.21	8	29

	Yes	44	18.43	4.79	0.72	16.98	19.89	6	30
	Dual Enrollment Only	43	17.37	4.72	0.72	15.92	18.83	6	26
	Total	153	17.54	4.75	0.38	16.78	18.29	6	30
Self-Efficacy Scale	No	66	18.49	2.99	0.37	17.75	19.22	10	24
	Yes	44	18.86	2.42	0.36	18.13	19.60	12	23
	Dual Enrollment Only	43	18.50	2.38	0.36	17.75	19.22	13	24
	Total	153	18.59	2.66	0.22	18.17	19.02	10	24

Table 12

One-Way Analysis of Variance of Mean Scores on the Anxiety Scale and Self-Efficacy Scale by Prior Institutional Group

	Source	SS	df	MS	F	p
Anxiety Scale	Between groups	52.35	2	26.17	1.164	.315
	Within groups	3373.71	150	22.49		
	Total	3426.05	152			
Self-Efficacy Scale	Between groups	4.47	2	2.23	.312	.732
	Within groups	1072.41	150	7.15		
	Total	1076.88	152			

These findings demonstrate that there is no significant difference in the mean scores on either the Anxiety Scale or the Self-Efficacy Scale based on a participant's prior institutional experience.

Reliability analyses were also performed to test the internal consistency of the scales used by examining the inter-item correlations for both samples. For the sample without prior institutional experience, the anxiety scale was completed by 66 participants, the scale consisted of 6 items, and the Cronbach's Alpha for the scale was $\alpha = .818$. For that same sample, the self-efficacy scale was also completed by 66 participants, and that scale consisted of 5 items with a Cronbach's Alpha for the scale of $\alpha = .686$. Since the alpha for the self-efficacy scale is below 0.7, the reliability of that scale may be questionable. For the sample with prior institutional experience, the anxiety scale was completed by 153 participants, the scale consisted of 6 items, and the Cronbach's Alpha for the scale was $\alpha = .828$. The same analysis was performed for the self-efficacy scale, which was also completed by 153 participants, had 5 items, and had a Cronbach's Alpha of $\alpha = .626$. Again, the alpha for the self-efficacy scale falls below 0.7 and could represent questionable reliability and a potential limitation of the instrument.

Chapter Summary

This chapter addressed the results of the statistical analyses performed to explore the relationship between the timing of a participant's major declaration and that participant's experience of anxiety or self-efficacy. Given the low sample size determined for participants who met all inclusion criteria, an additional sample which included students with prior institutional experience was also pulled for analysis. Both samples showed no significant relationship between the timing of a participant's major declaration and a participant's experience of confidence as measured by the self-appraisal subscale of the Career Decision Self-

Efficacy Scale – Short Form (Betz et al., 1996). The samples had different results when examining the relationship between the timing of a participant's major declaration and a participant's experience of anxiety as measured by the career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990). The sample with prior institutional experience showed a significant positive relationship between the variables, suggesting that later major declarations are related to higher scores on the Anxiety Subscale.

The final analysis examined the relationship between the scores on the two subscales, and both samples reported a significant negative relationship between scores on the Anxiety Subscale and scores on the Self-Efficacy Subscale. As expected, higher scores on the Anxiety Subscale correlated with lower scores on the Self-Efficacy Subscale. Including both samples in the statistical analyses added richness, and these findings provided additional insight regarding interpretation of the analyses and suggestions for further research which will be discussed in the next chapter.

CHAPTER 5

DISCUSSION

This chapter provides a summary of the study, including a thorough explanation of the study findings and the limitations encountered during the study procedures. The chapter concludes with the implications drawn from the study findings and suggestions for the direction of future research.

Summary of Study

This study was designed to explore the potential relationship between the timing of a student's major declaration and that student's experience of confidence or stress related to career decision making. To investigate connections between these variables, and after reviewing previous research on these and related topics, the research questions below were identified to guide this study:

1. Do students who declare their major earlier report higher levels of confidence in their expected career outcomes?

2. Do students who declare their major later report higher levels of stress related to major and career decision-making?

3. Does increased stress (related to major and career decision-making) correlate with decreased confidence in a student's career prospects?

An appropriate research site and population were identified for inclusion in this research, and an online survey was created to measure the associated variables. The survey incorporated two subscales from known and vetted research instruments that were prominent in the literature

review. The career choice anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990) was utilized to measure participants' experience of anxiety (or stress) as it relates to career decision making, while the self-appraisal subscale of the Career Decision Self-Efficacy Scale – Short Form (Betz et al., 1996) served as a measure for self-efficacy (or confidence). The survey also asked participants to identify the time of their final major declaration, which was divided out into semesters spanning from before matriculation to after the fourth year of study. The final survey included demographic questions regarding participants' class level, age, enrollment status, prior enrollment at other institutions, race/ethnicity, gender identity, and first-generation status.

Participation in the study was promoted primarily through a weekly student email digest during the data collection period, with additional promotion through a network of academic advisors and assistant or associate deans within the academic colleges at the institution that served as the research site. The survey received 226 complete responses from which two samples were drawn. The samples were based on the inclusion criteria outlined in Chapter 3 and in response to the high degree of participants with prior institutional experience, as noted in Chapter 4. Spearman's rank correlation was used to analyze the samples in accordance with the research questions using the Statistical Package for Social Sciences (SPSS).

Discussion

This study was devised to explore the potential relationships between the timing of a student's major declaration, and that student's experience of confidence or anxiety related to career decision-making. Using a quantitative, nonexperimental design, data were collected to assess participants' self-reported time of major declaration. Individual scores were also calculated on two different subscales intended to assess anxiety and self-efficacy related to

career decision-making. The results were processed using correlational analyses to further explore the relationships between the identified variables of major declaration, confidence/self-efficacy, and stress/anxiety. The significant findings of those analyses are discussed below.

Confidence and Major Declaration

The first research question for this study assessed whether students who declared their major earlier would report higher levels of confidence related to major and career decision-making. Because students connect their choice of an academic major with their potential career options (Frederiksen, 2009; Wright, 2018), the supposition underlying this research question was that students who selected a major earlier were more confident in their choice of career than students who delayed this decision. This would reinforce the existing perception that an early major declaration is more likely to contribute to retention and graduation (Spight, 2022). For this study's purpose, confidence in career decision–making was assessed using the self–appraisal subscale of the Career Decision Self–Efficacy Scale – Short Form (Betz et al., 1996), referred to as the Self–Efficacy Subscale. Participants ranked their confidence in their ability to perform a self-appraisal task on a scale of 1 to 5 for 5 separate statements, with a potential score range between 5 and 25. The mean scores for the first sample without prior institutional experience (N = 66) and the second sample with prior institutional experience (N = 153) were calculated at 18.48 and 18.59, respectively. However, the correlational analysis found no relationship between confidence and timing of major declaration. In fact, the mean scores on the Self-Efficacy Subscale trended higher for students who declared their major during the second and third years.

