The Impact of Faculty Mentoring on Self-Efficacy and College-Completion Perceptions in At-Risk Undergraduate Public Health Students

by

Lauren Savaglio

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved January 2019 by the
Graduate Supervisory Committee:

Molly Ott, Chair
Shawn Hrncir
Holly Orozco

ARIZONA STATE UNIVERSITY

May 2019

ABSTRACT

The purpose of this study was to evaluate the impact of a mentoring program on self-efficacy beliefs. High-risk undergraduate students at Arizona State University majoring in Public Health and other closely-related fields represent this study's sample. Bandura's Self-Efficacy Theory guides this study's theoretical framework. This study used a mixed method, action research design. Participants took a pre-test that measures their self-efficacy and registered the barriers to their academic success; following that, they enrolled and participated in a mentoring program. Upon completion of the program, they completed a post-test to evaluate any changes to their perspectives. Non-parametric Wilcoxon signed-rank tests were applied to the surveys. Throughout the mentoring program, participants completed field notes and I completed a journal about our interactions. These, along with two focus group discussions, were analyzed using grounded theory in addition to the pre- and post-tests. The surveys found that the mentoring program impacted their self-efficacy in overcoming educational barriers the qualitative data showed a strong correlation between the intervention and perceived confidence. This included their perceived ability to perform difficult or unusual tasks, but also their ability to overcome barriers.

DEDICATION

This is dedicated to my husband, Roger, and children, Cahira and Dubhlainn, for their love, endless support, and encouragement.

ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude to all who helped me to make this work a success. My mentor, Dr. Molly Ott, provided me with incredible support and insight. Drs. Shawn Hrncir and Holly Orozco also gave me invaluable guidance and for that I am grateful. I also like to thank all my participants within my cycles of research.

TABLE OF CONTENTS

CHAPTER Page

LIST OF TABLES

Table Page

Table Page

LIST OF FIGURES

Chapter 1

Introduction

As a university lecturer in the field of public health, I encountered a promising student who was attending several of my classes a few years ago. She particularly excelled at biostatistics and epidemiology. Despite her academic success, throughout the two years I was her instructor, she regularly expressed doubts to me about her ability to complete—much less excel within—the program. She was fearful that she would not have the ability to attend graduate school in this field she loved. She and her brother were the first in their family to attend university, and few of her friends and family expected her to be a successful student. This expectation reflected in her lack of self-efficacy; that is, she often lacked confidence in her classes by assuming that she would perform poorly on exams and not understand the work. In addition, she felt that her Native American ethnicity put her at risk for discrimination. She was constantly worried about finances, because she had supported herself through school and was personally funding her education. She was overwhelmed by her financial obligations and the thought of another couple of years of paying tuition was terrifying. Her circumstances resonated with me as I, too, had paid my own way through all my schooling, and have had sleepless nights wondering how I was going to afford rent the next day or buy groceries. All of the above obligations made her doubtful that she possessed the ability and means to complete a degree successfully.

There are many students who fall into high-risk categories while earning postsecondary degrees. Being a first-generation student and having high financial needs are risk factors for dropping out. First-generation students, or those whose parents did not

complete a postsecondary degree, often come from low-income families, are usually eligible for federal Pell Grants, and experience a graduation rate 14% lower than other students (The Education Trust, 2015). Race and ethnicity are also factors associated with differential levels of degree completion. Students who are White graduate at a rate of 63%, whereas African American students graduate at rates of 41%, Native American students at 41%, and Latino students at 54% (The Education Trust, 2015).

This study focuses on the undergraduate Public Health program in the College of Health Solutions (CHS) at Arizona State University (ASU). Many undergraduate Public Health students at ASU enrolled during the 2017–2018 academic year fit within the at-risk classifications mentioned above. According to the CHS Academic Advisor to the Public Health program, almost 18% (10 students) were first-generation students (K. Studebaker, personal communication, January 9, 2018). Forty-five percent (25 students) experienced "high or very high" rated financial needs (K. Studebaker, personal communication, January 9, 2018). Additionally, 61% (34 students) of those undergraduates were persons of color (K. Studebaker, personal communication, January 9, 2018). Data indicated that CHS students of color are less likely than others to complete their degrees. According to the National Center for Education Statistics, graduation rates for persons of color with a bachelor's degree after starting their program at CHS is lower than the overall U.S. college average, 56.6% and 60% respectively (U.S. Department of Education, 2017). White students at CHS graduating at a higher rate of 70% compared to the national average and CHS students of color (U.S. Department of Education, 2010). Below, Table 1 shows CHS graduation rates from 2010 (U.S. Department of Education, 2010).

Table 1

CHS Graduation rates of full-time, first-time, degree/certificate-seeking undergraduates within 150% of normal time to program completion, by race/ethnicity, 2010 cohort

Race/Ethnicity	Six-Year Graduation Rates
American Indian or Alaska Native	43%
Asian	66%
Black or African American	62%
White	70%
Hispanic or Latino	59%
Two or more races	48%

Situational and Personal Context

The Department of Public Health at ASU's downtown Phoenix campus is currently housed within the School of Nutrition and Health Promotion in the CHS. The CHS offers a range of programs in the health field both at the undergraduate and graduate levels, with almost 6,000 students enrolled as of Fall 2017. Currently, its 34 undergraduate programs, including minors and certificates, and 23 graduate programs places it as one of the few colleges in the country with such a large breadth of offerings. Some of its most prominent and nationally recognized programs include Kinesiology, Nutrition in Dietetics, and Healthy Lifestyle Coaching.

One of the college's newer programs and the focus of this study, the Bachelor's of Science in Public Health, enjoys 56 currently enrolled students in its undergraduate major. The degree program is designed for students to develop and apply knowledge from multiple disciplines for the promotion and protection of health of the human population. This degree appeals to students with interests in population studies rather

than individual health, and it prepares them with skills in the five core areas of public health: behavior science and health education, biostatistics, environmental health, epidemiology, and health services administration. Students are required to complete an internship component of the program, allowing them to gain practical experience in public health professions. Graduates typically work as public health practitioners, who are competent to plan, implement, evaluate, and monitor public health functions and activities in a variety of settings. They are prepared to fill various positions in public and community health as well as pursue further education through graduate study, including a Master's in Public Health degree. Four-year graduation rates will be available January 2019; however, estimated rates for Spring 2018 is 100% (four) students. The Public Health program anticipates enrollments to increase, so it must be proactive in focusing on supporting student degree completion.

Graduation rates and retention are a top CHS priority. According to Adriana Sánchez, Program Manager for Retention Initiatives, the CHS graduation rate is 85% among all its students, and 100% for Public Health within eight years (A. Sánchez, personal communication, April 11, 2018). The retention rate for full-time, first-time students in Public Health after one year is 100% for the Fall 2016 cohort (seven students), which is significantly higher than the College's rate of 84% in 2016 (A. Sánchez, personal communication, January 9, 2018; U.S. Department of Education). For the Fall 2008 cohort, the graduation rates of full-time, first-time, bachelor's degree-seeking undergraduates within four years is 41% for the Public Health program (U.S. Department of Education, 2017).

During the time period when this study was being conducted, the College of Health Solutions, as well as the Department of Public Health, were in flux, both in terms of its leadership and strategic direction. The previous director of Public Health left the position at the end of Fall 2016 and a new director took her place in June 2017. Additionally, a new CHS dean began in August 2017. At this time, the College is began undergoing a re-visioning process, and its consequences for the Public Health program are presently unknown. The Department of Public Health and the School of Nutrition and Health Promotion, along with other departments and schools have been disestablished, placing all programs under one larger umbrella within CHS. Originally, a primary program goal was to receive accreditation through the Council on Education for Public Health (CEPH) and increase student enrollments as well as retention. Given the College's strategic changes, CEPH accreditation will likely not be sought in the short-term, but enrollment and retention efforts across the College remain a priority.

Ensuring that undergraduate Public Health students have consistently successful experiences and outcomes are particularly important areas from an internal program standpoint as well, because the College intends to implement a separate degree in Population Health beginning in Fall 2019. This new degree would focus on the combination of public health and health care administration and would prepare students to fill needs in both sectors. Due to content and career preparation overlap, if implemented, the Population Health program could create competition for students with the Public Health program. Therefore, the need for increased recruitment and retention efforts in Public Health are of pressing importance, to optimally support enrolled students' success as well as ensure that ASU continues to offer the degree.

In January 2017, I took over the undergraduate Public Health degree coordinator position and an internal leadership position helping to engage and retain students. My coordinator role involves harmonizing the curriculum for the program and scheduling its classes. My primary responsibility within the department has been serving as the only full-time lecturer for undergraduate students. I have been a lecturer within CHS for about seven years, and have taught public health and health science courses. I have been affiliated directly with the Public Health program since Fall 2016. I have additional responsibilities of mentoring students and developing courses for the department.

I formally mentor seven students. I am able to work with students from their first year through graduation. As a mentor, I find there are two levels on which I need to connect with my mentees in order to help them be successful in Public Health. The first is professional and career development, which relates directly with how to succeed practically within the field. These two aspects of development pertain to what degrees are necessary, what the public health culture is, and how to establish a professional presence. The other level is emotional support. This is vital for several reasons. I believe that instructors can help students feel like they belong within their college and program. If students feel more comfortable with various faculty members, it will only help faculty teach them more effectively and meet their academic needs. Additionally, those students who are categorized at-risk often face barriers that other students do not, and many have a lack of social or familial support. Mentoring these students may address individual circumstances and needs by giving personalized feedback and advice. By responding to the emotional and academic demands that higher education places on students, I sense I

can help increase levels of self-efficacy, which in turn, may increase individual students' likelihood of remaining enrolled and overall program retention rates.

Because the established program is novel, both in time since its inception and in the number of public health courses offered, I have organized some innovative efforts to establish a community for the students. For example, the Public Health Student Association was formed by three undergraduate students in 2017 with me as the faculty adviser. Its goals have been to create a community for both undergraduate and graduate students, to inform ASU about the Public Health program, and to educate ASU students and the greater community about various public health topics. This association was launched September 2016. In addition to my formal role as the program coordinator, the Public Health Student Association has given me a critical opportunity to work directly with students and mentor them throughout the program.

Purpose and Significance of the Study

The Bureau of Labor Statistics projects the public health field to grow about 18% from 2016 to 2026 (U.S. Department of Labor, 2018). Public health is a large field, and there are many career paths that public health graduates may follow. Table 2 summarizes the most common occupations within the field, as well as the typical educational requirements per occupation. Public health and health sciences majors are often encouraged to complete graduate-level education and training to increase their success. As Table 2 indicates, most positions available to public health professionals beyond entry-level positions require advanced schooling, such as county health department directors and managers, epidemiologists, and biostatisticians (U.S. Department of Labor, 2018).

Table 2

Common occupations within the public health field and their respective educational requirements

Occupational Category	Degree
Medical & Health Services Managers	Graduate (or undergraduate with 5–7 years of experience)
Community and Social Service Specialists	Undergraduate
Health Educators	Undergraduate
Community Health Workers	Undergraduate
Biostatistician & Epidemiologist	Graduate
Environmental Scientists & Specialists	Graduate (typical), undergraduate, with additional certification
Public Health Manager (including health departments)	Graduate

U.S. Department of Labor, 2018

Although there are many possible occupational trajectories available to graduates in the Public Health program, as mentioned earlier in this chapter, a number of barriers make it more difficult for those from traditionally underrepresented backgrounds to complete undergraduate programs, let alone continue with additional schooling and enter the labor market into a public-health focused job. This study focuses on potential improvements at the micro-level, and more specifically, ways that ASU can positively impact individual self-efficacy and success among at-risk undergraduate students in Public Health. Thus, the purpose of this study is to understand how a mentoring program affects the self-efficacy of at-risk students, and how mentoring and self-efficacy relate to perceptions of college success of at-risk students in Public Health and closely-related fields. The study will provide insight from the perspective of both students and a faculty

mentor on how to improve at-risk students' abilities and likelihood of degree completion, which will position them to enter the types of occupations summarized in Table 2.

The results of this study will be beneficial to researchers and instructors of diversity education and health-related fields, educational policy-makers in general, and help guide professional practice that will support the learning of high risk students. The findings from this study will help those decision-makers consider and implement mentoring programs and similar support systems designed to foster self-efficacy and to promote the achievement of at-risk undergraduate Public Health students.

Previous Cycles of Research

This study used an action research design. Chapter 3 provides a full description of action research, but, in brief, it relies on multiple cycles of data collection to understand a problem of practice, design an innovation to address the problem, and study the impact and efficacy of that solution. In the fall of 2016 during the project's first phase (i.e., Cycle 0), I interviewed two administrators. The participants were interviewed one time for approximately 30 minutes. The semi-structured interview survey is in Appendix A. The purpose of these questions was to determine administration perceptions about the retention status of undergraduate Public Health students of low socioeconomic status, and their views on the barriers these students face. These interviews also aimed to gain information about strategies that may help overcome these barriers within the college. The first interviewee was an Associate Dean and Professor with the College of Health Solutions Deans Office. Dr. Ransdell had been at ASU for two years prior to her recent relocation to work for Northern Arizona University; however, she came from Montana State University, where she was Dean of the College of Education, Health, and Human

Development. She served in numerous administrative and teaching roles for 20 years. Dr. Steven Hooker was the Interim School Director for the School of Nutrition and Health Promotion and the Assistant Director of Research. He was also a Professor for the Department of Exercise Science and Health Promotion. From January through June 2017, he oversaw the Department of Public Health. Dr. Hooker had been a professor with ASU for six years, and an Associate Dean of research for two years. Prior to ASU, he was at the University of South Carolina as a professor for eight years, the University of Northern Colorado for three years, the University of Southern California for three years, and he worked in the state-level government health sector for seven years. Both participants were Caucasian and middle-aged adults.

For the retention status of undergraduate students of low socioeconomic status (SES) in Public Health, a perennial topic was that students may be have lower SES even if their parents are not of that status and that financial aid was insufficient. It was determined from all participants that students were all interested in attending graduate school; however, there was disagreement among participants about when students would want to continue their schooling. Some stated that many wanted to attend graduate school immediately after completing their undergraduate degrees, while others wished to wait for a few years after graduation to save money, avoid burnout, and/or gain practical work experience. For many students, the challenges of working while attending school became overwhelming and an "all-or-nothing" situation. That is, students felt they either have to devote all their time to schooling or to work, and often school is the first priority to drop. One can interpret this inflexibility as a necessary "sacrifice." Self-efficacy was identified among both participants as an area that should be addressed. They stated the role of the

college and school is vital to supporting these students in staying in the program. They need to "feel like they have a home, community, something tangible, a sense of belonging" and that "freshmen, in particular" need to feel valued as students and "have acknowledgement."

There are some limitations to the Cycle 0 phase. First, the sample size was small and may not be representative of all administration or may not paint an accurate picture of the status of students. As with all interviews, a reliance on first impressions, previously held ideas, and theories may lead or influence the questions. Lastly, there might have been be an emphasis on data that confirms previously held beliefs and a tendency to ignore conflicting information during interpretation.

The next phase of the project was Cycle 1. Its purpose was to evaluate the self-efficacy and retention of students in Public Health and closely related fields and to improve those rates. The research questions were:

(1) What are the specific issues regarding retention and self-efficacy in advanced schooling in the public health field?

(2) How can retention be increased at the undergraduate level in Public Health majors and other health-related fields?

On October 25, 2017, I conducted a focus group interview with four students. I analyzed a selection of the transcript for this assignment. I selected grounded theory to analyze and interpret the data. Glaser and Strauss (1967) created the grounded theory. During the analysis of this focus group transcript, I first worked to break the data apart into pieces. I examined the data by looking for comparisons, similarities, and differences. I aimed to reduce the data to a small set of categories, and I continued until the data was

saturated. From there, I looked at the different connections between the categories by observing the conditions, context, actions, and consequences. During selective coding, I created a narrative based on these connections to describe the observed phenomenon. The key aspect for which was searching was what barriers students felt existed in their quest to completing their academic program.

Once the focus group interview was completed, I determined three prominent themes. The first, and most prominent, I discovered was "time." Phrases such as "balance of time," "time management," and "lack of time" were common throughout the responses. I grouped these together, highlighting the text related to this theme. "Time" yielded more connections than I had anticipated: that is, many of the other barriers mentioned related to time. Although unexpected to me, the students themselves pointed out that connection. I felt I should structure my intervention to address time management (time saving ideas, streamlining, etc.) to respond to this issue.

Another theme was altruism, which I had not predicted to develop. This was discovered during the narrative development in terms of motivation. I had to go back and review the data for that theme and found various instances/codes that supported it.

The third theme that emerged was communication. Two of the five participating students spoke English as a second language and another was a first-generation student. The following phrases are examples of the development of this theme: "language barrier," "different culture," "miscommunication," "hard to understand," and "teachers speaking quickly." These phrases arose at various times throughout the interview regarding different aspects. For example, the language barrier was brought up when I specifically asked what makes things difficult. Teachers speaking quickly was voiced

during “what supports you in this program” in response to “having supportive and caring teachers.” Students enjoyed being in a small program because it facilitated developing connections with other students and faculty; however, they complained about the small program due to limited resources and having to “jump through hoops” to accomplish certain tasks. This reaction was, again, something I had not anticipated going into the interview. Thus, although they were responding to different prompts, the topics related to one another.

Implications for Current Study.

Based on the results presented above, a purposeful approach to the college and its role in students’ self-efficacy and retention levels is needed. For many students, time and money were the major barriers to completing their programs. Such an approach may influence how the college will act as a liaison and facilitator for student success. Cycle 0 shows that accessing applicable student services and creating a community support system would be a necessary component of any intervention moving forward. Cycle 1 showed that time, communication, and altruism were important to students when completing their programs. Time was incorporated into the intervention by talking about time and stress management techniques throughout the sessions. This was to help prevent attending school from becoming overwhelming or an aspect needing to be diminished in their lives. Communication was also incorporated into the intervention by determining how the participants preferred to be contacted, including by writing, phone, virtual, email, or text message. I maintained a constant communication stream between the participants and myself, with contacting them at least once a week. Altruism was also

included in the mentoring program by discussing motivations of the students in one of the meetings specifically and discussing their aspirations.

Intervention

The focus of the current study is to understand the impact of a mentoring program designed for at-risk undergraduate Public Health majors at Arizona State University. For the purposes of this study, mentoring is defined as a "form of professional socialization whereby a more experienced (usually older) individual acts as a guide, role, model, teacher and patron of a less experienced (often younger) protégé" (Moore & Amey, 1988, p. 45). As applied to this project, mentoring is a process whereby a faculty member, myself (the mentor), guided another individual (the mentee) in the development and examination of her or his own ideas, learning, and educational development. The purpose of the relationship is to further develop the protégé's skills and understanding, as well as increase her or his success in academic and professional fields. For purposes of this study, the relationship is intended to provide support, guidance, and knowledge to facilitate academic success. As mentioned previously, I mentored some Public Health students as part of the service component of my employment. The mentoring intervention was not a continuation of this component, but, rather, a new and distinct mentoring program. Students who I had previously mentored were eligible for this program.