Wright (2018) noted that all students enter college with some degree of uncertainty regarding their major. This uncertainty may be reflected in the lower self-efficacy scores of the earlier major declaration periods. Though early major declaration has been suggested to

contribute to retention and graduation, this research has not supported a connection between early major declaration and confidence in career decision-making. Instead, the finding that mean self-efficacy scores were higher in the second and third year (averages jumped from the 17-19 range to 20-22 for the first sample, and from the 16-18 range to 19-20 for the second sample) may reinforce recent research regarding the benefits of matriculating as an undeclared student. Wang & Orr (2022) found that students who started as undeclared were more likely to remain with their major than their peers who started college with a declared major. In some studies, students who started as undeclared were also more likely to graduate than their peers who began as declared (Foraker, 2012; Spight, 2022). It is possible that students who resist declaring a major at the onset of their education are more likely to engage in meaningful career exploration, which could boost their confidence in their choice.

One notable observation in the findings is the dip in self-efficacy scores during the second semester of the second year, when compared with the semesters before and after (averages went from 20.67 to 17.2 to 20 for the first sample, and from 19.09 to 17.54 to 20 for the second sample). The second semester of the second year may represent a common deadline imposed by institutions for declaring a major. This would be especially relevant for students who have remained undeclared up to that point, as this may represent a junction at which students need to begin major-related coursework. This deadline would align with research that suggests that being undeclared beyond the second year is detrimental for retention and graduation (Foraker, 2012). However, Workinger (2012) also found that institutions with more structured policies around major declaration had lower retention rates from the first year to the second year. The dip in self-efficacy scores aligning with this decision point may suggest that too much structure around major declaration is detrimental for students, particularly if students have made

decisions regarding major without appropriate research or information (Workinger, 2012; Wright, 2018). Forcing a decision on a major without the support of activities to build their confidence could have the opposite effect on students' self-efficacy in relation to their careers.

Anxiety and Major Declaration

The second research question for this study assessed if later major declarations were related to higher scores of anxiety regarding career decision-making. This was presented as a counterpoint to the first research question, with the expectation that later major declarations may be related to increased anxiety related to deciding on a future career. In this study, anxiety or stress related to career decision-making was assessed using the career anxiety subscale of the Career Factors Inventory (Chartrand et al., 1990), referred to as the Anxiety Subscale. Participants selected a rating on six different spectrums representing how they feel when considering career decision-making. A total score was summed based on these selections, with scores ranging from 6 to 30. The mean scores on this subscale calculated for the first sample without prior institutional experience (N = 66) and the second sample with prior institutional experience (N = 153) were 17.05 and 17.54, respectively. The results of the correlational analyses for this research question were split for the two samples, with only the second sample (N = 153) demonstrating a significant relationship to suggest that anxiety scores do increase as major declarations are delayed.

One potential consequence of a later major declaration is that students have less time in that major while still in college. Less time within an academic major could impinge on a student's ability to experience congruence with that major, or to see their job as related to their major (Wilmes, 2012). One study found that students entering college as undeclared were less likely to find congruence between their major and their job, even up to a year post-graduation

(Wilmes, 2012). Lack of congruence between an academic major and the work students find post-graduation has been related to greater dissatisfaction regarding some components of an individual's career (Xu, 2013), thus later major declarations could lead to the potential for less career satisfaction. Students who delay declaring their major may have less opportunity to fully explore and experience that major and the career opportunities related to it before they are forced to dive into a career following degree completion.

Delayed major declarations have also been linked with lower graduation rates. In Foraker's (2012) study, the students with the lowest graduation rates were those who maintained an undeclared status beyond the first two years. Later major declarations may increase the likelihood that a student cannot apply all previously completed credits to their selected degree program, resulting in delayed graduation or greater difficulty in meeting graduation requirements. Later declarations may also suggest "difficulty in gaining traction or interest in a specific field of study" (Foraker, 2012, p. 17), which relates to the findings mentioned above regarding major congruence. Academic performance may also be a factor in why students delay declaration of a final major. Wright (2018) pointed to poor academic performance as the top reason reported by students for changing their major. The inability to succeed in a previously selected major may inadvertently lead to a major change or delayed final major declaration, and in this way, academic performance in major-related courses serves as another indicator of major congruence or incongruence (Wright, 2018).

Delays to major declaration related to anxiety may also result from general career indecision, which is a common experience for college students (Cohen et al., 1995; Frederiksen, 2009; Kelly & Lee, 2002). It makes sense that students who struggle with career decision-making may also struggle with forms of anxiety related to difficulty in making significant

decisions. For instance, Xu & Adams (2020) found that students who were highly averse to ambiguity also had elevated levels of commitment anxiety. Commitment anxiety can increase the likelihood that students remain undeclared and further increase their associated anxiety and ambiguity aversion (Xu & Tracey, 2017). Other studies have also pointed out that students with higher anxiety related to decision-making were less likely to seek out information or complete activities relevant to deciding (Cohen et al., 1995; Germeijs et al., 2006). This experience of high ambiguity aversion and high commitment anxiety could lead to poorer outcomes for career development (Xu & Adams, 2020), which are potentially compounded by a delayed major declaration and the resulting diminished time for major congruence or career exploration.

However, it is worth noting that some research suggests that juniors and seniors experience significantly higher anxiety when compared with first- and second-year students (Beiter et al., 2015). These students would be tasked with planning for life post-graduation, which represents a considerable source of anxiety (Beiter et al., 2015). First year and sophomore students might not experience anxiety in the same way, and thus this could influence the higher anxiety levels seen as students draw closer to graduation. Given the results of the correlational analyses were mixed, it is worth exploring other factors to determine the extent of the relationship between timing of major declaration and anxiety. Though one analysis showed a positive relationship between these variables (suggesting that higher levels of anxiety are related to later major declarations), this does not necessarily suggest that starting college undeclared or all major-switching behavior is detrimental. For instance, Foraker (2012) found that major-changing which was limited to the first three semesters had no impact on time to graduation. Again, recent research has shown that there are potential benefits for students who begin as

undeclared (Spight, 2022; Wang & Orr, 2022) or change their major within a defined period (Foraker, 2012).