The Public Health Student Mentoring Program (PHSMP) was as a way to provide support for at-risk students in the Public Health program and other health-related programs, with the intention of increasing student self-efficacy, self-perceived likelihood of degree completion, and, in turn, enhancing retention rates. While there is a lack of literature showing the direct causation between mentoring relationships and self-efficacy,

scholarship has shown a link between support that mentors give, such as emotional support and instrumental support, and (indirectly) increasing self-efficacy among mentees (Allen & Finkelstein, 2003; Davis, 2007; Fox et al., 2010; Stewart & Knowles, 2003; Zuraidah et al., 2004).

The PHSMP was a six-week endeavor. I planned to have a minimum of five participants, but the response was beyond my expectations and I had eight participants enrolled. College advisors and program coordinators had access to lists of students the university considered to be at-risk. They sent a recruitment email to those students inviting them to participate and a recruitment statement was placed in the college newsletter, which was sent out to all students and faculty. Once recruited, participants completed the six-week program during the fall of 2018. Start dates varied depending on the participants' schedule and preference, but all concluded the program by end of October 2018. Participants met with me, their faculty mentor, on a weekly basis. These meetings were in-person or virtual, again depending on schedule and preference. Table 3, below, summarizes the focus of each of the six mentoring meetings that occurred as part of the program.

Table 3

Schedule for Mentoring Meetings

Week	Focus of mentoring meeting
Week 1	Initial meeting: discussion of mentoring relationship expectations, program objectives, roles, and processes; define success for the mentoring relationship; set future meetings; introduce mentoring goals.
Week 2	Finalize and review mentoring goals, discuss mentee's growth

	areas and strengths
Week 3	Academic development action plan
Week 4	Discussion of motivational processes and goals
Week 5	Review action plan, current semester, discuss any concerns or opportunities
Week 6	Review the original goals, determine success, close the relationship

The mentoring manual, which was given to participants for reference, is attached as Appendix A. During the mentoring meetings, I kept a journal noting my impressions of the meeting and any adjustments to my approach to the student. I made adjustments to the schedule with the participants. Most were minor changes, including spending more time on the academic development action plan and demonstrating how to navigate commonly used public health websites. One participant required more dramatic adjustments due to more emotional support needed for mental health concerns. There was an agenda for each meeting (see Appendix B) with various activities, such as setting mentoring goals (see Appendix C), academic development action plan (see Appendix D), reviewing current class concerns and opportunities, and reviewing resumes. A detailed description of each of the meetings is found in Appendix E, as well as a schedule of the mentoring meetings in Appendix F. I created these activities for this program specifically based on Bandura's Self-Efficacy Theory and did not use them for my previous mentoring relationships. That is, I developed these activities to speak to various aspects of the theory, including self-evaluation, or comparing their current performance with their goals (Zimmerman & Schunk, 2001). Setting mentoring goals is vital to defining expectations in the mentoring relationship, to organizing time and resources, and to establishing success for the mentor/mentee (Schunk & Pajares, 2002). Common goals

included applying to and getting into graduate school, increasing grade point averages, learning more about the public health field, and increasing knowledge of networking and professional development. These were used as a basis for many discussions and activities with the participants. For example, if a participant wanted to apply to get a master's in Public Health, we reviewed over the application process, how to study for the entrance exams, and how to craft a statement of purpose. Depending on each participant's interest, I referred to them upcoming campus events, networking events, and trainings. Additionally, stress and time management were a common discussion. The cause of the stress varied from participant to participant and I used their background to approach how to manage stress different. For example, for participants who were struggling financially, I recommended various ways to generate income, while incorporating it into their goals. One participant struggled with harassment based on her sex. I had specific recommendations for her on how to overcome this barrier. The academic development action plan was selected to establish specific short- and long-term goals that will challenge students while still be seen as attainable, which can increase self-efficacy (Schunk & Pajares, 2002). It was necessary to continuously review any current concerns the participants may have throughout the program in order to better respond to their individual needs. This show of social support is predicted to positively impact their self-efficacy and likelihood of completing college (Schunk & Pajares, 2002). Responding to the participants' needs, I developed some additional study resources and tools, including tips on how to prepare for a standardized test, how to develop a cover letter and resume, and a list of networking opportunities (see Appendices G-I). This was determined after

meeting with the participants and setting goals. Additionally, the students were asked to keep field notes about our interactions (see Appendix J).

Research Questions

The following research questions guided my study of the innovation's impact:

(1) What is the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in the Public Health program at Arizona State University?

(2) How does participation in a mentoring program influence at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college?

Definition of Relevant Terms

First-generation student: A student whose parents did not complete a postsecondary degree.

At-risk student: For purposes of this study, "at-risk" will be defined as any student who is first-generation, identifies as an underrepresented racial or ethnic minority, is eligible for federal Pell Grants (which are provided to individuals designated as low-income), or is identified by ASU's CHS as being in high financial need. Research shows that each of these factors make students especially at-risk for not completing their degree programs.

Mentoring: A form of professional socialization whereby a more experienced (usually older) individual acts as a guide, role, model, teacher and patron of a less experienced (often younger) protégé (Moore & Amey, 1988, p. 45).

Persistence: A student enrolls in a specific degree program (e.g., Public Health) and graduates from the same program without stopping academic progression.

Self-efficacy: One's belief in one's ability to succeed in specific situations or accomplish a task (Bandura, 1977).

Organization of the Study

This next chapter of this dissertation reviews existing research pertaining to mentoring students at the post-secondary level as well as the key theoretical framework guiding this study. Chapter 3 focuses on explaining the study's design and procedures. Chapter 4 sets out the results of the pre- and post-test surveys, the field notes, journal, and the focus groups. It will first assess the descriptive statistics to establish the control variables and the basic characteristics of the participants. This will be followed by an analysis of the remaining variables and themes as they relate to the research questions. Chapter 5 will contain a discussion of the study's results, as well as lessons learned, implications for practice and research, study limitations, study validity, and concluding thoughts.

Chapter 2

Literature Review and Theoretical Framework

This chapter is organized into two main sections. First, I will explain Bandura's (1977) self-efficacy theory, which acts as the primary framework for this study. I then explore the research pertaining to relationships between mentoring and self-efficacy in undergraduate students, as well as how mentoring is associated with retention. This chapter will also evaluate the Perceived Barriers Scale, which was used at the beginning and end of the intervention to evaluate changes in participant perception of self-efficacy.

Theoretical Framework: Self-Efficacy Theory

Self-efficacy beliefs (or theory) help to understand how people feel, think, motivate themselves, and behave (Bandura, 1994). According to Albert Bandura (1977), who originally proposed the theory, self-efficacy is an individual's confidence about the chances of successfully accomplishing a task. Bandura argues that people with higher levels of self-efficacy are more likely to achieve favorable outcomes. Bandura (1994) looks at four processes within this theory: cognitive, motivational, affective, and selection. The cognitive process is influenced by one's appraisal of one's own capabilities by setting personal goals. The greater an individual's perceptions of his or her capability, the higher the goal will be. The motivational process is how one will motivate oneself and, thus, one's actions. It is based on the expectation that a certain outcome will emerge from a particular behavior, and this behavior relates to the original goal. An affective process refers to one's beliefs in one's capabilities. A higher self-efficacy means that one will feel more in control over one's situation and circumstances: that person will believe she or he has a stronger ability to achieve a goal. The selection process describes

how a person conducts her or his life. It holds that people's choices—including whether to attempt actions to achieve goals as well as what goals one sets for oneself—are influenced by individual self-efficacy.

Bandura (1977) contends that the development of self-efficacy depends on both effort and ability. For an individual to experience an increase in self-efficacy, skill acquisition is necessary. In other words, success with a task alone will not automatically produce a change in self-efficacy. Someone must feel a salient improvement of ability to gain confidence about the chances of successfully accomplishing future tasks. If success is based on luck, individuals will not experience an increase in self-efficacy. The same condition holds for the effort involved in tasks: if a task is easy, then students will not value success as much as if the task was difficult. Perceptions of ability, however, can clash with effort exerted: if students believe a task to be easy for them due to their high skill level but would be comparatively difficult for others to accomplish, then that task's effort will increase their self-efficacy levels even further.

Self-efficacy comes from four primary sources of information: performance accomplishment, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). Performance accomplishment (having established success in the past) and vicarious experience (knowing or hearing about others' prior success on the same task or goal) bear the greatest influence on students' self-efficacy levels (Bandura, 1977; Morales, 2014). In fact, Bandura (1977) claims that performance accomplishment, or enactive mastery, is the most influential source of self-efficacy beliefs. Verbal persuasion describes a situation where others express positive reinforcement toward one's behaviors, which then allows that person to associate higher self-efficacy with that particular

behavior (Bandura, 1977). This is also known as encouragement. Physiological states, or emotional arousal, is when individuals to use moods and other physical sensations to influence their self-efficacy beliefs. For example, if a behavior elicits negative stress or distress, then individuals will associate lower self-efficacy with that behavior and will be less likely to perform it again.

Bandura (1977, 1997) describes three behavioral outcomes influenced by self-efficacy beliefs: approach versus avoidance, performance, and persistence. In approach versus avoidance, an approach outcome describes when an individual with high self-efficacy is likely to approach and perform a given behavior. That person will more probably persist with that behavior until it is successfully completed. In contrast, someone with low self-efficacy is likely to avoid performing or persisting at a given behavior. Zimmerman (1995) writes that self-efficacy beliefs result from academic performance (or performance accomplishment, knowledge, or skill acquirement) and effective stress management. Zimmerman (1995) claims that higher self-efficacy is associated with higher levels of participation—or "approach"—and persistence.

Research also posits that self-efficacy may depend on an individual's socio-demographic characteristics. For example, sex may account for some differences in self-efficacy. Warrington, Younger, and Williams (2000) found that girls, believing that boys were naturally better at science, felt as though they had to work harder than boys in that discipline to achieve success. The researchers described how boys in this study did not express a need to prepare for exams in school because of their superior knowledge and skills even while noting that putting forth more effort could help to accomplish their goals. Another study found that young girls did not trust their success in more male-

dominated career fields (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Bandura (2000) may help explain these differences when he states that social factors have causal influences on behavior. Social factors, such as gender roles and beliefs, may influence goal setting and approach-or-avoidance tendencies. The influence of social factors requires further consideration, since public health is a female-dominated field.

Additionally, self-efficacy beliefs are liable to change over time (Bloomer & Hodkinson, 2000). Research shows that students of low socio-economic status are likely to experience declining self-efficacy levels over time, or as they age. Goals are lowered or abandoned due to difficulties, such as financial burdens, academic challenges in higher education, and social factors. Bloomer and Hodkinson (2000) established that the most severe negative changes to self-efficacy occurred in students between ages 15 and 19. Other studies found that self-efficacy beliefs altered negatively over time as well (Reed, Kirschner, & Jolles, 2015; Wigfield & Eccles, 2000). Many students may have lowered self-efficacy levels upon entering a post-secondary career. Due to the more difficult content's greater demand on student effort and persistence, higher levels of self-efficacy are crucial for students' success.

Several studies examine the relationship between self-efficacy beliefs and various aspects of academic achievement amongst university students. Lent et al. (1984) appraised student success in persisting at science and engineering majors. After completing a 10-week career-planning course focused on those respective fields, students completed evaluations regarding their abilities to complete science and engineering academic requirements. Students with higher self-efficacy beliefs achieved higher grades and persisted longer in the majors. Lent et al. (1986) conducted a later study investigating

students' self-efficacy beliefs and academic performance grades. Again, those with stronger self-efficacy beliefs enjoyed higher academic performance grades than those with lower self-efficacy beliefs. In 1987, Lent et al. looked at the relationships among self-efficacy beliefs, interest congruence, and consequence-thinking with participants' academic performance in technical/scientific majors. Yet again, higher levels of self-efficacy were associated with better academic performance and higher levels of interest.

Many studies have demonstrated that higher self-efficacy beliefs are associated with longer persistence and superior academic success (Bouffard-Bouchard, Parent, & Larivee, 1991; Brown, Lent, & Larking, 1989; Locke, Frederick, Lee, & Bobko, 1984; Wood & Locke, 1987). In Locke et al. (1984) and Wood and Locke (1987), undergraduate students with high self-efficacy beliefs set more challenging goals, more specific goals, and were more committed to accomplishing those goals, thus increasing academic performance. In younger students, Shunk (1983) found that higher self-efficacy beliefs were connected with students setting more challenging learning goals. Shunk (1985) followed with another study, showing that young students with high self-efficacy beliefs were more motivated to acquire new knowledge and skills. Bouffard-Bouchard et al. (1991) concluded that students with elevated self-efficacy performed better and persisted longer than their peers with low self-efficacy beliefs.

In a meta-analysis, Multon, Brown, and Lent (1991) determined strong associations between self-efficacy beliefs and academic performance and persistence. Specifically, those students with higher self-efficacy beliefs performed better academically and persisted longer at behaviors relating to academic success. The studies assessed included a variety of populations, such as women and ethnic minority students.

Many found that women and ethnic minorities had lower self-efficacy beliefs compared to men and Caucasian students, respectively.

Literature Review

Moore and Amey (1988) define mentoring as a form of professional socialization whereby a more experienced (usually older) individual acts as a guide, role model, teacher, and patron of a less-experienced (often younger) protégé. There are two types of mentoring relationships: informal or formal. Informal relationships are not structured, managed, or formally recognized by a parent organization (Chao, Walz, & Gardner, 1992). These typically involve long-term goals and occur when the mentor and mentee seek one another out (Campbell & Campbell, 1997). Formal relationships are recognized by a parent organization, and are structured. Mentoring pairs are typically assigned. A combination of both types forms the mentoring program upon which this present project will focus. Consistent with a formal mentoring relationship, the program will consist of assigned pairs and will include scheduled meetings.

The focus of this literature review is on the higher-education setting and what is known about mentoring relationships between college students and campus personnel, particularly faculty. Faculty behaviors and attitudes both inside and outside the classroom have significant effects on student success and engagement (Umbach & Wawryznski, 2005). The majority of research that evaluates mentoring's influence on college students investigates faculty members as mentors; however, faculty are not the only campus personnel who participate in important formal or informal mentoring relationships with students. Academic advisors may play key roles as well, and, in fact, some scholars use the term "advisor" and "mentor" interchangeably (e.g., Torres & Hernandez, 2009). At

many of the colleges and universities in the United States, undergraduate students are typically assigned an academic advisor upon enrollment. An academic advisor is "someone who is responsible for helping students navigate academic rules and regulations" (Baker & Griffin, 2010, p. 3). The advisor may be a full-time professional whose primary responsibilities are academic advising, or she or he may be a faculty member who teaches and conducts research in addition to advising. Advisors aid students by recommending classes that complete degree or program requirements, but they do not necessarily build a mentoring-type relationship with all of their advisees (Baker & Griffin, 2010). Although this literature review focuses on faculty mentoring, a number of existing studies investigate the influence advisors exert on students, and an entire journal sponsored by the National Academic Advising Association (NACADA) is devoted to publishing research on the advisor-student mentoring relationship.

In terms of faculty relationships with students, the majority of studies examine "student-faculty interactions" generally rather than mentoring specifically. Scholars operationalize student-faculty "interactions" in different ways.

Informal Mentoring Relationships.

Studies have indicated that informal relationships bring positive influences, such as student persistence and overall retention (Milem & Berger, 1997; Nora & Cabrera, 1996; Pascarella & Terenzini, 1991; Pike, Schroeder, & Berry, 1997). Relationships between students and teachers outside of the classroom produce an increase of academic and cognitive development and more challenging goal-setting (Terenzini, Pascarella, & Blimling, 1996; Pascarella & Terenzini, 1991). Students and faculty typically meet infrequently, with nearly one fourth of students never visiting with faculty outside of

class and one half of students doing so two or fewer times (Fusani, 1994). Those who do meet more frequently still only interact for about 10 to 15 minutes (Theophilides & Terenzini, 1981; Wilson et al. 1974); however, the quality of time is highly satisfactory (Dallimore, 1995). Satisfaction often stems from trust. Student trustworthiness of faculty increased with the number of out-of-classroom meetings, as did student satisfaction and views of the instructor (Nadler & Nadler, 1995). Additionally, a study of 274 undergraduate students in two western universities found that informal contact between students and faculty increased student motivation in their classes and amplified trustworthiness in their instructor (Jaasma & Koper, 1999). Pike and Kuh (2005) showed that student engagement improved with diverse peer experiences and enjoying a reasonable amount of contact with faculty members both within and outside the classroom. Furthermore, students increase their engagement when they perceive faculty as supportive (Pike & Kuh, 2005).

Apart from studies within traditional four-year university settings, studies about informal mentoring relationships in contexts relevant for this thesis exhibit somewhat different outcomes. Nora (1987) looked at Chicano community college students at three institutes in the southwest United States. It found that students' informal contacts with faculty, counselors, and other students had a minimal impact on student persistence. A later study by Nora and Redón (1990) of 422 Hispanic and 147 Caucasian community college students in the southwest indicated that academic and social integration—including meeting with faculty outside of class, informal conversations with faculty, and social involvement in extracurricular activities—were associated with institutional and educational goal commitments. Another study of 217 Hispanic community college

students identified a cluster of variables that influence student persistence and academic integration: formal faculty-student interaction, informal faculty-student interaction, social integration, other Hispanic students, and cultural activities outside of the classroom (Kraemer, 1997).

Formal Mentoring Relationships.

Maryann Jacobi (1991) was one of the first to review and evaluate the literature on mentoring programs in higher education. She specifically investigated mentoring and the academic success of undergraduate students. The research she reviewed indicated that, overall, mentoring has positive impacts on graduation rates and student success, often reported in terms of grade point averages. More recent studies have found that mentoring relationships result in higher levels of persistence and grade point averages in undergraduate students (Campbell & Campbell, 1997; Freeman, 1999; Kahveci, Southerland, & Gilmer, 2006; Mangold, Bean, Adams, Schwab, & Lynch, 2003; Pagan & Edwards-Wilson, 2003; Ross-Thomas & Bryant, 1994; Salinitri, 2005; Wallace et al. 2000). For example, Salinitri (2005) conducted a two-year formal mentoring program in Ontario, Canada and found that the upper-level education students who participated in the program enjoyed higher retention rates and grade point averages compared with non-participants. Researchers have also revealed that formal mentoring programs can help students develop field-specific knowledge and skills. For example, Florida State University's Program for Women in Science, Engineering, and Mathematics is designed for undergraduate women (Kahveci, Southerland, & Gilmer, 2006), and promoted it mentoring program to its students. While a study of the program's impact indicated no differences between participants and non-participants in interest, confidence, or

determination to pursue a major in the three fields, a significantly different view of science and scientists did emerge. Participants gained a richer understanding of science and technology and the role of scientists in the field.