Confidence and Anxiety in Career Decision-Making

The final research question for this study focused directly on the relationship between a participant's scores on both the Self-Efficacy Scale and the Anxiety Scale, which related back to a participant's career decision-making. As expected, correlational analyses revealed an inverse, or negative, relationship between these variables for both samples tested. These results provided greater clarity on the relationship between anxiety and self-efficacy for participants. Increased scores on the Self-Efficacy Scale related to decreased scores on the Anxiety Scale, and vice versa. Given the previous findings, where no relationship was found between confidence and timing of major declaration and only one significant relationship was found for anxiety and timing of major declaration, these last findings may point to a more individualized experience of confidence and anxiety relative to career decision-making. Some participants may be prone to experiencing anxiety or self-efficacy in the career planning process.

About one third of college students suffer from a form of anxiety disorder, as noted by a report released in 2020 (Eisenberg et al., 2020). Career planning, or planning for life beyond college, already represents a significant source for anxiety in college students (Beiter et al., 2015; Deer et al., 2018) and may contribute to an increase in anxiety and a decrease in self-efficacy. Alternatively, this type of anxiety may result from the need to make such a significant life decision (Workman, 2015; Xu & Tracey, 2017; Xu & Adams, 2020). Major and career decision-making are significant for college student development (Frederiksen, 2009), and one would expect to find heightened levels of anxiety as these decisions become more salient.

Academic performance may again be relevant to this discussion, as academic performance could serve as an antecedent for either anxiety or self-efficacy. Research has already established a reciprocal relationship between academic performance and a student's perceived ability within a major (Harder et al., 2015; Wright, 2018). As noted previously, academic performance was reported as the number one reason for students to switch a major, with poor academic performance suggesting that the student lacks the ability to succeed within that major (Wright, 2018). Students would then similarly conclude that they would also lack the ability to succeed within careers related to that major (Harder et al., 2015). Harder et al. (2015) also noted a similar relationship in the opposite direction – that students with the ability to solve problems presented in their major (and by extension, their career) would experience greater self-efficacy. How a student performs academically within a major may directly impact the student's anxiety or self-efficacy in relation to that major. Academic performance may precede major-related or career-related decisions, which could include declaring a major or changing a major.

Major satisfaction and decision-making strategies are other factors worth considering. As Nauta (2007) pointed out, "students who are highly satisfied with their majors likely experience little anxiety about making future career choices because they have already narrowed possible choices to those that correspond to their major" (pp. 457-458). The supposition is that the narrowing of majors down to a single choice similarly limits the possibility of career choices available. This relates to other research on decision-making, where satisfaction or dissatisfaction in a career may be tied to the approach a student takes in making a crucial decision. Iyengar et al. (2006) found that students who took a maximizing approach, where many options were explored and considered in search of the absolute best one (Voss et al., 2019), experienced greater dissatisfaction in their careers. Students who tend towards maximizing in their decision-making

may struggle to fully commit to a major, out of fear they may be missing other better options. Nauta (2007) also acknowledged that students dissatisfied with their major experienced more anxiety related to their career options out of feeling "locked in" and forced to choose among undesirable career options. A maximizing approach to major declaration could have the added effect of delaying the decision, which then limits a student's time to fully commit to the major and may lead to more dissatisfying career outcomes.

The experience of self-efficacy and anxiety in career and major decision-making further underlines the importance of this decision-making in college students' development (Frederiksen, 2009). Several psychosocial frameworks have expressly included a domain related to careers because choosing a career represents a significant developmental task. In Marcia's (1966) ego identity statuses framework, students would fall into one of four categories (identity achievement, moratorium, foreclosure, and identity diffusion) based on their experience of and ability to contend with crisis and commitment in career decision-making. As noted in Chapter 2, crisis represents the decision period where young adults must choose from consequential options, while commitment represents the depth of investment in the chosen option. For this study, crisis and commitment have been related to the variables of anxiety and self-efficacy, respectively.

The inverse relationship of self-efficacy and anxiety in career decision-making points directly to Marcia's (1966) moratorium status. Students experience increased turmoil (i.e., anxiety) and decreased commitment (i.e., self-efficacy) when confronted with the crisis of making a significant decision (Orlofsky et al., 1973). It makes sense that college students choosing a major, and consequentially a career, would find themselves in a moratorium status until the crisis of the decision is resolved. As Côté & Levine (1988) noted, college may be

viewed as a sort of imposed moratorium, given the policies and processes structured around making decisions related to identity development (such as choosing a major and career path). However, this does not imply that all college students are situated in the moratorium status, and other ego identity statuses may be indicated by this study's findings.

Some students who select a major early may feel quite committed to that major, and may experience heightened self-efficacy related to that commitment, but the choice itself may not have originated from them. This would represent Marcia's (1966) foreclosure status, in which students endorse a decision originating from a parent or authority figure (Orlofsky et al., 1973). On the other hand, some students who experience a general aversion to commitment without the desire to engage in appropriate decision-making processes may find themselves in the identity diffusion status (Orlofsky et al., 1973). Identity diffusion seems particularly relevant to the previously discussed research on ambiguity aversion (Xu & Adams, 2020; Xu & Tracey, 2017), commitment anxiety (Xu & Adams, 2020), and avoidance of decision-making tasks associated with the experience of anxiety (Cohen et al., 1995; Germeijs et al., 2006). The identity diffusion status may represent students who struggle to commit to a major or delay selecting a major based on their experience of anxiety associated with the decision-making process. The fourth and final ego identity status, identity achievement, represents "a strong degree of commitment to occupational and ideological choices" (Orlofsky et al., 1973, p. 211). While this study found no significant relationship between self-efficacy and the timing of major declaration, it prompts the question of whether traditional-aged college students could expect to achieve this status during the developmental period of their college years. Future research may provide more clarity regarding how college students' experience of major declaration and career decision-making align with this developmental framework.

Limitations

There are several limitations worth noting when considering the findings of this study and the degree to which those findings may or may not translate to other settings. First, this study represents a single-campus study which took place at a large, public, regional, comprehensive, and primarily nonresidential institution located in the southeastern United States. Institutions of a different make-up and classification may attract different students with more or less certainty regarding major or career. Similarly, institutions with different policies and processes regarding when students declare a major may have vastly different results from the findings presented here. Kennesaw State University employs major exploration advising for students with 30 or more credit hours (Kennesaw State University Owl Advising, 2022) with a goal of helping students settle on a major by the conclusion of the second year. Kennesaw State also offers a wide array of undergraduate degree programs, which may influence the type of student enrolling in the institution, with the potential for attracting students who are less certain of their major and career path than institutions with more limited offerings.