Only one study has specifically evaluated the consequence of participating in formal mentoring programs for at-risk college students. Campbell and Campbell (2007) looked at 339 undergraduate students who were paired with faculty mentors for one year. The authors illustrated long-term academic effects, that is, throughout their collegiate careers, including higher grade point averages, higher retention rates, and more completed courses compared to those who were not mentored. The authors followed the students for eleven years after the beginning of the mentoring program and found that the grade point averages at graduation were not significantly different than those who did not participate in the original mentoring program; however, those who did participate were more likely to pursue graduate degrees and teaching credentialing. This study also found that when paired with the same sex mentor, students did not perform differently than those in opposite sex mentoring pairs. Those who were paired with those of the same ethnicity did show a significant difference in having higher cumulative grade point average, graduation rate, and higher rates of pursuing graduate programs.

Additionally, there is a common assumption in academia and other professional fields that formal mentoring relationships are always positive experiences, especially for the mentee. Most recent research on mentoring relationships have focused on the solely on the positive aspects of mentoring (Ragins & Cotton, 1999; Ragins & McFarlin, 1990); however, there has been research that has shown some negative aspects of mentoring (Eby, Durley, Evans, & Ragins, 2008; Eby, McManus, Simon, & Russell, 2000; Green &

Jackson, 2014). It should be noted that most mentoring relationships have positive and negative aspects (Eby, Cotton, & Miller, 2000; Ragins, Cotton, & Miller, 2000). This is an assumption that should be challenged. Ragins (2016) reviewed this idea and found that most mentoring relationships revolve around the focus of learning and career development. She found that most positive mentoring relationships involve participants reporting closeness, trust, communication, and connection; however, she also described that many relationships are not ideal, and they may vary greatly in delivery, approach, and quality. In Ragins and Verbos (2007), there are three relational states that reflect varying levels of mentoring relationship qualities. High, or relational, is described as having connectiveness between its members, emotional attachment, and mutual learning and growth. Low, or dysfunctional, relies on exploitative norms in which participants gain without regard for the other's interest or needs (Ragins & Verbos, 2007). This can be quite harmful. Between these two is medium, or marginal (Ragins & Verbos, 2007). There are characteristics of both relational and dysfunctional levels and may be adequate and not specifically harmful; however, they are typically far from beneficial.

Formal mentoring often includes goal-setting. This implies that mentoring assesses the student's strengths and weaknesses, as well as abilities and skillsets (Crisp & Cruz, 2009). This assessment is valuable to assist in creating goals and decision-making. There are several aspects to goal-setting, including the review and exploration of interests, ideas, and abilities, critical thinking for envisioning the future and developing potential, gathering detailed information and giving detailed feedback on goals, and facilitation of completing the goals (Nora & Crisp, 2008; Cohen & Galbraith, 1995).

Two key studies substantiate the importance of goal-setting in a formal mentoring relationship. One was conducted at the University of Hawaii at Manoa and found that mentoring for students in first-year composition courses was effective in providing psychological support, support for setting goals, increasing subject knowledge, and choosing a career path (Henry, Bruland, & Sano-Franchini, 2011). Goal setting was established through the idea that mentoring includes assessments of students' abilities, strengths, and weaknesses and giving assistance with setting academic goals as defined using Nora and Crisp (2008). It must be noted that the mentors attended all classes during the term with these students, which is not typical according to the mentoring program literature. More commonly, formal mentoring involves supportive relationships, including goal-setting, that occur outside of academic classroom settings. Goal setting was incorporated through references to coaching to set goals or commenting on goals that the student set for themselves. There were not formalized tools that were used in this study. In another relevant study, a mentoring program was implemented at the College of Staten Island, CUNY, to emphasize a goal-setting approach amongst students with low grade point averages (Sorrentino, 2007). It found that students who combined mentoring with a specific goal-setting perspective and tutoring had higher self-efficacy, regardless of the subject for which they were being tutored. Students were able to structure their short- and long-term goals with guidance from their mentors and increase their overall grade point averages.

While this study focuses on college students, it is important to note that various professional fields, including business and academia, have formalized employee mentoring programs in efforts for developing and retaining employees, as well as

creating a competitive hiring advantage (Zellers, Howard, & Barcic, 2008). Programs in professional organizations have formalized mentoring by integrating it in performance reviews, in recognition, and in management strategies (Hegstad, 1999; McCauley & Van Velsor, 2004; Tillman, 2001). Research in these settings has also found that mentors are most influential on mentees during young adulthood (Levinson, Darrow, Klein, Levinson, & McKee, 1978; Carr, Bickel, & Inui, 2003; Daloz 1999). Also noteworthy is the organizational benefits to businesses and other organizations associated with employee mentoring programs; several studies found that employees who were mentored increased their productivity and were less likely to turnover due to perceptions of being valued, which in turn lead to increased organizational stability (Carr, Bickel, & Inui, 2003; Kreitner & Kinicki, 2004; Luecke, 2004; Murray, 2001).

As mentioned above, there is the assumption that mentoring is positive; however, in formal mentoring in professional settings, this is not always the case. Touchton (2003) found that a hierarchical power model, that is one were power disparities are reinforced using mentoring, may create larger inequalities between groups of people, in particular women and persons of color. This may be explained by mentors making themselves more available to mentees with whom they identify more (Johnson-Bailey & Cervero, 2004; Kanter, 1977; Luecke, 2004; McCaulty & Van Velsor, 2004) as many mentors are White and male (Carr, Bickel, & Inui, 2003; Christman, 2003; McCaulty & Van Velsor, 2004). It has been found that women and persons of color often experience mentoring differently than their counterparts, including ease of discussing racial and gender issues (Johnson-Bailey & Cervero, 2004; McCauley & Van Velsor, 2004). Considering the focus of this study is on at-risk students, including persons of color, the possibility of negative

outcomes associated with participating in a formal mentoring program is important to acknowledge.

Mentoring and Self-Efficacy of Undergraduate Students.

In the remainder of this section, I summarize the research pertaining to the primary outcomes of interest of my study: how mentoring relationships with professors impacts self-efficacy, the development of different skillsets, and academic success for undergraduate students. Very few studies have been published on the relationship between mentoring and self-efficacy in post-secondary educational institutions. One analysis found that mentoring relationships increased college students' confidence and their ability to take on the higher demands of chosen career paths (Hayes, 1998). Another study demonstrated self-efficacy and academic goal definition increased when students were involved in a mentoring relationship with their faculty (Santos & Reigadas, 2002). Students in that study also reported enjoying more personal and career development support. Another analysis looked at undergraduate business students at a research university in Malaysia (Ismail, Abdullah, Zaiedy, Ab Ghani, & Omar, 2015), and it showed that communication and support given by the mentors within the program were both positively and significantly correlated with the mentee's self-efficacy.

Communication in traditional mentoring relationships, one-on-one formal relationships, important, it is also important within classrooms. Morales (2014) also discovered that students benefitted from instructors who clearly communicated what it meant to be successful in their respective courses and what steps it took to be successful. Examples of other students' achievements from previous semesters were helpful. Possibly more important in terms of mentoring, instructors who described their own

experiences of struggle, overcoming obstacles, and achieving success all positively impacted students' internal disposition. It was noted that the effect of these personal experiences was "particularly valuable for first generation college students who often view academia as a strange and foreign land, a place in which, deep down inside, they may not feel they belong" (Morales, 2014, p. 96).

Morales (2014) explored the role of self-efficacy in the classroom and determined that, for students from backgrounds associated with low socioeconomic status, faculty needed to constantly build their self-efficacy to facilitate resilience and retention. A high level of self-efficacy ties closely to the student's internal locus of control, or the belief that someone has control over the outcome of events in one's life (which leads to more effort expended on school studies) (Morales & Trotman, 2011).

Mentoring and Skillsets.

Within the mentoring program that is the focus of this study, several skills were emphasized and developed. These included creating a resume and cover letter, and developing an academic action plan. Studies have shown the importance of these skills. For example, one study found that when evaluating job advertisements in the science field, that there are some skills that employers seek and these often are not found within a program of study (Blickley, Deiner, Garbach, Lacher, Meek, Porensky, Wilkerson, Winford, & Schwartz, 2013). Such skills are needed to be developed outside of academic programs to be competitive in various job markets (Blickley, et al., 2013). These skills may include resume and cover letter writing, both of which were skills developed in this study.

While there is a wealth of literature about developing resumes and cover letters, the body of knowledge is somewhat limited to postsecondary settings. Several studies have found that the procedure of creating a resume and/or cover letter often includes steps of evaluating current skillsets and qualifications (Becze, 2008; Santiago, 1999; & Smart, 2004). This reflection was encouraged in this mentoring program as participants were asked what their strengths and weaknesses were, as well as what they aimed to achieve in their job or graduate school search. This was valuable as participants have to evaluate employers' or schools' values and missions. This provides opportunities to learn more about a given specialty as well as develop writing skills such as tone, style, and content (Brown, 2008; Foster, 1997; Hutchinson & Brefka, 1997, Potvin, 2009; & Schullery, Ickles, & Schullery, 2009). Various reflections are seen as pertinent to learning, first within the field of professional communication and later throughout business and professional fields (Randazzo, 2012; Schön, 1983; Schön, 1987). Creating customized and unique resumes and cover letters prevents students from being able to take advantage of generic "how-to" guidelines or rules and allows for students to understand and internalize the complexity of approaching and completing tasks without a right or wrong way of doing so (Randazzo, 2012; Schön, 1983).

A qualitative study evaluating 73 high school senior students over six months involved in a career development project found that found that the students felt that the skills developed were beneficial to them as far as their own career interests and projects (Moody, Kruse, Nagel, & Conlon, 2008). Within this career development project, students were tasked with creating a project that would give them an opportunity to gain employment after graduation. This included research, time management development,

writing, and a cumulating presentation. Mentors, including community members and teachers, were provided to each student to advise them on how to complete the project, tangible processes, and measurable outcomes. The reflective process was emphasized as well. Those who completed this project had higher graduation rates and more employment options upon graduation. A major finding of this study was that the mentor was invaluable in providing individualized instruction to help students develop needed skills, remained flexible, and continuously evaluated students' abilities and skills. While this study was completed with high school students, it would not be difficult to imagine that other career development in postsecondary settings would yield similar results.

Most postsecondary institutions have students complete an academic action plan. These plans typically revolve around the expectations to successfully complete each term and includes various learning resources available to students to assist in this. For example, Wester Governors University implements a personalized academic action plan that tells students what learning resources and assignments they should be focusing on each semester (Kinser, 2007). This is based on an outcomes model of education as opposed to one based on credit hours learned (Kinser, 2007). This was emphasized among nursing students who were taking the National Council Licensure Examination-Registered Nurse exam as well (Sayles & Shelton, 2005). Again, an advisor worked with the students to develop an action research plan to track student progress and create accountability (Sayles & Shelton, 2005). Another study among undergraduate medical students found that an academic action plan is needed to encourage students to meet deadlines and attend class regularly as it creates benchmarks and accountability (Bunting, 2018). This mentoring program has taken the academic action plan and allowed for more

flexibility by having short and long-term goals. That is, it allowed for goals that would be completed either after the current term or even program.

Mentoring and Retention.

Mentoring is a valuable tool for promoting and increasing student retention (Walker & Taub, 2001). Mentoring relationships, especially those that exist between faculty and undergraduate students, help grow a sense of personal significance and can offer a sense of belongingness (Schlossberg, Lynch, & Chickering, 1989). Studies have shown that retention rates (Campbell & Campbell, 1997; Crenshaw, Chambers, Metcalf, & Thakkar, 2008; Salinitri, 2005) and grade point averages are higher among first-year students in mentoring programs when compared with those of whom are not involved in mentoring (Salinitri, 2005). Many studies have indicated indirect evidence that mentoring relationships may positively impact retention (Astin, 1977; Campbell & Campbell, 1997; Miller, Neuner, & Glynn, 1988; Pascarella & Terenzini, 1977; Tracey & Sedlacek, 1985; Wallace & Abel, 1997). Those publications establish that academic success, including retention, has a direct relationship with student-faculty interactions outside of the classroom, as part of both formal and informal mentoring relationships.

Studies on the relationship between mentoring and academic success have identified the common characteristics of an effective faculty mentor: approachability, accessibility, and helpfulness in providing guidance regarding future career and academic plans. Obtaining such guidance can help motivate students to stay within their academic programs and achieve goals formulated with their mentor (Winston, Ender, & Miller, 1982).

Mentoring and Perceived Educational Barriers.

The research summarized above examines the impact of mentoring directly on college student retention. This study considers how a mentoring program impacts an important dimension of the psychosocial process associated with retention: college students' perceptions of barriers to completing their degree program. To measure perceived barriers to postsecondary degree completion, McWhirter originally developed a Perceived Barriers Scale in 1997, consisting of 32 questions that measure the existence of perceived career and educational barriers. The instrument relies on a four-point Likert-type response set, ranging from "definitely" to "not at all." This survey was used as the pre- and post-test survey for the participants.

The original Perceived Barriers Scale was later modified in McWhirter, Torres, Salgado and Valdez (2000) by omitting career-related questions in favor of queries about educational barriers encountered in the post-secondary setting. McWhirter et al. (2000) looked at 166 high students in an urban high school in a Midwestern city in the United States. There were 129 white students, 11 African-American students, 9 Hispanic students, 10 Asian American students, and 7 students who identified as other. Students were selected because they were enrolled in a career education class. McWhirter et al. (2000) divided the revised instrument into two sections: a first part asking participants to report the likelihood of encountering barriers (i.e., "likelihood") and a second segment asking participants about their perceived difficulty of overcoming the barriers (i.e., "difficulty"). The authors then identified six likelihood constructs and five difficulty constructs to conduct multivariate analysis of variance (MANOVA) tests on each item. Table 4 shows the individual items and item loadings, or simplification, by component.

These six likelihood components accounted for 55% of the cumulative variance, and the five difficulty components accounted for 61% of the cumulative variance. The items with the larger item loading value have the strongest association to the underlying latent variable.

Table 4

Item Loadings and Item Group Labels for Perceived Barriers to Postsecondary Education (McWhirter et al., 2000)

	Item Loading	Group Label
Likelihood of encountering barriers		
Not enough money	0.74	Financial (External)
School and/or program very expensive	0.63	
Having to work while going to school	0.56	
Family responsibilities	0.43	
Being married	0.69	Relational (External)
None of my friends doing what I'm doing	0.54	
Teachers don't support my plans	0.53	
Pressures from boyfriend or girlfriend	0.47	
Not confident enough	0.77	Ability (Internal)
Not smart enough	0.69	
Not fitting in at new school or program	0.65	
Not talented enough	0.62	
Friends don't support my plans	0.45	
Takes long time to finish training and/or schooling	0.38	
Not being prepared enough	0.78	Preparation/Motivation (Internal)
Not being interested in classes and/or training	0.72	
Lack of motivation	0.66	

Lack of study skills	0.59	
Not knowing kind of school and/or training I want	0.47	
Not being able to get into program I want	0.40	Demographic (External)
Sex discrimination	0.73	
Racial and/or ethic discrimination	0.70	
Pregnancy and/or having children	0.67	
Schooling and/or training I want not available here	0.67	Separation (External)
Others don't think I can do it	0.62	
Not wanting to move away	0.54	
School too stressful	0.46	
Parents don't support my plans	0.44	
Difficulty of overcoming barriers		
Not enough money	0.77	Financial (External)
Having to work while going to school	0.69	
School and/or program very expensive	0.69	
Family responsibilities	0.42	
Friends don't support my plans	0.76	Other support (External)
Teachers don't support my plans	0.69	
No friends are doing what I'm doing	0.67	
Others don't think I can do it	0.58	
Not fitting in at new school or program	0.46	
Racial and/or ethnic	0.73	
Pregnancy and/or having children	0.72	Demographic/relational (External)
Sex discrimination	0.72	
Pressure from boyfriend or girlfriend	0.67	
Being married	0.59	
Lack of motivation	0.74	
Not being prepared enough	0.71	Ability/motivation (Internal)
Lack of study skills	0.69	

Not being interested in class and/or training	0.60	
Not talented enough	0.60	
Not knowing kind of school and/or training I want	0.58	
Not confident enough	0.56	
Not smart enough	0.54	
School too stressful	0.54	
Takes long time to finish training and/or schooling	0.53	
Schooling and/or training I want not available here	0.63	
Parents don't support my plans	0.59	Separation (External)
Not being able to get into program I want	0.55	
Not wanting to move away	0.54	

In 2005, Gibbons conducted a study to investigate the beliefs of middle-school students who would be the first in their families to attend college. Two hundred and seventy-two student responses from four middle schools in the southeast United States showed that first-generation students had needs different from non-first-generation students. In particular, these at-risk students had less connection to their educational goals and choices in school, and they had interests in careers about which they did not necessarily know much. Additionally, students used negative language and expressed negative feelings about college. That is, there were more negative outcomes beliefs and expectations.

The Perceived Barriers Scale has also been used to evaluate the levels of interest in particular degree programs. For example, one publication tracked interest and expected educational attainment about engineering among under-represented low-income middle

and high school students involved in materials science and engineering clubs (Dika, Alvarez, Santos, & Marcelo, 2016). Those scholars found that parent expectations, mother's level of education, and gender bore the strongest influence on engineering and attainment expectation. There was a direct relationship between the mother's level education and attainment expectation. The more positive parents' expectations and shared experiences relating to college were the higher the students' self-efficacy became.

Another study examined predictors of college-going self-efficacy and educational goals in 119 Latina/o high school students (Berbery, 2013). It looked at ethnic identity, barriers, and family support on college-going self-efficacy and educational goals. Students with a lower GPA yielded poorer college-going self-efficacy regardless of the level of support they reported; students with a higher GPA and high levels of support were linked to higher college-going self-efficacy. Interestingly, students with high GPA and low support experienced lower self-efficacy. A modified version of the scale used in a study of high financial need high school students in Nassau, Bahamas also found that a lack of parental support was perceived as a barrier to college attendance (Davis, 2009). Davis found that other barriers, including stress, gender/ethnicity, family responsibility, lack of friend and teacher support, finances, and lack in perceived ability to acquire the necessary knowledge and grades (2009).

Luzzo and McWhirter (2001) administered the original survey to 286 undergraduate students to evaluate sex and ethnic differences in relation to perceived barriers and coping efficacy. They wanted to understand the role that these factors played in the career development of women and people of color. While the vast majority of the participants were Caucasian (89%) and women (59%), the study found that women and

ethnic minority students anticipated significantly more career-related barriers than men and Caucasian students. Ethnic minority students had more perceived educational barriers and lower self-efficacy for coping with perceived career-related barriers.