Additional limitations are related to the samples obtained during the study. As noted in Chapter 4, 54% of respondents completed college-level coursework at other institutions prior to the research site, whether through dual-enrollment or by transferring credits. While the enrollment profile of the institution does not specify the number of students who transferred in, the enrollment profile lists only 712 dual enrollment students for the Fall 2022 semester (roughly 1.8% of the undergraduate population) (Kennesaw State University, 2022). It was surprising to find that 22.1% of the sample collected identified as having participated in dual enrollment. The informed consent document outlined that participants should be a "first-time" student to participate in the study, but this term was not defined in the consent document or promotional

materials. In general, the survey was promoted to the student population at large without targeting students who specifically met the inclusion criteria. This created a significant limitation regarding the number of usable responses collected. Some of the inclusion criteria may have been unnecessary considering the topics explored, and future studies might reconsider whether the type and number of inclusion criteria outlined here are necessary for data collection. Chapter 4 also noted that the reliability analyses for the self-efficacy scale fell below the recommended acceptable alpha of 0.7. This represents another limitation worth noting when considering the findings of the study.

Implications

If selecting a major represents a significant point of development for college students (Frederiksen, 2009), and all college students are engaged in some type of major or career planning (Gordon, 2019), then college students' experience of major and career decision-making deserves considerable attention from student affairs professionals. Research has acknowledged that major declaration is a common source of stress and anxiety for college students (Workinger, 2011; Wright, 2018). Research has also shown that college students believe finding a career is a significant outcome of pursuing a college degree (Strada Education Network & Gallup, 2018b). This study, and others like it, may point to several opportunities for student affairs professionals to intervene in the major and career decision-making processes and alleviate the anxiety associated with them.

Early Career Exploration

Research suggests that indecision related to careers is common for college students (Cohen et al., 1995; Frederiksen, 2009; Kelly & Lee, 2002). What may be less common is the intentional endorsement of a period of early career exploration to address this indecision. In the

past, career exploration may have implied that students are encouraged to delay major

declaration or remain undeclared, which could exacerbate fears that students who are undeclared

are less likely to be retained (Spight, 2022). However, research has not supported this

misperception. Research in these areas has instead identified cases where being undeclared has

demonstrated benefits (Foraker, 2012; Spight, 2022; Wang & Orr, 2022; Wright, 2018) and early

career exploration has been helpful (Germeijs et al., 2006; Harder et al., 2015; Porter & Umbach,

2006; Spight, 2022; Wang & Orr, 2022; Xu, 2013). Though this study found no relationship

between major declaration and self-efficacy, the results do point to higher self-efficacy scores for

major declarations that took place in the second and third years. Institutions would do well to

consider how they could incorporate early career exploration into the student experience,

whether through first year seminars, targeted programming, or other ways that seamlessly

integrate this practice into the curriculum.

A significant component of early career exploration involves researching and exploring

various majors and career pathways. If a lack of information is the most pressing factor in career

indecision (Kelly & Lee, 2002), then programs and activities aimed at gathering more

information around majors and careers should help students. Wright (2018) found that programs

targeting major exploration decreased the total number of major changes and reduced the

likelihood of changes beyond the second year. Given the previous research suggesting that major

declarations beyond the second year may be detrimental to graduation rates (Foraker, 2012), this

points to an opportunity to positively connect early career exploration with graduation rates.

Again, recent research has promoted that students who start as undeclared are no less likely to be

retained and graduate (Foraker, 2012; Spight, 2022, Wright, 2018), so long as major declaration

is addressed within the first two years (Foraker, 2012). Further, students may be negatively

affected if their choice of major is uninformed (Workinger, 2012), which is too often the case (Workinger, 2012; Wright, 2018). Institutions should abandon practices that stigmatize the undeclared status and embrace the promotion of intentional information gathering and exploration. The emphasis on major declaration should not be on making a choice; the emphasis should be on making an informed choice. Allowing students to embrace their first year of college as a period of exploration could have far-reaching consequences for reducing anxiety and increasing self-efficacy in major and career decision-making.

Anxiety and Decision-Making

Addressing anxiety in college students is also important for the major declaration and career planning process. If one third of the college student population suffers from some type of anxiety disorder (Eisenberg et al., 2020), then alleviating this anxiety may be a precursor to helping students navigate major and career decision-making. Previous studies have tied career indecision to stress and anxiety in college and college-bound students (Cohen et al., 1995; Frederiksen, 2009; Germeijs et al., 2006; Kelly & Lee, 2002), so career planning may represent one specific domain in which institutions should consider addressing anxiety.

Institutions should consider what early alerts or other behaviors might signal a student is in distress regarding major or career decision-making. Advisors can monitor academic performance as an indicator, but faculty and staff should also pay attention to instances where students may avoid engaging in major or career decision-making. As research has established, students who suffer from anxiety, particularly around making difficult choices, tend to avoid gathering information or completing tasks associated with the decision (Cohen et al., 1995; Germeijs et al., 2006). Identifying these issues early might help students avoid the compounding issues associated with a delayed major declaration and an avoidance of career planning.

Continued Major and Career Advising Post-Declaration

Research has established that college students often do not make informed decisions related to their major (Workinger, 2012; Wright, 2018). It may not be possible to remedy this completely, so institutions instead should consider what type of major and career advising is offered and encouraged after a major is declared. Spight (2022) recommended that declared students continue to receive advising related to their major to confirm their decision or to consider the need to explore alternatives. While no relationship between self-efficacy and timing of major declaration was found in this study, there are some indications that students who declare their major earlier may be less confident in their choice. Continuous advising around majors and career options could help students continue or shift course to find the major and career path where they feel most efficacious.

This type of continuous major and career advising might also promote stronger commitment and sense of congruency with the major selected. Previous research has uncovered a link between affective commitment, i.e., a sense of pride and enthusiasm regarding one's choice, and higher career decision self-efficacy (Conklin et al., 2013). Institutions should pay attention to the types of engagement that promote a student's identity with their choice of major. As an example, Pesch et al. (2017) found that students' participation in internships, career fairs, and other exploration-related activities increased students' knowledge of the day-to-day activities of potential careers, which consequently led to higher confidence in their career choice. Advising could offer, promote, and encourage activities that allow for active exploration. This could help students in increasing their knowledge about the major and career paths they have selected, potentially reinforcing their decisions. Collectively, the research discussed here and the results of this study point to a need for more and earlier interventions related to major and career decision-

making. There appear to be many opportunities to reduce anxiety and boost self-efficacy for students navigating these difficult and consequential decisions.

Recommendations for Future Research

This study was designed to collect data at a singular point in a student's college experience. Participants were asked to provide the timing of their major declaration and then complete two scales for measures of anxiety and self-efficacy related to career decision-making. Participants had to have a sophomore class-level status or higher to participate, so first-year students (even if they had a declared major) were not included. Future studies might consider a longitudinal approach to this design, where participants are asked to complete the scales at two predetermined points. Participants could complete the scales at entry to college and then again just prior to graduation to examine changes over time. These results could then be examined while factoring in the timing of the major declaration to see if significant differences exist based on when a student declared.

Future research might also consider the inclusion of major satisfaction as an additional variable. Major satisfaction could be examined in comparison to when a student declared a major to see if a relationship exists between these two variables. Prior research has suggested that major satisfaction tends to increase as students draw closer to graduation (Nauta, 2007), but other research has also linked major satisfaction with major congruence, which is less likely to occur as major declarations are delayed (Wilmes, 2012). More research on major satisfaction and timing of major declaration could provide a more nuanced understanding of how students experience major satisfaction.

It was beyond the scope of this study to examine early career exploration activities, but that would be another factor to consider in relation to self-efficacy in career decision-making.

This study has provided multiple recommendations regarding implementation of early career exploration, and future studies could examine the degree to which these activities boost self-efficacy in major and career decisions. Researchers could consider a longitudinal examination of career decision self-efficacy before and after completion of defined exploration activities. Researchers could also consider the impact of early career exploration activities on major declaration or major changes. Specifically, future research could explore whether career exploration leads to major changes in students who had previously declared a major. This study did not assess whether students were undeclared or switching from another major prior to major declaration, but future studies could examine how students arrive at their final major decisions and if differences exist between groups regarding self-efficacy in decision-making.

Further examination of major declaration versus major switching would also be beneficial. While little institutional data appears to exist regarding how students arrive at their majors, recent research has been adamant that students are not necessarily disadvantaged by being undeclared (Foraker, 2012; Spight, 2022; Wang & Orr, 2022; Wright, 2018). Given this study's interest in self-efficacy and anxiety in career decision-making, future research might explore if a relationship exists between these variables and the possible major declaration paths a student might take. Potential groups could include students who matriculated as undeclared and declared a major after a period, students who matriculated as declared and remained with their original major, and students who matriculated as declared and changed majors. More research is needed to fully comprehend how a student's path to their major impacts their experience of anxiety or self-efficacy in relation to their future career.

Conclusion

The goal of this study was to examine potential relationships between the timing of a student's major declaration and the student's experience of confidence or anxiety in relation to major and career decision-making. Using a non-experimental and quantitative design, this study used an online survey to assess students' self-reported ratings of anxiety and self-efficacy in career decision-making, alongside their report of when they declared their major. For the two samples generated, the study found no significant relationship between self-efficacy and timing of major declaration, and a single instance of a significant relationship between anxiety and timing of major declaration for a larger sample of participants with prior institutional experience (N = 153). The study found a strong relationship between scores on the anxiety and self-efficacy scales in the direction expected. As anxiety related to career decision-making increased, self-efficacy decreased, with the opposite also holding true. These results were interpreted with previous literature to examine alignment or conflict with prior findings, and to provide suggestions for future research along with significant implications for student affairs professionals.

The body of literature examined and the results of this study point to a critical need for examining the policies, processes, and practices associated with major declaration for college students. Anxiety around major and career decision-making appears to be a significant and common issue facing college students, and student affairs professionals must consider their role in alleviating this anxiety. Even for students with little anxiety, more could be done to promote a student's sense of congruence, satisfaction, and ability within the major they have selected. Interventions designed to increase self-efficacy in major and career decision-making could

ultimately impact a student's ability to be retained, to graduate, and to feel successful and

satisfied in their future career.

REFERENCES

Bandura, A. (1977) Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Beiter, R., Nash, R., McCrady, M., Rhoades, D., Linscomb, M., Clarahan, M., & Sammut, S. (2015). The prevalence and correlates of depression, anxiety, and stress in a sample of college students. *Journal of Affective Disorders, 173*, 90-96.

Betz, N. E., & Hackett, G. (1986). Applications of self-efficacy theory to understanding career choice behavior. *Journal of Social and Clinical Psychology, 4*(3), 279-289.

Betz, N.E., Hammond, M. S., & Multon, K. D. (2005). Reliability and validity of five-level response continua for the Career Decision Self-Efficacy Scale. *Journal of Career Assessment, 13*(2), 131-149.

Betz, N.E., Klein, K, & Taylor, K.M. (1996). Evaluation of a short form of the Career Decision Making Self-efficacy Scale. *Journal of Career Assessment*, 4, 47-57.

Biddix, J. P., & Schwartz, R. A. (2012). Walter Dill Scott and the student personnel movement. *Journal of Student Affairs Research and Practice, 49*(3), 285-298. https://doi.org/10.1515/jsarp-2012-6325

Carnegie Classification of Institutions of Higher Education. (2020). *Kennesaw State University*. https://carnegieclassifications.acenet.edu/lookup/view_institution.php?limit=0%2C50&clq=&start_page=lookup.php&backurl=lookup.php&unit_id=486840&submit=FIND

Chartrand, J. M., & Nutter, K. J. (1996). The Career Factors Inventory: Theory and applications. *Journal of Career Assessment, 4*(2), 205-218.

Chartrand, J. M., Robbins, S. B., Morrill, W. H., & Boggs, K. (1990). Development and validation of the Career Factors Inventory. *Journal of Counseling Psychology, 37*(4), 491-501.

Cohen, C. R., Chartrand, J. M., & Jowdy, D. P. (1995). Relationships between career indecision subtypes and ego identity development. *Journal of Counseling Psychology, 42*(4), 440-447.

Conklin, A. M., Dahling, J. J., & Garcia, P. A. (2013). Linking affective commitment, career self-efficacy, and outcome expectations: A test of social cognitive career theory. *Journal of Career Development, 40*(1), 68-83.

Côté, J. E., & Levine, C. (1988). A critical examination of the ego identity status paradigm. *Developmental Review, 8*(2), 147–184. https://doi.org/10.1016/0273-2297(88)90002-0

Deer, L. K., Gohn, K., & Kanaya, T. (2018). Anxiety and self-efficacy as sequential mediators of in US college students' career preparation. *Education and Training, 60*(2), 185-197.