Limitations of the Research.

While evidence generally supports the positive effects of mentoring on college students, the literature contains several limitations. Jacobi (1991) identified several shortcomings: empirical data on collegiate mentoring programs, a universal definition of mentoring, a process for mentoring, and how mentoring contributes to academic success. A more recent review confirmed that the research available is incomplete and often methodologically unsound (Budge, 2014). Another noted the (continued) absence of a consistent definition of mentoring within higher education (Crisp & Cruz, 2009). That is, there is a lack of theory and quantitative research designs that would test the external validity of findings within mentoring. Additionally, mentoring studies have mostly been conducted at four-year postsecondary institutions, and not at community colleges or technical schools (Crisp & Cruz, 2009). Thus far, existing reports have mostly investigated small subsets of students within four-year post-secondary schools, such as with gay, lesbian, and bisexual students (Lark & Croteau, 1998) or with nursing students (Aagaard & Hauer, 2003; Atkins & Williams, 1995; Hauer, Teherani, Dechet, & Aagaard, 2005; and Watson, 1999). While a lack of evidence-based data on mentoring persists, mentoring remains widely accepted throughout the United States and plays a central role in many universities and other academic settings (Cohen, 1993; Girves et al. 2005).

Implications of Existing Research and Theory for the Present Study

In this chapter, I explored self-efficacy theory in detail. The theory informs the present study in two key ways. First, it centers my conceptual focus on self-efficacy as a critical psychosocial factor that affects college students' beliefs about their ability to complete a degree program. In addition, Bandura proposed four processes that contribute to an individual's self-efficacy: cognitive, motivational, affective, and selection. Each of these four processes informed the design of the Public Health Student Mentoring Program (PHSMP) innovation to be implemented as part of this study. *Cognitive* processes emphasize the importance of setting personal goals and appraising one's capabilities based on these goals. Consistent with what research on the cognitive process suggests, goals will be set for the mentoring relationship during the initial meeting, and a student-led academic development plan will be created in the third week. Week four of the program is designed to impact both of these dimensions. The mentor and mentees will discuss students' motivational processes, including goal clarification and behavior strategies to achieve the original goal. This will also touch upon the *affective* processes by setting goals with clear objectives and strategies for achieving such goals. Specifying the relationships between a behavior and specific outcome will help expand a student's locus of control. Throughout all meetings, persistence, approach versus avoidance behaviors, and performance will be discussed to satisfy the selection process.

In the second part of this chapter, I reviewed existing research related to mentoring in higher education, with a particular focus on defining mentoring, showing the relationships between mentoring and self-efficacy and mentoring and retention, and describing the limitations in the research. As mentioned, few studies examine the

relationship between mentoring and self-efficacy in post-secondary educational institutions, and even fewer on mentoring and at-risk undergraduate students. The existing body of research tends to focus on younger children, or university students who are not identified as at-risk. This study aims to increase understandings of these relationships within this population. Additionally, a strong mentoring role pervades in many universities not founded by evidence-based data. This study will contribute to data and knowledge and will show the correlation between mentoring and student success.

The final section of this chapter summarized the Perceived Barriers scale. This informed my study by demonstrating the connection between self-efficacy, perceptions of barriers, and students' beliefs in their abilities to overcome such barriers. I utilized this relationship to measure how the mentoring program impacted these aspects in the students. This study will contribute to the body of knowledge about the scale since it has been used in high school student populations rather than post-secondary populations.

Chapter 3

Methodology

The purpose of this action research project was to examine the relationship between faculty mentoring and self-efficacy beliefs in students who are at-risk. This chapter presents information about the methods used to conduct this project, specifically the setting and participants, research design, data collection instruments, and innovation and data collection timeline. This study was approved by the ASU Human Subjects Institutional Review Board on June 14, 2018 (see appendix K).

Setting

Created in 1886, ASU is a public research university with a commitment to excellence, access, and impact. It has 17 colleges across six campuses with a total enrollment of 98,146, with enrollment in the downtown campus at 11,737 (Arizona State University, 2018). It has been ranked first in the United States for innovation in 2016-2019 and as of 2018, was ranked within the top 100 universities in the world for research and teaching (Arizona State University, 2018). Its charter states:

> ASU is a comprehensive public research university measured not by whom it excludes, but by whom it includes and how they success; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

This study was conducted at Arizona State University's (ASU) College of Health Solutions (CHS) at the Downtown Phoenix, Arizona campus. At the time of this study, no formal mentoring programs were instituted at the Downtown campus for College of Health Solutions students and faculty members were expected to informally mentor

students as part of teaching courses on an as-needed basis. In fall 2016, there was a mentoring program that was piloted by the director of Academic Services within CHS. This mentoring program paired a student who was on academic probation with a faculty member. The program lasted one semester and the pairs were required to meet once a month. There were no guidelines, training, or structure provided to either the mentors or mentees. The program was not picked up after that trial period and it is not known the results of the pilot as data was not collected on it.

The Public Health program had 56 students enrolled in its undergraduate major as of Spring 2018, and all at-risk students were eligible to participate in the mentoring program implemented as part of this study. At time of recruitment, all but six students were categorized as at-risk. For the purposes of this study, I defined "at-risk" as any student who is a first-generation college attendee, identifies as an under-represented racial or ethnic minority, is eligible for federal Pell grants (available to individuals designated as low-income), or whom CHS identified as in need of financial aid. Students qualified as being at-risk if they fit in any or all of these criteria. Of the 56 undergraduate students enrolled in Public Health at the time of this study, ten were first-generation, 25 experienced "high or very high" rated financial needs, and 34 were persons of color (K. Studebaker, personal communication, January 9, 2018). I identified the Public Health students and students in related fields who fit this definition by screening the participants when they reached out to me.

Participants

Participants were recruited through direct emails sent by the Public Health advisors and an announcement made in the student newsletter. The email was sent, and

the announcement was made on September 6 and 7, 2018, respectively. I received seven inquiries about the study on September 7 and screened all seven that day. Six participants stated they learned about the study through the email from the advisor, and one learned about the study through the student newsletter. The eighth participant sent me an inquiry about the study on September 10, who learned about the study through another participant. All students who volunteered met the study's eligibility criteria. They were enrolled in the Public Health, Health Sciences, and Medical Studies undergraduate programs, which are all located within CHS. In terms of being considered "at risk", seven were persons of color, two were first-generation students, three were Pell Grant recipients, all had high or very high financial need, and all were female. Two participants had five risk factors, two had three risk factors, and four had three risk factors. Only one participant had one risk factor. Table 5 shows the demographics of this study.

Table 5

Demographics

Characteristic	Frequency (n = 8)
Age	
18-24 years old	8
25-34 years old	0
35-44 years old	0
45-54 years old	0
55-64 years old	0
65-74 years old	0
75 years old or older	0
Household income	
Less than $10,000	7
$10,000-19,999	0
$20,000-29,999	1
$30,000-39,999	0

$40,000-49,999	0
$50,000-59,999	0
$60,000-69,999	0
$70,000-79,999	0
$80,000-89,999	0
$90,000-99,999	0
$100,000 or more	0
Pell Grant Eligible	
Yes	3
No	5
Not Sure	0
Highest education completed by mother	
Less than high school degree	0
High school degree or GED	5
Associate's degree	1
Bachelor's degree	2
Graduate degree (e.g., master's, PhD, MD, JD)	0
Highest education completed by father	
Less than high school degree	0
High school degree or GED	4
Associate's degree	1
Bachelor's degree	1
Graduate degree (e.g., master's, PhD, MD, JD)	2
Employment	
No	2
Self-employed	0
Employed for wages	5
Out of work and looking for work	1
Out of work and not looking for work	0
Military	0
Retired	0

Other	0
Marital Status	
Single, never married	8
Married or domestic partnership	0
Widowed	0
Divorced	0
Separated	0
Program Enrollment	
Full-time	7
Part-time	1
Undergraduate Level	
Freshman	1
Sophomore	0
Junior	2
Senior	5
Race	
White	1
Hispanic	3
Black or African American	1
Native American or American Indian	0
Asian/Pacific Islander	0
2 or more	3
Sex	
Male	0
Female	8
Other	0

Eight students started and completed the study. All participants were female aged 18-24 years old and were single and never married. Seven participants were Public Health majors and one was a Medical Studies major; both majors are housed within the College of Health Solutions. Only one participant was enrolled as part-time. Five participants were seniors, two juniors, and one freshman. One participant identified as White, three as Hispanic, one as Black, and three participants identified with two

ethnicities, including White and African American, White and Hispanic, and Hispanic and Asian. Three participants were Pell Grant recipients, seven had a household income of less than $10,000, and one's household income was between $20,000 and $29,999. Five participants were employed, four part-time and one full-time, during this study, three were not, with one actively looking for employment.

The following describes each participant in detail. Participants hereafter are referred to by their participant number.

Participant 1 is a senior in the Public Health program. She is 24 years old and aspires to go to nursing school after graduation. She has taken time off during her degree due to mental health disorders and stress relating to family concerns. She has struggled in the past to successfully complete courses in the program. She transferred from University of Arizona to Arizona State during her junior year to be closer to family. She has financial stressors.

Participant 2 is a senior in the Public Health program. She is 21 years old and wants to go to graduate school in public health after completing her undergraduate program.

Participant 3 is a 21-year-old female senior in the Public Health program and graduated a semester early in December 2018. She also has financial stressors. She has applied to the Peace Corps and hopes to be deployed by May 2019. She would like to attend graduate school in public health after completing her Peace Corps service.

Participant 4 is a junior is the health sciences program and is 20 years old. She is considering graduate school in the science health care delivery.

Participant 5 is a 21-year-old Public Health major who is graduating in May 2019. She aspires to get her masters and doctorate in Public Health. She is completing her degree on a student visa and Pell Grant. She does not have financial support from family, and her parents are both deceased.

Participant 6 is a 21-year-old senior in the Public Health major. She is actively applying to graduate school in Public Health.

Participant 7 is a 19-year-old freshman majoring in the science of health care delivery. She does not get any financial support from family and pays for school through the Pell Grant.

Participant 8 is a 21-year-old senior who graduated in December with a degree in the science of health care delivery. She would like to go to graduate school in health administration to combine public health and clinical health.

Research Design

This study is an action research study. Action research is any systematic inquiry—typically within an academic setting—in which participants, such as teachers and administrators, examine their own educational practice (Mertler, 2014). Those with a vested interest in the learning environment conduct research on how their schools "operate, how they teach, and how their students learn" (Mertler, 2014, p. 4). Research may occur at the organizational, academic, or instructional level, or any combination thereof (Mertler, 2014). The purpose of action research is to identify problems and to produce a plan of action for better practice. While action research is not generalizable to other populations, results make it possible to influence other similarly situated environments. According to Dickens and Watkins (1999), the cyclical action research

process involves four stages: plan, act, observe, and reflect. First, one must develop a plan of action to improve the status quo, and follow it by enacting that plan. While acting, one will observe the effects of that action within the current setting, and then reflect on them for further planning and other needed action.

The project presents a strategy for reducing barriers for at-risk undergraduate Public Health students at Arizona State University. This project aimed to give at-risk students additional tools and support to increase self-efficacy, which may increase retention rates in the undergraduate program. The intervention itself was a mentoring program. Applied to this project, mentoring is a process whereby a faculty member—here, myself (the mentor)—guides another individual (the mentee) in the development and examination of their own ideas, learning, and educational development. This relationship has the opportunity of providing support, guidance, and knowledge to facilitate academic success. Students were self-selected to become mentees. As discussed in more detail in Chapter 1, I implemented the Public Health Student Mentoring Program (PHSMP) as an intervention to support students in Public Health and other health-related programs.

Data Collection Instruments

The data collected to address the study's research questions and understand the impact of the mentoring program came from a combination of quantitative and qualitative sources.

Quantitative Data. An online questionnaire, in the first phase of the study, was collected for baseline data on participating students prior to the start of the mentoring program (i.e., "pre-test"). After the PHSMP concluded, the same questionnaire was

re-administered to evaluate any changes in participants' self-efficacy and perceived likelihood of retention and degree completion (i.e., "post-test). The pre- and post-tests each contain two parts. The aim of the test was to build an understanding of what students believe to be the barriers or obstacles standing in their way of completing their undergraduate program. The questionnaire's first section is quantitative and is based on the Perceived Educational Barriers Scale (McWhirter, 1997) (see Appendix A). The second part collects demographic information through an eight-question survey as well as the remaining Likert-scale items. These questions ask students if particular items are "definitely," "somewhat likely," "somewhat unlikely," or "not at all likely" to be barriers. Using the same scale, it also asks if items would be a barrier would it be for you? and how likely would you be able to overcome such barriers? Definitely is scored as a "5" and not at all a "1." The higher scores indicate the perception of greater barriers. It was originally divided into two categories: items 1-11 for career-related barriers, and items 12-32 for educational barriers. Other studies have found the scale has an overall Cronbach's alpha of 0.90 (0.86 for career-related barriers and 0.88 for educational), and test-retest reliability of 0.78 over a two-month time span (Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003; Luzzo & McWhirter, 2001; McWhirter, Hackett, & Bandalos, 1998). McWhirter (1997) reported a Cronbach's alpha of 0.79 for barriers that would most likely prompt a withdrawal from school and a 0.74 for barriers that would be experienced if one were to remain in school. A later study among Latina undergraduates found a 0.74 for barriers that would most likely prompt a withdrawal from school and a 0.76 for barriers that would be experienced if one were remain in school (Gloria, Castellanos, & Orozco, 2005).

I conducted a pilot survey of the Perceived Educational Barriers instrument in a previous research cycle. This survey was piloted with my PBH 422 Health Disparities class online using SurveyMonkey, and three out of the five students completed it with no missing data. All three students major in Public Health at Arizona State University and meet the definition of "at-risk." After administering the survey, I conducted a reliability analysis of four constructs I determined within the survey: Financial (items 1, 5, 26), Social/Familial Support (items 4, 8, 9, 12, 15, 18, 23, 28), Self-Efficacy/Confidence (items 2, 3, 6, 7, 10, 11, 14, 19, 24), and Environment (items 16, 17, 20, 22, 25, 27). A Cronbach's alpha report through SPSS helped me manage the reliability analysis. Table 6, below, represents the results. Again, it should be noted that three participants completed this pilot study.

Table 6

Student Perceptions of Educational Barriers Instrument; Coefficient Alpha Estimates of Internal Consistency (n=3)

Construct	Within Construct Items	Coefficient Alpha
Financial	Items 1, 5, 26	0.75
Social/Familial Support	Items 4, 8, 9, 12, 15, 18, 23, 28	0.82
Self-Efficacy/Confidence	Items 2, 3, 6, 7, 10, 11, 14, 19, 24	0.51
Environment	Items 16, 17, 20, 22, 25, 27	0.60
Overall Alpha	Items 1-28	0.87

According to Cronbach (1954), internal consistency describes the extent to which items within an instrument measure the same construct. When the coefficient alpha is between 0.70 and 1.0, then the construct relates to each other at a high level. Output

within this range represents reliability (Tavokel & Dennick, 2011). An alpha that is greater than 0.90 may mean that test items are redundant. Based on the above results (Table 6), this is not an issue within each of the constructs; however, the overall alpha was high at 0.87. This may reflect two things: many of the construct items may relate to one another closely, and/or this scale is of a Likert-design. Often, opinions may be extreme between "not at all" and "definitely." The design of the survey is such that students are not able to select a middle-of-the-road answer. It forces students to express an opinion. Although beneficial overall, one downfall may be skewed data. Even so, the 0.87 alpha illustrates that perhaps many of the questions may have been perceived as redundant, which reduced enthusiasm for the survey and topic. I felt satisfied in continuing to use the pilot survey instrument as originally designed due to its established nature in previous research studies by other scholars (especially considering my small sample size).

For the instrument used in the current study, I conducted a reliability analysis of the post-test responses based on the following four constructs within the survey: self-efficacy of encountering educational barriers (SEE), self-efficacy of overcoming educational barriers (SEO), perceived likelihood of encountering educational barriers (PLE), and perceived likelihood of overcoming educational barriers (PLO). Table 7, below, represents the post-survey reliability results.

Table 7

Student Perceptions of Educational Barriers Instrument; Coefficient Alpha Estimates of Internal Consistency (n=8)

Construct	Within Construct Items	Coefficient Alpha
SEE	Items 2, 3, 6, 7, 10, 11, 13, 14, 19, 21, 24	0.32
SEO	Items 29, 30, 33, 34, 37, 38, 40, 41, 46, 47, 51	0.26
PLE	Items 1, 4, 5, 8, 9, 12, 15, 16, 17, 18, 20, 22, 23, 25, 26, 27	0.73
PLO	Items 28, 31, 32, 35, 36, 39, 42, 43, 45, 48, 49, 50, 52, 53, 54	0.79
Overall alpha		0.30

Based on the above results (Table 7), redundancy does not appear to be an issue within each of the constructs. The PLE and PLO constructs are acceptable at 0.73 and 0.79 respectively. The SEE and SEO are markedly low, which indicates that there may be a need for additional relevant questions relating to these two constructs. The overall alpha of 0.30, which is expected since the two constructs are not unidimensional and thus cannot be combined into one larger construct.

Qualitative Data. In addition to the quantitative data collected pre- and post-intervention, I drew from three primary sources of qualitative data collected throughout the implementation of individual items and each of two constructs of educational the mentoring program: my researching journal notes, participant field notes, and focus group responses. For the first source of qualitative data, during each mentoring meeting, I

kept a journal to note my impressions of the meeting and any adjustments to my approach toward the student. I compiled the journal by taking notes after each weekly meeting and additional notes were made if I had other interactions with the participants in between the set meetings. This included email correspondence and text messages. I reflected on what was discussed in the meetings, any concerns the participants expressed, and observed needs of the participants. For the second source of qualitative data, the students were asked to keep field notes about our interactions. Students were instructed to complete field note entries after each meeting, and prompts guided those responses (see Appendix L). The prompt was focused on how they felt about completing their academic program and any barriers they felt stood in their way. They were also prompted to reflect on their confidence level. As noted in Chapter 1, to protect my participants' identities and encourage them to be fully honest about their experiences in the mentoring program, I anonymized the notes by instructing them to send them to another faculty member. She assigned a randomized number to the files and removed any identifying information prior to sending the file to me. For the final source of qualitative data, the participants took part in one of two focus groups. Participants were asked about their experiences and feedback about the mentoring program (see Appendix L). The questions discussed in the focus groups centered around the mentoring program itself. That is, how the participants felt about the program, any feedback, including specific activities and aspects that were most and least helpful, areas for improvement, and lastly, if they felt they made progress towards their academic goals.