Dickinson, J., & Tokar, D. M. (2004). Structural and discriminant validity of the career factors inventory. *Journal of Vocational Behavior, 65*, 239-254.

Eisenberg, D., Lipson, S. K., & Heinze, J. (2020). *The healthy minds study: Fall 2020 report*. Healthy Minds Network. https://healthymindsnetwork.org/wp-content/uploads/2021/02/HMS-Fall-2020-National-Data-Report.pdf

Erikson, E. H. (1956). The problem of ego identity. *Journal of the American Psychoanalytic Association, 4*, 56-121.

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). Norton.

Foraker, M. J. (2012). Does changing majors really affect the time to graduate? The impact of

    changing majors on student retention, graduation, and time to graduate. Office of

    Institutional Research, Western Kentucky University.

    https://www.wku.edu/instres/documents/air_major_change.pdf

Frederiksen, P. B. (2009). *Perfectionism and career indecision among undecided college*

    students. (Publication No: 3379334) [Doctoral dissertation, Purdue University]. UMI.

Germeijs, V., Luyckx, K., Notelaers, G., Goossens, L., Verschueren, K. (2012). Choosing a

    major in higher education: Profiles of students' decision-making process. *Contemporary*

    Educational Psychology, 37(2012), 229-239.

Germeijs, V., Verschueren, K., & Soenens, B. (2006). Indecisiveness and high school students'

    career decision-making process: Longitudinal associations and the mediational role of

    anxiety. *Journal of Counseling Psychology*, 53(4), 397-410.

Gordon, V. N. (2019). The 3-I process: A career advising framework. *NACADA Journal*, 39(2),

    64-71. https://doi.org/10.12930/NACADA-19-202

Harder, J. T., Czyzewski, A., & Sherwood, A. L. (2015). Student self-efficacy in a chosen

    business career path: The influence of cognitive style. *College Student Journal, 49*(3),

    341-354.

Işik, E. (2012). The relationship of career decision self-efficacy, trait anxiety, and affectivity

    among undergraduate students. *Psychological Reports: Human Resources & Marketing,*

    111(3), 805-813.

Iyengar, S. S., Wells, R. E., & Schwartz, B. (2006). Doing better but feeling worse: Looking for

    the "best" job undermines satisfaction. *Psychological Science, 17*(2), 143-150.

Heerwegh, D. (2006). An investigation of the effect of lotteries on web survey response rates. *Field Methods, 18*(2), 205-220. https://doi.org/10.1177/1525822X05285781

Jadidian, A., & Duffy, R. D. (2012). Work volition, career decision self-efficacy, and academic satisfaction: An examination of mediators and moderators. *Journal of Career Assessment, 20*(2), 154-165. https://doi.org/10.1177/1069072711420851

Jones, S. R., Torres, V., & Arminio, J. (2022). Understanding sampling and challenges in collecting data. In S. R. Jones, V. Torres, & J. Arminio (Eds.), *Negotiating the complexities of qualitative research in higher education: Fundamental elements and issues* (2nd ed., pp. 132-208). Taylor & Francis Group.

Kelly, K. R., & Lee, W. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behavior, 61*, 302-326.

Kennesaw State University. (2017). *Student messaging system*. https://studentinform.kennesaw.edu/

Kennesaw State University. (2022). *Enrollment profile*. https://ir.kennesaw.edu/facts-figures/enrollment_profile.php

Kennesaw State University. (2022). *About KSU*. https://www.kennesaw.edu/about/

Kennesaw State University Department of Student Activities. (2022). *Solicitation & postings*. https://studentactivities.kennesaw.edu/postings.php

Kennesaw State University First-Gen. (2022). *About Us*. https://firstgen.kennesaw.edu/about/index.php

Kennesaw State University Institutional Research. (2022). *Fall 2022 fast facts*. https://ir.kennesaw.edu/publications/fast-facts-pdfs/FINAL_Fast_Facts_Fall%202022_bmh_10262022.pdf

Kennesaw State University Owl Advising. (2022). *Major exploration advising (30+ credit hours)*. https://academicaffairs.kennesaw.edu/owladvising/success-advising/change-of-major-advising.php

Kennesaw State University Strategic Planning. (2022). *The roadmap to R2 success.* https://planning.kennesaw.edu/docs/r2-roadmap.pdf

Laguilles, J. S., Williams, E. A., & Saunders, D. B. (2011). Can lottery incentives boost web survey response rates? Findings from four experiments. *Research in Higher Education, 52*(5), 537-553.

Lo Presti, A., Pace, F., Mondo, M., Nota, L., Casarubia, P., Ferrari, L., & Betz, N. E. (2012). An examination of the structure of the Career Decision Self-Efficacy Scale (Short Form) among Italian high school students. *Journal of Career Assessment, 21*(2), 337-347. https://doi.org/10.1177/1069072712471506

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology, 3*(5), 551-558.

Marcia, J. E. (1980). Identity in adolescence. *Handbook of adolescent psychology*, *9*(11), 159-187.

McMurtrie, B. (2022, June 17). The student-success challenge: Engineering a better college experience requires more than tinkering around the edges. *The Chronicle of Higher Education*. https://www.chronicle.com/article/the-student-success-challenge

Merriam-Webster. (n.d.). Anxiety. In *Merriam-Webster.com dictionary*. Retrieved October 29, 2022, from https://www.merriam-webster.com/dictionary/anxiety

Merriam-Webster. (n.d.). Confidence. In *Merriam-Webster.com dictionary*. Retrieved October 29, 2022, from https://www.merriam-webster.com/dictionary/confidence

Miller, M. J., Sendrowitz Roy, K., Brown, S. D., Thomas, J., & McDaniel, C. (2009). A
confirmatory test of the factor structure of the short form of the Career Decision Self-
Efficacy Scale. *Journal of Career Assessment, 17*(4), 507-519.
https://doi.org/10.1177/1069072709340665

National Center for Education Statistics (n.d.). *Kennesaw State University*. U.S. Department of
Education, Institute of Education Sciences.
https://nces.ed.gov/collegenavigator/?id=486840#programs

National Center for Education Statistics (2017). *Data point: Beginning college students who
change their majors within 3 years of enrollment* (NCES 2018-434). U.S. Department of
Education. https://nces.ed.gov/pubs2018/2018434.pdf

National Center for Education Statistics. (2022, May). *Condition of education: Undergraduate
retention and graduation rates*. U.S. Department of Education, Institute of Education
Sciences. https://nces.ed.gov/programs/coe/indicator/ctr

Nauta, M. M. (2007). Assessing college students' satisfaction with their academic majors.
Journal of Career Assessment, 15(4), 446-462.
https://doi.org/10.1177/1069072707305762

Orlofsky, J. L., Marcia, J. E., & Lesser, I. M. (1973). Ego identity status and the identity versus
isolation crisis of young adulthood. *Journal of Personality and Social Psychology, 27*(2),
211-219.