Innovation and Data Collection Timeline

Participants gave their informed consent to participate in the study at the first meeting with their mentor. Individual mentoring sessions were conducted from September 11, 2018 through October 19, 2018. A pre-survey was administered to all participants between September 6 and 11, and a post-test was administered at the conclusion of the mentoring program between October 14 and 20. The focus groups were conducted October 22 and 26, 2018 after all students concluded the six-week mentoring program and post-test survey.

Data Analysis

My first research question is: "What is the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in the Public Health program at Arizona State University?" To address this question with the quantitative data, I first examined descriptive statistics for individual items related to students' self-efficacy and other perceived barriers to completing college, for both pre- and post-test. The scale had two questions that closely mirrored each other. For a set of items, it asked the participants how likely they felt like the listed items would be barriers for them. Then the next question asked how likely the participants felt they would be able to overcome the same items. The degree of students' self-efficacy was assessed on a 22-items Self-Efficacy/Confidence scale using four-point Likert scale. The self-efficacy scale was comprised of two constructs: self-efficacy of encountering educational barriers (SEE, 11-items) and self-efficacy of overcoming educational barriers (SEO, 11-items). Students' perceptions of educational barriers were assessed on two 18-items constructs on a four-point Likert scale (36 items), one construct measures students' perception of likelihood of encountering educational barriers (PLE, 18 items) and the other measures

students' perception of the likelihood of overcoming educational barriers (PLO, 18 items). Subscale scores were calculated by summing up the item scores for each construct. Given the small sample size in this study non-parametric Wilcoxon signed-rank tests were applied to examine the significant difference between pre- and post-test responses across all individual items and each of two constructs of educational barriers.

Pearson's product-moment correlations were conducted to examine the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students using responses in pre-test across constructs, and the effects of participation in a mentoring program on at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college using responses in post-test across constructs. The significance level was set at 0.05. Statistical analyses were completed using SPSS 24.

My second research question is: "How does participation in a mentoring program influence at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college?" To address this question with quantitative data, I evaluated differences between the pre- and post-test results for both likelihood of encountering as well as likelihood of overcoming, to ascertain whether the innovation was associated with changes in self-efficacy or perceived barriers. Given the small sample size in this study, non-parametric Wilcoxon signed-rank tests were applied to examine the significant difference between pre- and post-test responses across all individual items and subscales, as well as, the total score of educational barriers.

I also drew from the qualitative data collected from students' field notes, my journaling, and the focus groups to construct a more in-depth understanding of the mentoring program's impact. The field notes from the students along with my journal, were analyzed with grounded theory. I reviewed the focus group transcripts by employing open ethnographic coding. I then reviewed them using focused coding. Codes, and then emerging themes, materialized. That is, they were read, re-read, initially coded, used to identify themes and organizing codes, and, lastly, to create a thematic map. The focus group was audio recorded, transcribed, and coded using NVivo software. Participants were assigned unique ID numbers to maintain confidentiality. The coded variables represented themes, which were inductively identified, labeled, categorized, and linked as they reoccurred in the data. Data analysis continued until theoretical saturation occurred.

I utilized grounded theory to analyze the field notes and my journal notes. Grounded theory is an inductive method that seeks to generate theory based on existing data (Glaser & Strauss, 1967). That is, it develops a theory rooted or "grounded" in the data rather than a theory that is preconceived. In qualitative data analysis, there are three levels of coding in grounded theory. The first is open: breaking the data into pieces. The second is axial, or putting the data back together into defined categories. The last is selective, or integrating the key categories to inform the theory.

Chapter 4

Results

Introduction

This study examined the impact of a mentoring program on self-efficacy beliefs. High-risk undergraduate students at Arizona State University majoring in Public Health and other closely-related fields represent this study's sample. This study used a mixed method, action research design. This chapter sets out the results of the pre- and post-test surveys, the field notes, journal, and the focus groups. It will first assess each of the research questions before concluding with a summary of findings. The specific research questions were:

RQ 1 What is the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in the Public Health program at Arizona State University?

RQ 2 How does participation in a mentoring program influence at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college?

Research Question 1 Results: What is the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in the Public Health program at Arizona State University?

This research question was examined using the quantitative data collected from both pre- and post-survey. Descriptive statistics for each individual item pertaining to self-efficacy and barriers, as well as the overall scales, are summarized, then the results of correlations between the dimensions of self-efficacy and barriers are presented.

Quantitative Results.

The following tables shows the descriptive statistics for all survey items pertaining to barriers and self-efficacy in the pre- and post-surveys. One set of items asked students about how likely it is that they will encounter these issues, the scale ranged from "Not at all likely" scored as "1" to "definitely" scored as "5". Thus, the higher the average, the more difficult the barrier was to overcome for the participants. For the same list of items, participants were also asked how difficult dealing with the barrier would be. Table 8 shows the descriptive analysis for individual items across pre- and post-test by two constructs of self-efficacy of educational barriers (i.e., SEE and SEO). Table 9 shows the descriptive analysis for individual items across pre- and post-test by two constructs of students' perceptions of Education barriers (i.e., PLE and PLO).

Table 8

Descriptive analysis for individual items by two constructs of students' self-efficacy of educational barriers

Scales/Items		Pre-Test		Post-Test	
Self-Efficacy of Encountering	n	mean	SD	mean	SD
Not smart enough	8	1.88	0.64	2.38	0.92
Not confident enough	7	2.00	0.82	2.75	0.71
Not fitting in at new school or program	8	1.88	0.64	2.13	1.13
Takes a long time to finish the training or schooling	8	1.75	0.71	2.63	0.92
Not being interested in classes/training	8	2.00	0.93	2.00	0.93
Not being prepared enough	8	2.50	0.76	3.13	0.35
Lack of motivation	8	1.88	0.99	2.75	1.04
Not talented enough	8	1.63	0.52	2.50	0.76
Lack of study skills	8	1.88	1.13	2.25	1.04
Not being able to get into program I want	8	2.63	0.92	2.88	0.83
Not wanting to move away	8	2.00	1.20	2.00	0.93
Self-Efficacy of Overcoming					
Not smart enough	8	2.13	1.13	2.63	0.52
Not confident enough	8	2.13	1.13	2.86	0.90

Not fitting in at new school or program	8	2.25	1.16	2.13	0.83
Takes a long time to finish the training or schooling	8	2.00	1.07	2.13	0.83
Not being interested in classes/training	8	2.50	0.93	2.43	1.27
Not being prepared enough	8	2.75	1.04	2.88	1.13
Lack of motivation	8	2.25	1.28	2.75	0.89
Not talented enough	8	2.00	1.07	2.88	0.64
Lack of study skills	7	2.29	1.38	2.25	1.04
Not being able to get into program I want	8	2.13	0.99	2.88	1.36
Not wanting to move away	8	2.50	1.41	2.00	1.07

Table 9

Descriptive analysis for individual items by two constructs of students' perceptions of educational barriers

Scales/Items	Pre-Test			Post-Test	
Likelihood of Encountering	n	mean	SD	mean	SD
Not enough money	8	3.00	0.53	3.13	0.83
Friends don't support my plans	8	1.50	0.76	1.13	0.35
Having to work while in school	8	2.63	0.74	3.00	0.76
Being married	8	2.00	1.07	1.13	0.35
Teachers don't support my plans	8	1.50	1.07	1.25	0.46
Not enough money	8	2.00	1.07	2.38	1.19
Pressure from boy/girlfriend	8	1.25	0.46	1.50	0.93
Sex discrimination	8	1.75	1.04	1.88	0.99
Racial/ethnic discrimination	7	1.43	0.79	1.88	0.99
Pregnancy/having children	8	2.00	1.20	1.25	0.46
Not knowing what kind of school or training I want	8	1.75	0.71	2.75	1.04
Parents don't support my plans	8	1.63	1.19	1.13	0.35

School too stressful	8	2.13	0.83	2.88	0.99
School/program very expensive	8	3.13	0.64	3.75	0.46
The schooling/training I want not available here	8	2.13	1.25	2.38	1.06
Others don't think I can do it	8	1.38	0.74	1.38	0.74
Likelihood of Overcoming					
Not enough money	8	3.00	0.93	3.00	0.76
Friends don't support my plans	8	2.00	1.31	1.50	0.76
Having to work while in school	8	2.50	1.07	3.00	0.76
Being married	8	2.50	1.31	1.13	0.35
Teachers don't support my plans	8	2.13	1.25	1.50	0.76
Family responsibilities	8	2.50	1.41	2.50	1.20
Pressure from boy/girlfriend	8	2.00	1.31	1.38	0.74
Sex discrimination	8	2.13	1.36	1.75	0.89
Racial/ethnic discrimination	8	2.13	1.36	1.88	0.99
Pregnancy/having children	8	2.38	1.30	1.63	1.19
Not being able to get into program I want	8	2.88	0.83	3.00	0.93
Parents don't support my plans	8	2.25	1.39	1.75	1.16
School too stressful	8	2.25	0.89	3.13	0.83
School/program very expensive	8	2.63	0.92	3.63	0.52
The schooling/training I want not available here	8	2.38	1.06	2.63	1.06
Others don't think I can do it	8	2.13	1.13	1.75	1.16

Table 10 and Table 11 show the Pearson's product-moment correlations between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in pre-test and post -test, respectively. Students' self-efficacy of encountering showed a significant strong positive correlation with students' perception of likelihood of educational barriers encountering (r= .80, *p*=.02) and there is a strong correlation between students' self-efficacy of overcoming with students' perception of likelihood of educational barriers overcoming (r= .89, *p*<.01) in pre-test. However, participation in a mentoring program showed no relationship with at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college using responses in post-test.

Table 10

Pearson's product-moment correlations between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in pre-test

		SEE	SEO	PLE	PLO
SEE	Pearson Correlation		0.37	**0.80**	0.10
	Sig. (2-tailed)		0.37	**0.02**	0.81
SEO	Pearson Correlation			0.12	**0.89**
	Sig. (2-tailed)			0.79	**0.00**
PLE	Pearson Correlation				0.05
	Sig. (2-tailed)				0.91

*Note. SEE is Self-Efficacy of Encountering; SEO is Self-Efficacy of Overcoming; PLE is Perception of Likelihood of Encountering; PLO is Perception of Likelihood of Overcoming.

Table 11

Pearson's product-moment correlations between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in post-test

		SEE	SEO	PLE	PLO
SEE	Pearson Correlation		0.02	0.15	-0.38
	Sig. (2-tailed)		0.97	0.73	0.35
SEO	Pearson Correlation			-0.13	0.67
	Sig. (2-tailed)			0.77	0.07
PLE	Pearson Correlation				-0.01
	Sig. (2-tailed)				0.99

*Note. SEE is Self-Efficacy of Encountering; SEO is Self-Efficacy of Overcoming; PLE is Perception of Likelihood of Encountering; PLO is Perception of Likelihood of Overcoming.

Research Question 2 Results: How does participation in a mentoring program influence at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college?

This research question was examined through utilization of both quantitative and qualitative data. That is, mean comparisons of the pre- and post-test surveys using Wilcoxon signed-rank tests indicated how self-efficacy and perceived barriers to finishing college changed from before participating in the mentoring program to after. One set of analyses examines changes in perceived likelihood of encountering the four constructs, and one set of analyses examines changes in perceived ability to overcome the four constructs. From a qualitative standpoint, analyses were conducted of the focus group discussions, journal, and field notes to further unpack the impact of the mentoring program on students.

Quantitative Results.

In SEE scale (Table 12), the following responses showed significant difference between pre- and post-test: students felt were more likely to feel that "Not smart enough" would be a barrier (Item 2) from pre- (Mean Rank=0.00) to post-test (Mean Rank=2.50), Z =-2.00, *p*=.04; students felt more likely to feel that "Not confident enough" would be a barrier (Item 3) from pre- (Mean Rank=0.00) to post-test (Mean Rank=3.00), Z =-2.24, *p*=.03; students felt more likely to feel that "Lack of motivation" would be a barrier (Item 13) from pre- (Mean Rank=0.00) to post-test (Mean Rank=3.50), Z =-2.33, *p*=.02; and students felt more likely to feel that "Not talented enough" would be a barrier (Item 14) from pre- (Mean Rank=0.00) to post-test (Mean Rank=3.50), Z =-2.33, *p*=.02.

Table 12

Wilcoxon signed-rank tests for individual items of SEE constructs

Self-Efficacy of Encountering			Median	Mean Rank	Z score	Sig. (2-tailed)
Not smart enough	Item2	Pre-test	2.00	0.00	-2.00	0.04
		Post-test	2.00	2.50		
Not confident enough	Item3	Pre-test	2.00	0.00	-2.24	0.03
		Post-test	3.00	3.00		
Not fitting in at new school or program	Item6	Pre-test	2.00	2.75	-0.55	0.58
		Post-test	2.00	3.17		
Takes a long time to finish the training or schooling	Item7	Pre-test	2.00	2.50	-1.73	0.08
		Post-test	3.00	3.70		
Not being interested in classes/training	Item10	Pre-test	2.00	3.50	0.00	1.00
		Post-test	2.00	3.50		
Not being prepared enough	Item11	Pre-test	2.00	4.00	-1.89	0.06
		Post-test	3.00	4.00		
Lack of motivation	Item13	Pre-test	1.50	0.00	-2.33	0.02
		Post-test	3.00	3.50		

Not talented enough	Item14	Pre-test	2.00	0.00	-2.33	0.02
		Post-test	3.00	3.50		
Lack of study skills	Item19	Pre-test	1.50	0.00	-1.73	0.08
		Post-test	2.00	2.00		
Not being able to get into program I want	Item21	Pre-test	2.00	3.50	-0.82	0.41
		Post-test	3.00	3.50		
Not wanting to move away	Item24	Pre-test	1.50	4.00	-0.38	0.71
		Post-test		2.00		

No significant results were found for SEO scale (Table 13).

Table 13

Wilcoxon signed-rank tests for individual items of SEO constructs

Self-Efficacy of Overcoming			Median	Mean Rank	Z score	Sig. (2-tailed)
Not smart enough	Item29	Pre-test	2	3.50	-1.63	0.10
		Post-test	3	3.50		
Not confident enough	Item30	Pre-test	2	3.50	-1.63	0.10
		Post-test	3	3.50		
Not fitting in at new school or program	Item33	Pre-test	2.5	3.88	-0.26	0.79
		Post-test	2	4.17		
Takes a long time to finish the training or schooling	Item34	Pre-test	2	2.00	-0.38	0.71
		Post-test	2	3.00		
Not being interested in classes/training	Item37	Pre-test	2.5	2.00	-0.58	0.56
		Post-test	2	2.00		
Not being prepared enough	Item38	Pre-test	3	2.25	-0.18	0.85
		Post-test	3	2.75		
Lack of motivation	Item40	Pre-test	2	2.50	-1.19	0.23
		Post-test	3	4.00		
Not talented enough	Item41	Pre-test	2	3.00	-1.93	0.05
		Post-test	3	4.17		
Lack of study skills	Item46	Pre-test	2	3.00	0.00	1.00
		Post-test	2	1.50		

Not being able to get into program I want	Item47	Pre-test	2	5.00	-1.14	0.26
		Post-test	3.5	4.33		
Not wanting to move away	Item51	Pre-test	2.5	2.50	-1.07	0.29
		Post-test	2	1.00		

In PLE scale (Table 14), the following responses showed significant difference between pre- and post-test: students felt more likely to feel that "School too stressful" would be a barrier (Item23) from pre-test (Mean Rank=0.00) to post-test (Mean Rank =3.00), Z =-2.12, *p*=.03 and students felt more likely to believe that "Not knowing what kind of school or training I want" (Item 20) from pre-test (Mean Rank=0.00) to post-test (Mean Rank=3.50), Z =-2.27, *p*=.02.

Table 14

Wilcoxon signed-rank tests for individual items of PLE constructs

Likelihood of Encountering			Median	Mean Rank	Z score	Sig. (2-tailed)
Not enough money	Item1	Pre-test	3.00	2.00	-0.38	0.71
		Post-test	3.00	3.00		
Friends don't support my plans	Item4	Pre-test	1.00	2.00	-1.73	0.08
		Post-test	1.00	0.00		
Having to work while in school	Item5	Pre-test	2.50	4.00	-1.13	0.26
		Post-test	3.00	4.00		
Being married	Item8	Pre-test	2.00	2.50	-1.84	0.07
		Post-test	1.00	0.00		
Teachers don't support my plans	Item9	Pre-test	1.00	1.00	-0.45	0.66
		Post-test	1.00	2.00		

Not enough money	Item12	Pre-test	2.00	3.00	-1.34	0.18
		Post-test	3.00	3.00		
Pressure from boy/girlfriend	Item15	Pre-test	1.00	1.50	-0.82	0.41
		Post-test	1.00	2.25		
Sex discrimination	Item16	Pre-test	1.00	1.00	-0.45	0.66
		Post-test	1.50	2.00		
Racial/ethnic discrimination	Item17	Pre-test	1.00	2.25	-0.82	0.41
		Post-test	1.50	1.50		
Pregnancy/having children	Item18	Pre-test	1.50	3.25	-1.51	0.13
		Post-test	1.00	2.00		
Not knowing what kind of school or training I want	Item20	Pre-test	2.00	0.00	-2.27	0.02
		Post-test	3.00	3.50		
Parents don't support my plans	Item22	Pre-test	1.00	1.50	-1.34	0.18
		Post-test	1.00	0.00		
School too stressful	Item23	Pre-test	2.00	0.00	-2.12	0.03
		Post-test	3.00	3.00		
School/program very expensive	Item25	Pre-test	3.00	3.00	-1.67	0.10
		Post-test	4.00	3.60		
The schooling/training I want not available here	Item26	Pre-test	2.00	4.00	-0.53	0.60
		Post-test	2.50	3.25		
Others don't think I can do it	Item27	Pre-test	1.00	3.00	0.00	1.00
		Post-test	1.00	1.50		

In PLO scale (Table 15), the following responses showed significant difference between pre- and post-test: Students felt it easier to deal with "Being married" (Item 35) from pre-test (Mean Rank=3.00) to post-test (Mean Rank=0.00), Z =-2.01, *p*=.04; and students felt it harder to deal with "School too stressful" (Item 50) from pre-test (Mean Rank=0.00) to post-test (Mean Rank=3.00), Z=-2.01, *p*=.04. students felt it more difficult to deal with "School/program very expensive" (Item 52) from pre-test (Mean Rank=0.00) to post-test (Mean Rank=3.00), Z =-2.01, *p*=.04.

Table 15

Wilcoxon signed-rank tests for individual items of PLO constructs

Likelihood of Overcoming			Median	Mean Rank	Z score	Sig. (2-tailed)
Not enough money	Item28	Pre-test	3.00	3.75	0.00	1.00
		Post-test	3.00	2.50		
Friends don't support my plans	Item31	Pre-test	1.50	3.50	-0.82	0.41
		Post-test	1.00	2.25		
Having to work while in school	Item32	Pre-test	2.00	3.50	-1.27	0.21
		Post-test	3.00	4.20		
Being married	Item35	Pre-test	2.00	3.00	-2.07	0.04
		Post-test	1.00	0.00		
Teachers don't support my plans	Item36	Pre-test	2.00	1.50	-1.29	0.20
		Post-test	1.00	2.83		
Family responsibilities	Item39	Pre-test	2.50	1.50	0.00	1.00
		Post-test	2.50	3.00		
Pressure from boy/girlfriend	Item42	Pre-test	1.50	2.83	-1.29	0.20

		Post-test	1.00	1.50		
Sex discrimination	Item43	Pre-test	1.50	2.25	-0.82	0.41
		Post-test	1.50	1.50		
Racial/ethnic discrimination	Item44	Pre-test	1.50	3.00	-0.41	0.68
		Post-test	1.50	3.00		
Pregnancy/having children	Item45	Pre-test	2.50	2.00	-1.60	0.11
		Post-test	1.00	0.00		
Not being able to get into program I want	Item48	Pre-test	3.00	2.00	-0.58	0.56
		Post-test	3.00	2.00		
Parents don't support my plans	Item49	Pre-test	2.00	2.63	-0.82	0.41
		Post-test	1.00	4.50		
School too stressful	Item50	Pre-test	2.50	0.00	-2.07	0.04
		Post-test	3.00	3.00		
School/program very expensive	Item52	Pre-test	3.00	0.00	-2.06	0.04
		Post-test	4.00	3.00		
The schooling/training I want not available here	Item53	Pre-test	2.50	1.75	-0.55	0.58
		Post-test	2.50	3.25		
Others don't think I can do it	Item54	Pre-test	2.00	3.50	-0.74	0.46
		Post-test	1.00	1.50		

Table 16 and Table 17 show the descriptive analysis and Wilcoxon signed-rank tests on construct Levels. It showed there is no significant difference on student scores of all four constructs (i.e., SEE, SEO, PLE and PLO) across pre- and post-test.

Table 16

Descriptive Analysis by Self Efficacy Constructs and Perception of Educational Barriers Constructs across Pre- and Post-test

		Pre-Test		Post-Test	
Constructs	n	mean	SD	mean	SD
SEE	8	21.75	6.52	27.38	3.50255
SEO	8	24.625	10.76	27.13	6.74934
PLE	8	31	8.49	32.75	5.72588
PLO	8	37.75	13.75	35.13	7.14018

*Note. SEE is Self-Efficacy of Encountering; SEO is Self-Efficacy of Overcoming; PLE is Perception of Likelihood of Encountering; PLO is Perception of Likelihood of Overcoming.

Table 17

Wilcoxon signed-rank tests for four constructs

Constructs		Median	Mean Rank	Z score	Sig. (2-tailed)
SEE	Pre-test	21.50	2.50	-1.82	0.07
	Post-test	28.00	5.17		
SEO	Pre-test	25.50	4.25	-1.33	0.18
	Post-test	28.50	4.58		
PLE	Pre-test	28.50	3.67	-0.98	0.33
	Post-test	33.00	5.00		
PLO	Pre-test	37.50	5.00	-0.28	0.78
	Post-test	33.00	4.00		

*Note. SEE is Self-Efficacy of Encountering; SEO is Self-Efficacy of Overcoming; PLE is Perception of Likelihood of Encountering; PLO is Perception of Likelihood of Overcoming.

Qualitative Results.

Themes.

This section illustrates the themes that emerged from the participants' mentoring experiences and my observations of our interactions. Four themes emerged from

participant narratives. They are support, stress, confidence/self-efficacy, and goals, and are shown in Table 18, along with the identified codes and frequency.

Table 18

Thematic Map

Theme	Code	Frequency
Support	family, friends, faculty	Student Field Notes: 25 Journal: 13 Focus Group 1: 12 Focus Group 2: 25 Total: 75
Stress	time management, stress management, time, stress, external pressure	Student Field Notes: 21 Journal: 38 Focus Group 1: 5 Focus Group 2: 4 Total: 68
Confidence/Self-Efficacy	persistence, retention, efficacy, confidence	Student Field Notes: 63 Journal: 11 Focus Group 1: 1 Focus Group 2: 4 Total: 79
Goals	action plan, networking, PH field, graduate school, referral, professional development	Student Field Notes: 64 Journal: 121 Focus Group 1: 21 Focus Group 2: 25 Total: 231

The "support" theme provided details about the roles of family, friends, and faculty in the participant's academic and personal life. This includes emotional support, the actions people take to make others feel cared for, instrumental support, physical care including money, and informational support, providing information to assist someone. The "stress" theme illustrated the common stressors that participants felt that caused them various levels of distress, and the various actions taken to include relaxation factors to counteract such stressors. The "confidence/self-efficacy" theme referred to the participants' perceptions on their abilities to complete their academic programs successfully, including individual classes and assignments, and their ability to overcome perceived and real barriers. The "goals" theme describes the various activities taken and aspirations of participants to successfully complete their academic program and meet their post-graduation aims.

Support.

The "support" theme provided details about the roles of family, friends, and faculty in the participant's academic and personal life. This theme includes emotional support, the actions people take to make others feel cared for, instrumental support, physical care including money, and informational support, providing information to assist someone.

Faculty support, in this case as the mentor, was found to be beneficial to the participants. Participant 2 said that the "courage and then support was so helpful in this program" and that she did not "even want it to end." By the end of the mentoring program, Participant 2 felt that she "needed the push and support" from a mentor and that "without it [she] doesn't feel like [she] could have done it." Participant 5 shared that the

"aspect of somebody believing in your…somebody tells you that you're like 'oh my God, so I'm awesome, I can do this.'" When asked what was beneficial about this program, Participant 5 also said, "everything was beneficial. Sharing my personal life was important. I spent the whole week without talking to anyone about what I was going through, but then I come in to see my mentor and I could talk to her." Participant 4 also revealed that "meeting with Lauren makes me feel more relieved and less lost. I now have someone to go to for questions or help on anything. I just feel like I gained more support and confidence in this whole college thing that is so intimidating." Participant 4 said, "I feel like my confidence has increased because I have support from people in the field and I don't have to figure out everything on my own." Participant 2 shared that, "it was nice to be able to open up to someone so caring and genuinely interested in my life." Similarly, Participant 4 expressed after one meeting, "I believe more that I will complete my academic program because of the guidance and tips I am receiving from my mentor."

Many of the participants acknowledged the importance of family support, and many of them had particularly close relationships with their parents; however, parental guidance was found to be lacking. Participant 6 spent several weekends during the length of this study at her parents' home. It was important for her stress management to be around her parents and siblings who were also preparing for their various exams. Her mom is "her best friend" and needs her to "vent to and destress." Participant 7 observed that her mom "didn't ever really go to college and she knows that I can do it, but she doesn't have any guidance, or she can't help me at all with how to go about doing it. And my dad, he definitely has a lot of support for me, just a lot of pressure." Participant 5 also observed, "you might have your family but they're not going through the same thing as

you if they didn't graduate college or even take the same major as you. I mean when they went to college, that's completely different than how we are now." Participant 3 also had difficulties with her parents understanding her post-graduation path, which includes the Peace Corps, stating, "my parents don't understand what I am doing. They think I am going to die and they don't want me to ever leave home." Participant 1 had significant difficulties with her parents throughout this program. Her parents had little confidence in her abilities to complete her academic program, accused her of abusing prescription drugs, and at one point, staged in intervention for the perceived drug abuse. As a result, she isolated herself from other friends and family. This was particularly difficult to reestablish social and familial support due to the emotional nature of the situation.

Stress.

The "stress" theme illustrated the common stressors that participants felt that caused them various levels of distress, and the various actions taken to include relaxation factors to counteract such stressors. Participants demonstrated stress due to varying perceived barriers. It must be noted that in every one-on-one meeting with the participants, there was a discussion on how to manage high levels of stress. This included time management strategies, prioritization of tasks, and how to maintain a healthy balance between school, work, and personal life. Other stress techniques included meditation, breathing exercises, physical wellbeing and health, and emotional health.

Often, coursework and finishing the program was the main cause of unease. Participant 8 shared, "I was telling her how stressed I was with schoolwork coming up and she helped me come up with a plan on how to tackle certain assignments." Participant 3 said, "I am close to finishing and it is nice to know that I have some extra

support to finish off the semester. I have a very difficult semester so that causes me some stress in relation to successfully finishing my degree." Participant 1 "I am very stressed about the exam but talking through my feelings about it with [my mentor] helped me." Participant 8 found that she was overwhelmed with responsibilities. She described this saying, "one of the main things I got out of the meeting is making sure I am managing my time, but also not putting too much on my plate. I need to make sure I have some time for myself too." Participant 6 felt similarly. "My confidence is somewhat better than before, because the conversation and session with my mentor, helps me organize and plan out things way before, so that I do not get overwhelmed. With this progress, I strongly believe that my achievable goals for this academic year will be possible."

Another barrier that caused a significant amount of stress was financial constraints. Participant 2 shared, "I feel like money is my biggest barrier, but the program I am looking at is very manageable and will lead me into a career that will support me enough to pay off any loans I have in a reasonable amount of time." Participant 4 stated that, "at this time finances are a big barrier as I am currently not working and bills and tuition need to be paid, which puts a stress on school." Participant 6 also expressed that, "I also worry about affording school and landing a good job after graduation." Participant 1 said, "it also needs to be taken into consideration money as it would be expensive not only to apply for schools through SOPHAS but also the individual schools themselves." Participant 7 was a bit more confident in her ability to find future funding for graduate school by sharing, "I also worry about affording school and landing a good job after graduation- I am still a little worried about this, but confident in finding grants and financial aid."

There were special circumstances for two of the participants during this program. Participant 5's mother died unexpectedly a few weeks prior to the start of the program. This caused extreme duress for her due to the loss and additionally, she had to make up school work due to her absence of needing to travel abroad for the funeral. Participant 1 also had difficulties, as mentioned above, with her perceived lack of family support due to mental health issues. Often, the meetings with these two participants gravitated towards managing these particular stressors.

Confidence/Self-Efficacy.

The "confidence/self-efficacy" theme refers to the participants' perceptions on their abilities to complete their academic programs successfully, including individual classes and assignments, and their ability to overcome perceived and real barriers. The participants felt like the mentoring program helped in building their confidence. Participant 2 said in, "just after one meeting I already feel like I have more confidence, it is very helpful knowing you have someone mentoring you and helping you through this process". Participant 8 said, "I have developed a picture that, with the guidance, we will be able to go around the barriers with prior planning." In particular, after one meeting about professional development and building strengths, Participant 2 shared that,

> "After this meeting I felt more comfortable with my networking abilities. Working through techniques for connecting with other professionals was very helpful. I think at this point confidence is something that stands in the way. It can be difficult when starting out as a young professional and it's hard not to feel uncomfortable."

Other participants found that their confidence levels were increasing. Participant 6 said, "I do believe I will overcome the stress and work load." Participant 1 reflected that, "I feel more confident in myself right now as well and am starting to doubt my abilities less." Others did not see potential barriers as major obstacles anymore. Participant 7 said, "I don't currently see any barriers to finishing and feel confident in my ability to get it all done." Participant 6 said, "I feel more hopeful about the upcoming days of the semester. Barriers include my own personal attitudes and afflictions. I believe I can overcome them and wish this was a longer program." Participant 6 was not the only to recognize her personal attitudes impacting her belief in her ability to accomplish her goals. Participant 1 said, "it's a lot of my only personal problems like stress management and time management and other factors like that, or just building up my confidence in myself, for being able to complete what I want to do. So I feel like that helped me with my academic progress a lot because I feel like I can do this now. I don't know. I feel like a lot more confident on those levels too other than just doing well in school."

Goals.

The "goals" theme describes the various activities taken and aspirations of participants to successfully complete their academic program and meet their post-graduation aims. Activities included developing an action plan detailing short- and long-term goals, exploring the public health and health fields in more detail, and detailing the path to various graduate programs. Many of the one-on-one meetings focused around setting and achieving goals. Participant 7 shared, "… I feel like I have a clear direction to get to my goals now. I know exactly when it needs to be done." Similarly, Participant 8 stated, "for me, I kind of knew what I want to do. I just didn't know how to get there. So,

when we broke down the goals, it was more like broken down it to pieces and then described even better on how to attain those goals which I thought was really helpful. Then we planned the actual plan, the one we attained with more detail with the smart goals and objectives that pretty much tied everything together." Additionally, Participant 8 reflected, "I didn't have a concrete plan of the steps I needed to take, to get me beyond the graduation, and [Lauren] help me create that plan." Participant 7 shared, "I feel like I have no idea what I am doing when it comes to college (I am a freshman) and I don't know which direction I am supposed to be headed. I know what I want to do, just not exactly all the steps to get there."

After setting plans and goals, the participants felt excitement and less stressful. Participant 8 said, "it was very informative and I feel more like I have a better life plan. I have more direction with school and have more of a concrete academic plan. I am happy to have talked about goals for the future. We talked about goals relating to my personal life and my academic life." Participant 4 said, "after this meeting I feel very excited and inspired to accomplish my goals." Additionally, Participant 5 shared, "I also feel great moving forward, I now have a plan to focus on, I can plan my time accordingly and work towards my goals… I strongly believe that my achievable goals for this academic year will be possible." Participant 3 said that it "felt safe opening up and creating goals with [my mentor]."

When asked in the focus group if they felt like they made progress towards their academic goals, all participants said yes. Participant 4 wished she "would've done some stuff like this during her freshman year." Participant 1 agreed but wanted to do more. She shared, "I feel like I didn't get as much done as I could have, but it's also because I got a

lot of curve balls thrown at me recently. But I'm still focusing and one of my main goal was to get a good grade in Chemistry. I've developed better study skills, discipline all my area."

Programmatic Feedback.

All but one of the participants had not worked with a mentor previous to this study. Part of the first meeting was to discuss the various advantages and disadvantages of a mentor and a mentoring relationship and characteristics of a mentor (see Figure 1). Many found that commitment and clear communication was important. Participant 3 said that being committed to each other was paramount, that she did not want to "invest more time than they do" since it would make her feel like she "was bothering and bugging them". Participant 4 echoed this sentiment in that committing time was important and having open communication would prevent her from feeling like it would be difficult to talk and open up. Participant 6 also discussed the need for both the mentor and mentee to have open and honest communication. This shows "respect" for one another and would allow for frank feedback. Participants 3, 4, 5, 7, and 8 all described the need for a mentor to share their experience with mentees. They expressed that being able to talk to someone who has worked in their respective field and who has graduate degrees would help them identify and accomplish their own goals.

Another aspect of a good mentor is someone who can keep their mentee accountable. This aspect was not only discussed in the individual meetings, but also in each of the focus groups. Participant 5 shared that this program "was helpful because it really kept you accountable for doing things that you have to do outside of your school, your job, or whatever. To be accountable for career development things that you probably would push off." Participant 6 said, "I think that [mentoring] also make me accountable

[since] I would have to follow-up with you." She acknowledged that she wanted to accomplish her goals for herself, but it can be "hard to self-motivate" and "knowing that you are there to be the motivator and to follow-up with me… has been really helpful."

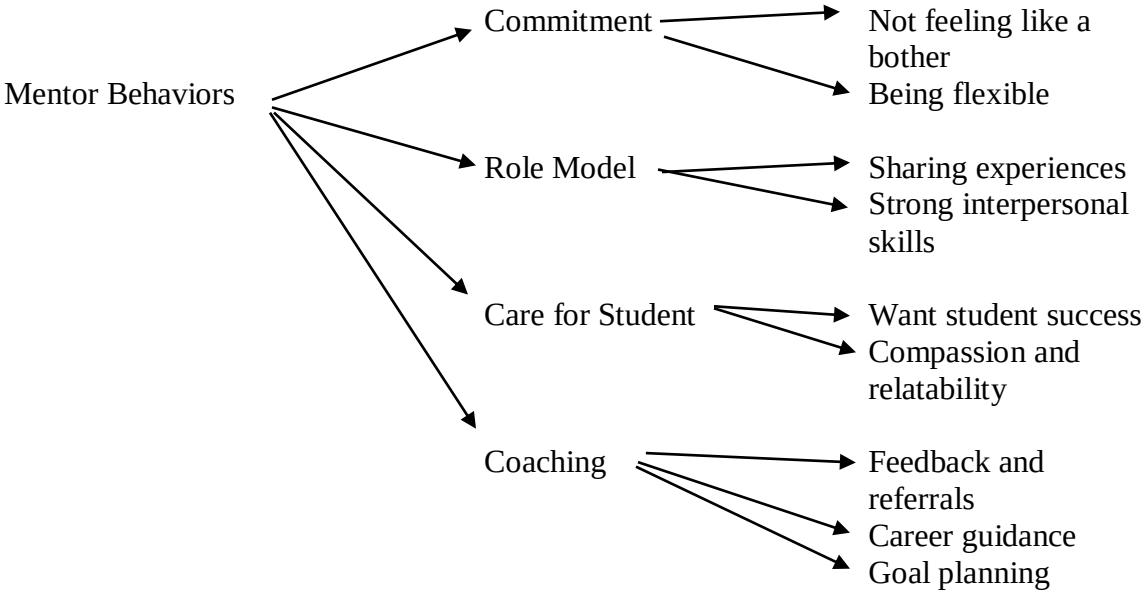

Figure 1. Mentor Behaviors

The themes and discussions from the focus group discussions, journal, and field notes are described in Table 19. It compares the perceptions of the mentor and the mentees regarding common themes.

Table 19

Themes and discussions from focus group discussions, journal, and mentee field notes and perceptions of the mentoring program

Theme/ Discussions	Mentee Perceptions	Mentor Perceptions
Support	Provide personal guidance Provide motivation and encouragement to mentee	Provide career, academic, and personal guidance Act as a role model Help mentees realize their strengths and minimize weakness
Personality Traits of Mentors	Field experience Respect Commitment to relationship Flexible and responsive communications	Share professional- and academic-related experiences Mutual respect, empower mentees Commitment to relationship Flexible and responsive communications
Goals	Determine next steps Learn more about the field	Help develop action plan, SMART goals Share experiences, webinars/trainings, professional development, give referrals
Stress	Help with time management Help reduce stress	Develop study tools, Help manage stress levels

In the focus groups, participants were asked how they felt about the mentoring program in general. Participant 5 said that she feels "more confident in moving forward" in accomplishing her goals. Participant 6 agreed saying that she did not have a plan beyond graduating and that it was helpful to determining specific steps to take. Participant 1 said, "I think it's super beneficial. I got a lot out of it, a lot more than I

probably thought that I would get out of it. And it's something that I think I want to continue doing with you, mentoring." Participant 7 shared, "I also didn't expect it to help as much as it did. I thought it was just kind of something we'll do. Maybe if it worked out, then it would be fun. Also, I thought it would be interesting to see what it actually was, but it ended up helping a lot."