Patton, L. D., Renn, K. A., Guido, F. M., & Quaye, S. J. (2016). *Student development in college:
Theory, research, and practice* (3rd ed.). Jossey-Bass.

Pesch, K. M., Larson, L. M., & Seipel, M. T. (2018). Career certainty and major satisfaction: The roles of information-seeking and occupational knowledge. *Journal of Career Assessment, 26*(4), 583-598. https://doi.org/10.1177/1069072717723093

Porter, S. R., & Umbach, P. D. (2006). College major choice: An analysis of person-environment fit. *Research in Higher Education*, 47(4), 429-449. https://doi.org/10.1007/s11162-005-9002-3

Schwartz, S. J. (2002). Convergent validity in objective measures of identity status: Implications for identity status theory. *Adolescence, 37*(147), 609-625.

Spight, D. B. (2020). Early declaration of a college major and its relationship to persistence. *NACADA Journal, 40*(1), 94-109.

Spight, D. B. (2022). Undeclared versus declared: Who is more likely to graduate? *Journal of College Student Retention: Research, Theory & Practice, 23*(4), 945-964.

Stearns, P. N. (2022, September 1). A "crisis" of student anxiety? *The Chronicle of Higher Education*. https://www.chronicle.com/article/a-crisis-of-student-anxiety?

Strada Education Network & Gallup. (2018a). *2017 College Student Survey: A nationally representative survey of currently enrolled students.* https://news.gallup.com/reports/269063/strada-gallup-2017-college-student-survey-report.aspx

Strada Education Network & Gallup. (2018b). *Why higher ed? Top reasons U.S. consumers choose their educational pathways*. https://go.stradaeducation.org/why-higher-ed

Studley, J. S. (2016, April 1). Career readiness meets institution-wide outcomes measures. NACE. https://www.naceweb.org/career-readiness/trends-and-predictions/career-readiness-meets-institution-wide-outcomes-measures/

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

Torres, V., Schuh, J. H., & Jones, S. R. (2016). *Student services: A handbook for the profession* (6th ed.). John Wiley & Sons.

van Hoof, A. (1999). The identity status field re-reviewed: An update of unresolved and neglected issues with a view on some alternative approaches. *Developmental Review, 19*, 497-556.

Voss, N. M., Lake, C. J., & Chlevin-Thiele, C. (2019). Construction and initial validation of the career maximizing scale. *The Career Development Quarterly, 67*, 156-170. https://doi.org/10.1002/cdq.12178

Wang, R, & Orr, J. E. (2022). Use of data analytics in supporting the advising of undecided students. *Journal of College Student Retention: Research, Theory & Practice, 23*(4), 824-849. https://doi.org/10.1177%2F1521025119880819

Wilmes, D. M. (2012). *An examination of the impact of learning communities on job/major congruence at a single institution*. (Publication No: 3543493) [Doctoral dissertation, University of Maryland]. ProQuest.

Workinger, H. A. (2011). *Admissions policies governing the declaration of academic major and academic advising models relating to student outcomes in higher education* (Publication No: 3466689) [Doctoral dissertation, Indiana University of Pennsylvania]. ProQuest LLC.

Workman, J. L. (2015). Exploratory students' experiences with first-year academic advising. *NACADA Journal, 35*(1), 5-12

Wright, C. (2018). *Choose wisely: A study of college major choice and major switching behavior* (Publication No. 10987539) [Doctoral dissertation, Pardee RAND Graduate School]. ProQuest.

Xu, Y. J. (2013). Career outcomes of STEM and non-STEM college graduates: Persistence in majored-field and influential factors in career choices. *Research in Higher Education*, *54*, 349-382. https://doi.org/10.1007/s11162-012-9275-2

Xu, H. & Adams, P. (2020). Ambiguity aversion in career decision-making: Its longitudinal prediction for college career outcomes. *Journal of Counseling Psychology, 67*(2), 232-240.

Xu, H. & Tracey, T. J. G. (2017). The reciprocal dynamic model of career decision ambiguity tolerance with career indecision: A longitudinal three-wave investigation. *Journal of Counseling Psychology, 64*(5), 538-549.

Appendix A: Survey with Informed Consent

CONSENT LETTER

College Students' Perspectives Regarding Major Selection and Career Prospects

Researcher's Statement
You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. This form is designed to give you information about the study so you can decide whether to be in the study or not. Please take the time to read the following information carefully. Please email one of the researchers if there is anything that is not clear or if you need more information. When all your questions have been answered, you can decide if you want to be in the study or not. This process is called "informed consent." You are welcome to print this form for your records.

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Study Details
This study is being conducted to learn more about the perspectives that college students have regarding their declaration of major and their anticipated careers. It is also being conducted to fulfill part of the requirements for the co-investigator's doctoral dissertation.

In order to be eligible to participate, you must be at least 18 years old, an undergraduate student, a first-time and full-time student, and have completed at least 30 credit hours. If you agree to participate, you will complete a survey which asks questions about when you declared your major and your perceptions regarding your future career. Completion of this survey should take 5-10 minutes for most participants. Participation is not expected to result in any risk or discomfort.

Incentive

You may elect to enter a drawing for one of ten (10) $50 Amazon gift cards. You do not have to participate in the study to enter the drawing. Send an email to agazaway@uga.edu to enter the drawing without participating in the study. If you are selected as a winner of one of the gift cards, your name will be provided to the investigator's departmental business office for tracking purposes.

Privacy/Confidentiality

This research involves the transmission of data over the internet. Every reasonable effort has been taken to ensure the effective use of available technology to protect your privacy; however, confidentiality during online communication cannot be guaranteed. Your IP address may be recorded when you take this survey; it will not be retained after the data have been downloaded. Data from this survey may be used in publications, conference presentations, trainings, or presented through other similar media. Any information will be shared in aggregate form; individual responses will not be shared and only the research team and university research oversight board (if requested) will be able to access individual responses. You may be asked to provide some personally identifiable information (such as your name and email address) in order to enter the gift card drawing, but this information will be separate from your survey response and cannot be linked to your answers.