Participants found that developing an action plan was one the most beneficial aspect of the program. Most participants have developed SMART goals in other classes previously; however, in this program, these goals were applied and received differently. Participant 7 described,

> "For me, because I've done these smart goals thing in other classes and I hated it. But when we broke it down with you, when I broke down the smart goals with you, I feel like I got way more out of it because we broke down exactly what steps I needed to take to accomplish these goals and different strategies for accomplishing them. So, I feel like I have a clear direction to get to my goals now. I know exactly when it needs to be done. I'm already working towards that as a freshman. I feel like it will just help me a lot by the time I'm a senior because, I don't know, I'm just starting early for getting everything done.

Participant 4 discussed that she liked getting to know a professor on a personal level. She said that she did not have this kind of relationship with her other professionals and that "it was just really cool to get to know some of the professional and the field that want to go into, and really talking about all the different things that I'm excited about that a lot of other people don't understand. And then, you totally get it. We get to have fun

talking about it and then just get me that much more excited." Participant 6 said it was "just a good experience to getting to know you, but to continue to our conversations and chat, and grow our relationship on a professional and mentoring level.

The structure of the program was also discussed in the field notes and in the one-on-one sessions. One participant, Participant 5, felt the one-hour long meetings were too short and that they should be closer to two hours on a weekly basis. The rest of the participants found that the hour-long meetings fit their needs. There was not a consensus on how often the meetings should be with the group split with five participants wanting to meet every other week, and three wanting to meet every week. They all did agree on the program being extended to one semester, with an option to prolong it to the following semester. Two participants shared the idea that freshman should be assigned a mentor during their first year, and then again during their senior year. Others felt that the mentoring program would be most beneficial for second semester juniors and first semester seniors. The reasoning for having mentors during the freshman, junior, and senior years is that students were at their most turbulent due to transitions. First, coming into college for the first time as a freshman, and then preparing for post-graduation and entering the workforce or additional schooling as juniors and seniors.

Another idea shared was to implement a group mentoring meeting once a month in addition to the one-on-one meetings. These meetings would be open to all mentees in the program and could be tailored to fit their specific needs, such as offering guidance on applying to graduate school, resume building, informational sessions on the various aspects of the field, and having professionals come to speak to the mentees. The participants expressed that this would allow for additional support from their peers and an

opportunity to share their experiences with each other. Participant 3 said, “group meetings like once or twice a month just to get other perspectives because if you're in an individual meeting, you're only going to work out your goals and objectives. Whereas if you have a focus group meeting, more people could bring in their own ideas that you might have not thought about and vice versa to other people, which I think is a really good idea.” There was a concern about the possible pitfall of negatively comparing themselves to others and where they are in their personal path. Participant 6 described group meetings as having the potential as being both positive and negative. “Good for support, but bad since I could see myself comparing to others and being competitive. I would tear myself down if I’m not as far along as others or if others have a better resume than me.”

Summary of Findings

Analysis of the quantitative data indicated that the intervention significantly reduced several aspects of perceived barriers to college completion and improved several dimensions of self-efficacy. Students found that they were more likely to encounter the following barriers at the end of the intervention: not being smart enough, not being confident enough, not being talented enough, and having a lack of motivation. There were not any significant findings of students’ self-efficacy of overcoming these or other educational barriers.

Students felt that they were more likely to feel school was too stressful before the intervention than after; however, they felt more confident in their ability to overcome this stress after the intervention. Students also felt that it was more likely to not know what kind of school and training they wanted after the intervention as compared to before. Students felt that it was easier to be married before the intervention than after the

intervention. Additionally, students felt it was more difficult to overcome the financial cost of schooling from before the intervention compared to after.

Students' self-efficacy of encountering educational barriers showed a significant strong positive correlation with students' perception of likelihood of encountering educational barriers and there is a strong correlation between students' self-efficacy of overcoming with students' perception of likelihood of overcoming educational barriers in the pre-test. However, the quantitative results did not show any influence of the mentoring program on at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college using responses in post-test.

Analyses of the journal, field notes, and focus group responses revealed that the participants in the program found that they had an improved academic experience and more confidence in their ability to complete their academic programs and being successful in future endeavors. Common themes were support, stress, goals, and confidence/self-efficacy. Support included family, friends, and faculty support. Increased perceived levels of support indicated increase levels of self-efficacy beliefs. Stress included time management, stress management, time, stress, external pressures, and study techniques. When participants reported more stressors, their self-efficacy beliefs tended to suffer, especially their locus of control. Goals included academic development action plans, goal setting, professional development, graduate school, networking, and referrals. Confidence/self-efficacy included persistence, retention, efficacy, and confidence. Students with higher levels of social support, lower levels of stress, better techniques to manage stress and time, and clearer, more defined goals had higher levels of confidence and self-efficacy.

Chapter 5

Discussion

Introduction

The purpose of this study is to understand how a mentoring program affects the self-efficacy of at-risk students, and how mentoring and self-efficacy relate to perceptions of college-going success of at-risk students in Public Health and closely-related fields. The study will provide insight from the perspective of both students and a faculty mentor on how to improve at-risk students' abilities and likelihood of degree completion. This study was prompted by ASU's College of Health Solution's emphasis on increasing student engagement and retention. As an action research study, the goal was to understand what barriers are perceived by students when completing their academic programs and develop an effective intervention program aimed at increasing self-efficacy. The data collected, including student field notes, focus group interviews, and surveys, provided insights into student perceptions and valuable responses to intervention. This will inform ways of supporting our students within the College in the future. Additionally, the results of this study will be beneficial to researchers and instructors of diversity education and health-related fields, educational policy-makers in general, and help guide professional practice that will support the learning of high-risk students. The findings from this study will help those decision-makers consider and implement innovative tools for serving these students to promote the achievement at the College.

The following research questions guided this study:

(1) What is the relationship between self-efficacy and perceived barriers to college completion for at-risk undergraduate students in the Public Health program at Arizona State University?

(2) How does participation in a mentoring program influence at-risk Public Health students' self-efficacy and their perceptions of barriers to finishing college?

This chapter contains a discussion of the study's results, as well as the lessons learned, implications for practice and research, study limitations, and concluding thoughts.

Discussion of Results

This study evolved from an action research cycle of interviewing key leaders within the College to exploring the role of mentoring and self-efficacy amongst students. The results of this study include findings relating to how a mentoring program affects students' perceptions of barriers for completing their program and their confidence levels.

Barriers. The mentoring program targeted four key dimensions related to at-risk students. The "support" theme that emerged from the qualitative data provided details about the roles of family, friends, and faculty in the participant's academic and personal life. This includes emotional support, the actions people take to make others feel cared for, instrumental support, physical care including money, and informational support, providing information to assist someone. It may be noted that having these mentoring aspects is seen as the ideal. Many times, mentoring may create a negative experience for participants. In Ragins (2016), she reviewed this idea and found that most mentoring relationships revolve around the focus of learning and career development, which is the case in this study. She found that most positive mentoring relationships involve

participants reporting closeness, trust, communication, and connection; however, she also described that many relationships are not ideal, and they may vary greatly in delivery, approach, and quality (Ragins, 2016). Social and familial support was found to be crucial to the participants' success and reduction of stress. Faculty support was found to be one of the most beneficial types of support for the participants. This support was not only academic, but also emotional in nature. Participants found that having a faculty mentor gave them accountability to keep motivated and gave them clear direction for their future paths. This aligned with Pike & Kuh (2005) who found that students increased their engagement when they perceived their faculty as supportive. This guidance was valued since often parental support was lacking in that there was a gap in parental and student experiences and knowledge. Participants also wanted a faculty mentor who was committed to the mentoring relationship, acted as a role model, showed they care for the student, and be a coach to help them achieve their goals. Participants saw the program as a way to gain personalized guidance, gain motivation, and be encouraged. This is supported by Ragins (2016) who found that participants in mentoring relationships who are most satisfied in the relationship experiences feeling understood, cared for, and supported. This personalized approach reflects a high-quality relationship as it meets their needs.

Goal Setting and Achievement. The "goals" theme describes the various activities taken and aspirations of participants to successfully complete their academic program and meet their post-graduation aims. Goals were discussed at almost every mentoring meeting and was found in all the qualitative data. To develop such goals, a discussion was held with the participant, most during the first meeting, to assess the

student's strengths and weaknesses, as well as abilities and skillsets. This aspect is supported by Crisp & Cruz (2009), which is important in creating goals and decision-making. Participants valued specified their goals and even more, the plans on how to accomplish such goals. Activities including the academic action plan and mentoring goals development were held in high esteem. Having goals set appeared to help reduce the levels of stress for participants, as well as build their confidence. As mentioned elsewhere, after setting plans and goals, the participants had more positive feelings towards being able to manage their workloads and accomplish such goals. This is similar to the literature in which self-efficacy and academic goal definition increased when students were involved in a mentoring relationship with their faculty (Santos & Reigadas, 2002).

Additionally, students felt that not knowing what type of training or schooling they wanted to pursue after completing their current academic program would be more of a barrier after the mentoring program. This emphasizes the need to create academic action plans and other goal-setting techniques to increase their perceived abilities to overcome this barrier. This is supported by Henry, et al. (2011) which also found that mentoring helped give support for goal-setting and selection of a career path.

Stress. The "stress" theme illustrated the common stressors that participants felt that caused them various levels of distress, and the various actions taken to include relaxation factors to counteract such stressors. Stress was a common theme throughout the program. Coursework, lack of time, and money were often at the heart of reported stress. Participants circled back to the need for support to know how to best mitigate stress. This included techniques for stress and time management, seeking out professional

mental health care, and advising students on how to approach difficult family situations. Finishing coursework and their academic programs successfully were additional sources of stress. With goal setting, time management, and other stress management techniques, the perceptions of stress were reduced. This may explain the quantitative results that showed that students felt more likely to be able to overcome stress caused by school even when they still perceived they would encounter stress as a barrier.

One such aspect that was more difficult to address was financial stress, and according to the quantitative results, students perceived financial issues and stress as more likely to be overcome after the mentoring program. It is important to note that students still perceived that financial barriers would be encountered at the end of the program, but they would be easier to overcome. Most participants were either employed or in search of employment during the program. The cost of schooling impacting their daily lives and occupied much of their thoughts of the future, in particular in relation to graduate school. Since this program did not give any financial support, instruction on how to navigate employment searches and promote their resumes and cover letters were offered. Other studies have found that goals are lowered or abandoned due to difficulties, such as financial burdens, academic challenges in higher education, and social factors (Bloomer and Hodkinson, 2000), so ensuring financial stress is addressed is critical.

Self-Efficacy. Referring to the pre-test, participants felt that several dimensions of self-efficacy, i.e., not being confident enough, lacking motivation, and not being talented enough were issues. However, when asked in the post-test if these would still be barriers, fewer participants reported not being confident enough as a barrier, most participants did not see lack of motivation as an issue at all, and all reported that not being talented

enough was either not a barrier at all or they did not see it as becoming a barrier. For those who reported a lack of motivation in the post-test, they felt they were likely or somewhat likely to overcome this barrier. The same was reported for lack of confidence. Self-efficacy in particular was tied to social and familial support, as well as total educational barriers in the pre-test. Results showed that there was a strong positive correlation between students' perception of likelihood of encountering educational barriers and their self-efficacy of overcoming barriers in the pre-test.

The qualitative data also supported the impact of the mentoring program on students' self-efficacy. Students reported that the mentoring program helped build their confidence and their belief in their abilities. This includes their ability to perform difficult or unusual tasks, but also in their ability to overcome barriers. The "confidence/self-efficacy" theme referred to the participants' perceptions on their abilities to complete their academic programs successfully, including individual classes and assignments, and their ability to overcome perceived and real barriers. This is similar to Hayes (1998) who found that mentoring relationships increased students' confidence and their ability to take on the higher demands of chosen career paths. Additionally, Lent et al (1984) showed that students with higher self-efficacy beliefs achieved higher grades and persisted longer in the major. Participants in this program held the belief that they would successfully complete their academic programs; however, this study concluded prior to the collection of graduation data. Lent et al (1984) did demonstrate that higher levels of self-efficacy were associated with higher levels of interest, which this study showed in its qualitative data. The participants stated that their perceptions on their ability to overcome barriers had increased. They were more confidence in being able to approach and overcome

barriers. With goal setting, they felt reduced stress levels and thus increased their confidence levels. Many participants felt that they did not feel they had the same barriers as before the program. This supports the idea that mentoring increases mentee's self-efficacy (Ismail et al, 2015).

The findings in this study support Bandura's (1977, 1997) Self-Efficacy-Theory in that someone with higher self-efficacy beliefs are more likely to approach and perform a given behavior and will more likely persist with that behavior until it is successfully completed. As discussed early, self-efficacy comes from four primary sources of information: performance accomplishment, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). This mentoring program spoke to these various aspects. In the first meeting, I discussed the various strengths and opportunities of each participant. By discussing their strengths, this helped to demonstrate their performance accomplishment by having them acknowledge their previous successes. One aspect of high importance to the participants was having a mentor who had experiences in their field of interest. This vicarious experience gave students the opportunity to have real-world examples of people having success. The next source of self-efficacy is performance accomplishment or enactive mastery. In this study, most participants did not put high value on mastering an exam or assignment. For example, when a participant received a high score on an assignment, they simply moved onto the next assignment and minimized the value of that high score. There was only one exception to this, which was participant 1 who placed extreme worth on getting high grades. It became detrimental; however, when she did not perform as well as she hoped, and it decreased her motivation and confidence. This tied into her physiological state where she allowed her

disappointment to influence her self-efficacy beliefs. Lack of familial support, or even opposition, was a source of distress as well that negative influenced self-efficacy beliefs. Overall, participants appeared to have put highest value on much larger goals and accomplishing those. An example was getting into graduate school and the various objectives that were needed. Once an application was complete, then they felt more confident in what they had accomplished. Lastly, verbal persuasion was seen during this mentoring program in the form of faculty support. It was discussed during the focus groups the importance of having a faculty mentor who gave individualized support and encouragement.

Personal Lessons Learned

In this section, I reflect on my efforts completing this action research study. Throughout the beginning of the process, which began three years ago, I have grown in many ways as a researcher, an educator, and a leader. One of the key lessons I have learned is the need to have a mentor for myself. While I often act as the mentor for students and young professionals through my roles at ASU and within the public health community, I too need guidance in my own endeavors. I find that I mirrored some of the sentiments discussed in the focus groups amongst the participants. That is, I find it helpful and encouraging to have a someone to ask questions to and to have reassurance that I am on the right track to completing my own goals. This ties into my next lesson learned which is people, as this study shows students, feel more secure when they supported by those in their lives. This comes as no surprise of course, but even with my own experience, I feel more able to overcome my own barriers, including giving birth to two children and working full-time during the course of this program, with the support of

my loved ones and my committee members. While not a specific outcome of this study, I observed my personal motivation while learning the necessary skills and knowledge to complete this dissertation. As a student, this meant observing my relationships with my professors and my superiors at ASU. When I felt I had more of a connection with them, I felt more willing to spend time and effort preparing for class and felt motivated to master the material presented to me. Of course, when I had less of a positive relationship, my motivation to do these things waned. This links to my expectation that students should be active participants in their education, along with their educators. This back-and-forth is key to developing a sense of ownership and investment in education.

In addition to the support of my mentor, professors, and committee members, I relied heavily on my cohort. At the beginning of this program, we created a private group on a social media platform to keep connected. This was crucial for communication and building a positive sense of community since this is an online program. We created a safe environment to ask questions, share concerns, and celebration together. I can say without question that without this support I would not have completed this program.

Lastly, my view of what the goal of education has evolved. At the beginning of this program, I felt the goal of education is not necessarily the mastery of material, but rather to encourage students to ask questions and seek answers. My role as an instructor was to facilitate this drive of curiosity and give the tools so students are able to ask the right questions. One way I have done this was to incorporate current events into assignments. So, they need to take concepts they learn from class and apply to their everyday life. I found this style of teaching solidified the course's foundation, while pushing students to think outside the proverbial box. Now, while the overarching goal of

education has not necessarily changed drastically to me, I feel that there is more to education than just critical thinking and the acquisition of course knowledge. I have expanded my thinking to include the responsibility of the educational system to combat inequities. I have always held a social justice aspect to education, including reducing inequities, providing equal opportunities, and so forth, but this program has made me think about the role educational systems on these, not just what I can do as one teacher. Equity has become paramount to me. That is, equity in education is when all students receive the resources and opportunities they need to have to successful complete their education and prepare them for possible future endeavors. Of course, I cannot prepare all students adequately for every line of work they may go into, even with all of them majoring in the same program; however, through support and critical thinking skills, I like to think that I am preparing my students to know where to access information and find needed resources to be successful.

Implications for Practice

The results of this study will be beneficial to researchers and instructors of diversity education and health-related fields, educational policy-makers in general, and help guide professional practice that will support the learning of high risk students. For those instructors, this study can be a practical guide for developing their own mentoring practices. The findings from this study will help those decision-makers consider and implement innovative tools for serving these students to promote the achievement at the university. To do this, it is recommended to expand the mentoring program. Since one faculty member is limited in the number of students they are able to mentor, it is advised that faculty members be recruited to participant in the program. This will allow more

students to be served by the program and to potentially be served better by a more diverse mentoring panel. That is, faculty will be more able to support personalized learning within a larger context. Additionally, the structure of a formalized mentoring program within CHS would allow for increased student involvement and allow for students to develop skills that may serve them throughout their academic and professional careers.

The role of mentor is one that would require training given by CHS. Since the role is ever changing from teacher, motivator, role model, and more, multiple trainings on topics may be necessary. As recommended by the participants, there may need to be a larger network of mentors that will be able to meet the students' needs. Additionally, a professional learning committee may be formed to fit the needs of the mentor to expand on their personal mentoring practices, including sharing of resources and tools.

It is important to note that to properly mentor a student, including the preparation for meetings and the time required to commit may be arduous. Since many students are at varying points in their programs and have different needs, being flexible is necessary. One aspect that this study found is that personalization of the program was highly valued, even comparing it in higher regard to other advising services within the college. Workload needs to be considered when recommending faculty to mentor students. To incentivize faculty to mentor students, I would recommend that faculty be compensated in the form of service, as a requirement for their employment, rather than attaching mentoring to teaching, which is the current practice.

The mentoring program should remain flexibility in its offerings, as the participants claimed this was most ideal. I would recommend that it be offered for one semester with twice a month meetings, with an option to renew the relationship for an

additional semester. Since there are some resources in place offered by the college for freshman, it is recommended to offer this program for second semester juniors and first semester seniors as they often have less resources devoted to them by the college and students are at their most turbulent due to their proximity to graduation. They are preparing for post-graduation, entering the workforce and/or additional schooling during this time.