Taking Part is Voluntary

Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty. If you decide to stop the survey, the information collected from you up to the point of your withdrawal will be deleted. Your decision to take part or not to take part in the research will not affect your grades or class standing.

If You Have Questions

The main researchers conducting this study are Laura Dean, a professor, and Amanda Long, a doctoral student, at the University of Georgia. If you have questions, you may contact Amanda at agazaway@uga.edu. If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) Chairperson at 706.542.3199 or irb@uga.edu.

Clicking Accept

By clicking on the "begin survey" button, you indicate that you meet the entrance criteria listed above, that you voluntarily agree to participate in this study, and that you understand the information in this consent form. You have not waived any legal rights you otherwise would have as a participant in a research study.

Begin Survey

What is your class level?

Freshman (less than 30 completed credit hours)

Sophomore (30 to 59 completed credit hours)

Junior (60 to 89 completed credit hours)

Senior (90 or more completed credit hours)

Graduate Student

Alumnus

What is your age?

Less than 18

18 to 24

25 and over

What is your current enrollment status?

Part-time (less than 12 credit hours)

Full-time (12 or more credit hours)

Did you complete college-level coursework at another institution prior to KSU?

No

Yes, for dual enrollment only

Yes

What is your race/ethnicity?

American Indian/Alaskan Native

Asian

Black/African American

Hispanic/Latino

International

Native Hawaiian/Pacific Islander

Prefer not to say

Two or more

White

→

How do you identify?

Female

Male

Nonbinary

Prefer to self-identify:

Prefer not to say

Do you identify as a first-generation student (meaning that none of your parents or guardians completed a four-year degree program)?

Yes

No

→

To answer the questions on this page, read each statement carefully and select the point within each range that best represents how you feel today when thinking about your career.

When I think about actually deciding for sure what I want my career to be I feel:

Fearless	○	○	○	○	○	Frightened

Relaxed	○	○	○	○	○	Tense

Loose	○	○	○	○	○	Tight

Carefree	○	○	○	○	○	Worried

Calm	○	○	○	○	○	Jittery

When I think about actually deciding for sure what I want my career to be, my hands feel:

Dry	○	○	○	○	○	Wet

→

For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks. Mark your answer by clicking the circle in the column that corresponds to your answer.

How much confidence do you have that you could:

	No confidence at all	Very little confidence	Moderate confidence	Much confidence	Complete confidence
Accurately assess your abilities	○	○	○	○	○
Determine what your ideal job would be	○	○	○	○	○
Decide what you value most in an occupation	○	○	○	○	○
Figure out what you are and are not ready to sacrifice to achieve your career goals	○	○	○	○	○
Define the type of lifestyle you would like to live	○	○	○	○	○

Used with permission, Betz et al. (1996)

→

When did you declare your final academic major? If unsure, select the answer that matches your best guess.

Prior to first semester of Freshman Year

First semester of Freshman Year

Second semester of Freshman Year

Third semester of Freshman Year

First semester of Sophomore Year

Second semester of Sophomore Year

Third semester of Sophomore Year

After Sophomore Year

→

Please provide your email address in the box below to be entered in the drawing for one of ten $50 Amazon gift cards.

→

We thank you for your time spent taking this survey.
Your response has been recorded.

Appendix B: Career Anxiety Subscale of the Career Factors Inventory

Factor	Stem	Item Number	Response Anchor
Career Choice	When I think about actually deciding for sure what I want my career to be, I feel:	7	Frightened/fearless
		8	Dry/wet
		9	Tense/relaxed
		10	Loose/tight
		11	Worried/carefree
		12	Jittery/calm

Appendix C: Self-Appraisal Subscale of the Career Decision Self-Efficacy Scale – Short

Form

INSTRUCTIONS: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the key, Mark your answer by filling in the correct circle on the answer sheet.

NO CONFIDENCE AT ALL	VERY LITTLE CONFIDENCE	MODERATE CONFIDENCE	MUCH CONFIDENCE	COMPLETE CONFIDENCE
1	2	3	4	5

5. Accurately assess your abilities

9. Determine what your ideal job would be.

14. Decide what you value most in an occupation.

18. Figure out what you are and are not ready to sacrifice to achieve your career goals.

22. Define the type of lifestyle you would like to live.

Appendix D: Recruitment Email

Subject Line: Share Your Thoughts on Your Major and Career (and Enter to Win an Amazon Giftcard!)

Dear Student,

It's a big question: how do you feel about your major and your future career? We want to know so that we can better prepare students to find the major and career path that is right for them.

My name is Amanda Long, and I am a current doctoral student at the University of Georgia conducting research on college students' perceptions of major declaration and their career opportunities. I'm writing to invite you to participate in this research by completing the survey linked below.

Who can participate?

- Full-time KSU students with 30 credit hours or more and a declared major

Why should you participate?

- The survey takes most participants only 5-10 minutes to complete
- You can enter to win one of ten $50 Amazon gift cards!

To learn more about this research and to complete the survey, click the link below:
[Insert survey link]

Please note, you may receive this email invitation more than once, but you should only submit the survey one time.

If you have any questions or concerns, please feel free to contact me at agazaway@uga.edu.
If you have any complaints or questions about your rights as a research volunteer, contact the IRB at 706-542-3199 or by email at IRB@uga.edu.

Thank you!

Amanda Gazaway Long

Appendix E: Recruitment Materials

Flyer (8.5" x 11")

Social Media Graphic and Caption

Caption:
Are you a full-time KSU student with 30 credit hours or more and a declared major? Participate in this research study to support better career preparation for KSU students. The survey takes only 5-10 minutes to complete, and you'll be entered to win one of ten $50 Amazon gift cards. Scan the QR code to access the survey!

Appendix F: Sample of Student Inform Message

Share Your Thoughts on Your Major and Career (and Enter to Win a $50 Amazon Giftcard!) - Jan 30, 2023

Posted by along54@kennesaw.edu

It's a big question: how do you feel about your major and your future career? We want to know so that we can better prepare students to find the major and career path that is right for them. If you're a full-time KSU student with 30 or more credit hours and a declared major, you're invited to participate in this survey (click on "Read More" for the survey link). Participation takes only 5-10 minutes, and participants will be entered to win one of ten $50 Amazon gift cards! You may also enter the drawing without completing the survey by sending an email to agazaway@uga.edu. If you have any questions or concerns, please feel free to email agazaway@uga.edu. If you have any complaints or questions about your rights as a research volunteer, contact the IRB at 706-542-3199 or by email at IRB@uga.edu.

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