Due to CHS' student body being a mixture between ground and online programs and students' availability, the meetings should be offered in-person and virtually. To complement the flexibility in offerings should also be a flexibility in activities. Activities should be focused around the students' goals. Based on feedback, an academic action plan and mentoring goals should be a part of each mentoring relationship to guide and measure success. This will be pertinent in evaluating the program's future success. It is recommended that all participants create and develop an academic action plan since students were able to see their goals and objectives clearly laid out. This allows for self-observation, where they will be able to assess their progress towards goal attainment on a continuous basis. It is also recommended that progress be reflected upon shortly after accomplishing a goal or task in relation to other goals and its need to create new goals.

Characteristics and behaviors of a mentor was discussed at length. Part of the first meeting was to discuss the various advantages and disadvantages of a mentor and a mentoring relationship. Many found that commitment and clear communication was important, as these showed respect for the student. The participants wanted to feel that the mentor invested their time in them. It is recommended that faculty mentors engage in

regular and specific communication with their mentees. This includes initiating contact and following up on concerns or issues that arose in previous contacts.

Another important aspect was sharing experiences with the mentees. Faculty mentors should give advice and share stories based on their knowledge and experiences within the field. When the mentor does not have direct knowledge or experience, it is recommended to refer the mentee to another faculty member or colleague in the field who may better serve the mentee in that particular capacity. Sharing experiences, whether it be by the mentor themselves or another professional, helps for mentees to set goals.

A good mentor is one who requires accountability for their mentee. Participants felt that they would not work towards their goals or accomplish tasks if they did not feel like they needed to report back to me about their progress. Specific recommendations from the participants to increase accountability was to give deadlines, have them take notes for the last five minutes of the meeting writing down what we discussed and what needs to be done for next meeting, and give reminder emails or text messages.

As noted in the themes earlier, support was important for the participants. Based on feedback during the focus group discussions and journal notes, it is recommended that, along with expanding the network of faculty mentors available to students, group mentoring meetings be offered once a month. These meetings would be open to all mentees in the program and could be tailored to fit their specific needs, such as offering guidance on applying to graduate school, resume building, informational sessions on the various aspects of the field, and having professionals come to speak to the mentees. The participants expressed that this would allow for additional support from their peers and an opportunity to share their experiences with each other.

Part of support for the mentees comes in the form of developing career-centered skills, including the development of a resume and cover letter. Participants saw this as valuable as it helped to provide tangible skills that they would be able to use after the mentoring program's conclusion. This also encouraged an active reflection of their strengths and weaknesses.

Implications for Research

It is recommended that the study be replicated with a larger sample population. This includes both a larger mentee population, but also mentor population. Additionally, the study should be replicated with a more diverse population to factor how race and sex variables impact the results. There may be more differences in self-efficacy levels revealed with a more parametric population. The study should also be more longitudinal in order to track participants throughout their academic program and post-graduation. This will give vital information about their academic performance and success, and if the mentoring program had impacts on professional and post-secondary educational success. The pre- and post-surveys may reveal more information on self-efficacy and the mentoring program when conducted over longer periods of time.

This study demonstrated a quantifiable difference in self-efficacy before and after the program and the qualitative results did show students perceived their self-efficacy and confidence to be much higher. As demonstrated in the literature review, there have been few studies conducted in similar populations on mentoring and future studies would benefit from the development and/or utilization of a different evaluation tool. Other tools that may be considered is the Caine's Quality of Mentoring Tool (1989). This tool used a Likert scale to evaluate a person who was influential in the participant's career

development. In this setting, the influential person would be the mentor. This tool also evaluated the ways and significance of the mentor's influence. Another tool that may be considered is the Self-Efficacy Scale, which evaluated distress of participants and its impacts on self-efficacy (Hardin, Weinrich, Weinrich, Hardin & Garrison, 1990). This may be particularly useful in addressing the physiological state of self-efficacy (Bandura, 1977). Lastly, the Confidence Scale has been previously used in nursing students regarding various clinical skills (Grundy, 1992).

In terms of the instrument used, I suggest creating skip patterns within the barriers section. That is, if a participant did not see something as a barrier, they would not have to answer if they felt like they could overcome that barrier. This may prevent some inconsistencies and confusion for the participant. The survey instrument would also benefit from incorporating emotional and mental health barriers as the College is directing many of its resources and awareness to such issues.

Additionally, by providing data using a mixed-method approach, this study provides a foundation for other researchers with the intent of increasing self-efficacy through mentoring to build upon. This mixed-method approach is an improvement as most mentoring programs in higher education have been evaluated by only using qualitative data (Hayes, 1998; Huang, 2015; Ismail, et. al, 2015; Morales, 2014; & Morales & Trotman, 2011). Mixed-methods approaches allow for a more comprehensive approach to analysis. Qualitative research may include biases, including quantitative data may offset this weakness. Results for each the qualitative and quantitative aspects help to validate the study. It must be noted that this study only observed those participating in the mentoring program and did not compare them with those not participating in the

program. Thus, a recommendation would be to develop a study in which control and intervention groups are observed. Additionally, having the perception of the mentor incorporated into the study allowed for another facet for interpretation of the results and gives future researchers a basis for considering all participants in mentoring programs.

This study supported much of the existing research on self-efficacy and mentoring. For example, in Hayes (1998), it was found that mentoring relationships increased students' confidence and their ability to take on the higher demands of chosen career paths. Lent et al (1984) showed that students with higher self-efficacy beliefs achieved higher grades and persisted longer in the major. This is similar to this study's participants' views on program and goal completion.

The literature also found that formal mentoring programs can help students develop field-specific knowledge and skills (Kahveci, Southerland, & Gilmer, 2006). That study did not find a significant difference in participants in their mentoring program compared to non-participants in terms of interest or confidence. This current study is in contrast to it as the qualitative data shows a clear increase in interest in the field and higher levels of confidence.

Additionally, a study by Santos & Reigadas (2002) demonstrated self-efficacy and academic goal definition increased when students were involved in a mentoring relationship with their faculty. Students in that study also reported enjoying more personal and career development support. This was also shown in the present study. Another analysis looked at undergraduate business students at a research university in Malaysia (Ismail et al, 2015), and it showed that communication and support given by the mentors within the program were both positively and significantly correlated with the

mentee's self-efficacy. This study's qualitative data showed that self-efficacy increased as well with an increase of mentor support.

Looking back at Campbell and Campbell (2007), there were some similarities between that study's findings and this study. Campbell and Campbell (2007) found that undergraduate students who were paired with faculty mentors had overall higher grade point averages, higher retention rates, and more completed courses compared to those who were not mentored. This study did not evaluate these specific aspects directly; however, one may infer from being more engaged with faculty members that students would be more likely to be retained in the program longer and complete more courses. The qualitative aspects of this study found that students felt more supported to complete their programs and pursue graduate programs, which is a result of the Campbell and Campbell study. One aspect to the Campbell and Campbell study that was interesting was the evaluation of sex and ethnicity pairing. This study did not evaluate these two things directly; however, in the first meetings with several of the participants, it was important to them to have a same sex mentor. Ethnicity was not discussed.

As previously discussed, there are several limitations within the current literature. For example, typically there is a lack of empirical data on collegiate mentoring programs, a universal definition of mentoring, a process for mentoring, and how mentoring contributes to academic success (Jacobi, 1991). Additionally, Budge (2014) supported this in that the research available is incomplete and often methodologically unsound and Crisp & Cruz (2009) showed the continued absence of a consistent definition of mentoring within higher education. Additionally, many studies have focused on small subsets of students, typically nursing students (Aagaard & Hauer, 2003; Atkins &

Williams, 1995; Hauer, Teherani, Dechet, & Aagaard, 2005; and Watson, 1999). This study has contributed to the body of literature by utilizing common themes that define mentoring in an effort to standardize language. It also uses a mixed-methods approach to validate the study's findings and give richer knowledge regarding postsecondary mentoring. This study also contributes to the literature by focusing on at-risk students, outside the most common subsets.

This study aimed at supporting at-risk students in their college-completion goals. As discussed in the introduction, students who fall into high-risk categories while earning postsecondary degrees are less likely to graduate (The Education Trust, 2015). Nationally, students who are White graduate at a rate of 63%, whereas African American students graduate at rates of 41%, Native American students at 41%, and Latino students at 54% (The Education Trust, 2015). This is reflected at CHS as data has indicated that CHS students of color are less likely than others to complete their degrees. According to the National Center for Education Statistics, graduation rates for persons of color with a bachelor's degree after starting their program at CHS is lower than the overall U.S. college average, 56.6% and 60% respectively (U.S. Department of Education, 2017). White students at CHS graduating at a higher rate of 70% compared to the national average and CHS students of color (U.S. Department of Education, 2010). This mentoring program targets at-risk students as they more at risk for not completing their program. This is beneficial to instructors and educational policy-makers at CHS in early intervention methods to help mitigate these factors.

Limitations

There are several limitations to consider when interpreting the results. One such limitation is the notes collected from the students. Since I was their mentor, they may have felt the need to censor their notes before submitting them for analysis. To alleviate this concern, I anonymized the notes by instructing them to send notes to Dr. Molly Ott, the supervising faculty member on the project. Dr. Ott assigned a randomized number to the files and removed identifying information before forwarding the file to me. Due to some of the personal or specific remarks in the notes, when I reviewed them, there were times when I could determine who had written them. I decided to interpret and code these notes at the end of the intervention to prevent any bias throughout the program. I also used existing codes developed after reviewing the focus group transcripts and my journal to code the field notes.

Another limitation was some of the participants having had interactions with me prior to this program. If we have a relationship or history, this may skew their view of mentoring. I took note of this during the analysis, particularly in my own journaling. I did not find a difference between participants who did and did not have a previous relationship with me and their responses to the program. This also may have impacted who decided to participate in the study. Self-selection bias was likely to be an issue in those who had interactions with me previously. Additionally, by not requiring participation across the College, these participants are likely not representative of the whole population.

The sample size of this study is another limitation. Due to the small nature of the study, it was not possible to generalize the findings beyond the direct impact on current

participants. However, these results can be used to inform future research in similarly situated studies. Additionally, given the small sample size in this study, non-parametric Wilcoxon signed-rank tests were applied to examine the significant difference between pre- and post-test responses across all individual items and subscales, as well as, the total score of educational barriers.

Lastly, the length of the mentoring program is a limitation. The intervention was only six weeks long due to my program constraints. Typical postsecondary mentoring programs in previous research was one academic year (Morales, 2014; Morales & Trotman, 2011). Those professional settings varied from one to ten years (Hayes, 1998; Ismail, Abdullah, Zaiedy, Ab Ghani, & Omar, 2015). Future iterations of this mentoring program should be lengthened to at least one semester in response to participants' strong preference.

Conclusion

This study has provided valuable information to the field of education. As demonstrated in the literature review, there have been few studies of the influence that formal mentoring programs have on at-risk college students (with the exception of Campbell & Campbell, 2007). By providing data using a mixed-method approach, this project provides a foundation for other scholars interested in studying the impact of mentoring on students' self-efficacy and perceived barriers to college completion.

Beyond advancing the larger knowledgebase on mentoring in higher education, the most vital contribution of this project was the development of a formalized mentoring program for undergraduates within the College of Health Solutions at Arizona State University. The input from the participants provided critical evidence that will serve as a

guide to assist other programs and instructors in creating and implementing effective mentoring programs for their students. This study showed that the intervention significantly reduced several aspects of perceived barriers to college completion and improved self-efficacy.

As discussed in Chapter One, students who fall into high-risk categories – in terms of identifying with underrepresented race/ethnicities as well as low socioeconomic status – as they pursue postsecondary degrees are less likely to graduate (The Education Trust, 2015). This problem is reflected both nationally and within CHS. The mentoring program at the center of this study targeted at-risk students, as they are less likely to complete their degrees and experience the benefits of higher education. The program described here, and its empirically substantiated outcomes, is beneficial to faculty, administrators, and educational policy-makers at CHS in early intervention methods to better address the challenges that at-risk students face and create tailored support for their educational success.

References

Aagaard, E. M., & Hauer, K. E. (2003). A cross-sectional descriptive study of mentoring formed by medical students. Journal of General Internal Medicine, 18, 298–302.

Allen, T. D., & Finkelstein, L. M. (2003). Beyond mentoring: Alternative sources and functions -of developmental support. *The Career Development Quarterly* 51, pp. 346-355.

Arizona State University (2018). Retrieved from www.asu.edu.

Astin, A. W. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge*. San Francisco: Jossey-Bass.

Atkins, S., & Williams, A. (1995). Registered nurses' experiences of mentoring undergraduate nursing students. Journal of Advanced Nursing, 21, 1006–1015.

Baker, V.L., & Griffin, K.A. (2010). Beyond mentoring and advising: Toward understanding the role of faculty "developers" in student success. *About Campus: Enriching the Student Learning Experience, 14*(6), 2-8.

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

Bandura, A. (1994). Self-efficacy. In R.J. Corsini (Ed.), *Encyclopedia of Psychology*, 2(3), 368-369.

Bandura, A (1997). Self-efficacy: The exercise of control. New York, New York: Worth Publishers.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. Child Development, 72(1), 187– 206.

Becze, E. (2008). Résumé writing, Part 1: Develop a self-inventory. *ONS Connect, 23*(2), 29.

Berbery, M.L. (2013). Investigating predictors of college-going self-efficacy and educational goals for Latina/o high school students. (Doctoral dissertation). Retrieved from University of Maryland, College, ProQuest Dissertations Publishing. 3599594.

Blickley, J.L., Deiner, K. Garbach, K., Lacher, I., Meek, M.H., Porensky, L.M., Wilkerson, M.L., Winford, E.M., & Schwartz, M.W. (2013). Graduate student's guide to necessary skills for nonacademic conservation careers. *Conservation Biology*, 27(1), 24-34.

Bloomer, M. & Hodkinson, P. (2000). The complexity and unpredictability of young people's learning careers. *Education + Training*, 42(2), 68-74.

Bouffard-Bouchard, T., Parent, S., & Larivee, S. (1991). Influence of self-efficacy on self-regulation and performance among junior and senior high-school age students. *International Journal of Behavioral Development, 14*, 153-164.

Brown, L.M. (2008). Say novelty, not novice: Avoiding the résumé mistakes common among young professionals. *Public Relations Tactics, 15*(4), 10.

Brown, S.D., Lent, R. W., & Larkin, K. C. (1989). Self-efficacy as a moderator of scholastic aptitude—Academic performance relationships. *Journal of Vocational Behavior, 35*, 64-75.

Budge, S. (2014). Peer mentoring in postsecondary education: implications for research and practice. *Journal of College Reading and Learning*, 37, 73-87.

Bunting, M. (2018, September). Twelve tips for personal advisors to undergraduate medical students. Paper presented at the 5th International Conference on Faculty Development in the Health Professions in Ottawa, Canada.

Caine, R.M. (1989). Mentoring the novice clinical nurse specialist. *Clinical Nurse Specialist*, 3(2), 76-78.

Campbell, T. A., & Campbell, D. E. (1997). Faculty/student mentor program: Effects on academic performance and retention. *Research in Higher Education*, 38, 727-742.

Campbell, T. A., & Campbell, D. E. (2007). Outcomes of mentoring at-risk college students: Gender and ethnic matching effects. *Mentoring & Tutoring: Partnership in Learning*, 15(2), 135-148.

Carr, P. L., Bickel, J., & Inui, T. S. (2003). *Taking root in a forest clearing: A resource guide for medical faculty*. Boston: Boston University School of Medicine.

Chao, G. T., Walz, P. M., & Gardner, P. D. (1992). Formal and informal mentorships: A comparison on mentoring functions and contrast with nonmentored counterparts. *Personnel Psychology*, 45(3), 619–636.

Christman, D. E. (2003, Fall). Women faculty in higher education: Impeded by academe. *Advancing Women in Leadership Online Journal, 14*. Retrieved January 13, 2019 from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=2ahUKEwiwz6KW5uvfAhXCIDQIHZh5BWEQFjABegQIAxAC&url=https%3A%2F%2Fawl-ojs-tamu.tdl.org%2Fawl%2Findex.php%2Fawl%2Farticle%2Fdownload%2F174%2F153&usg=AOvVaw3Zc2_e8I3GXv08MjmJUVIE.

Cohen, N. H. (1993). *Development and validation of the principles of adult mentoring for faculty mentors in higher education*. (Doctoral dissertation, Temple University, 1993).

Cohen, N.H., & Galbraith, M.W. (1995). Mentoring in the learning society. *New Directions for Adult and Continuing Education*, 66, 5-14.

Crenshaw, T.L., Chambers, E.W, Metcalf, H., & Thakkar, U. (2008). A case study of retention practices at the University of Illinois at Urbana-Champaign. *Proceedings of the 39th SIGCSE Technical Symposium on Computer Science Education*, 412-416.

Crisp, G. & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research Higher Education*, 50, 525-545.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297-334. Retrieved from https://myasucourses.asu.edu/bbcswebdav/pid-11587940-dtcontent-rid-55946797_1/courses/2015Fall-W-TEL701-91811-91812/CoefficientAlpha.pdf.

Dallimore, E.J. (1995). Defining "quality" student-faculty interaction: A necessary step in understanding the student attrition equation. Paper presented at the annual meeting of the Speech Communication Association. San Antonio, TX

Daloz, L. A. (1999). *Mentor: Guiding the journey of adult learners*. San Francisco, CA: Jossey-Bass .

Davis, D. J. (2007). Access to academe: The importance of mentoring to black students. *Negro Educational Review*, 58(3/4), pp. 217-279.

Davis, T.A. (2009). Barriers to postsecondary education as perceived by seniors enrolled in public high schools in Nassau, Bahamas. (Doctoral dissertation). Retrieved from Oral Roberts University, ProQuest Dissertations Publishing. 3429035.

Dickens, L. & Watkins, K. (1999). Action research: Rethinking Lewin. *Management Learning*, 30(2): 127-140.

Dika, S.L., Alvarez, J., Santos, J., & Marcelo, O. (2016). A social cognitive approach to understanding engineering career interest and expectations among underrepresented students in school-based clubs. *Journal of STEM Education: Innovations and Research*, 17(1), 31-36.

Eby, L. T., McManus, S. E., Simon, S. A., & Russell, J. E. A. (2000). The protégé's perspective regarding negative mentoring experiences: The development of a taxonomy. *Journal of Vocational Behavior*, 57, 1−21.

Eby, L. T., Durley, J., Evans, S. C., & Ragins, B. R. (2008). Mentors' perceptions of negative mentoring experiences: Scale Development and nomological validation. *Journal of Applied Psychology*, 93, 358−373.

Foster, H. (1997). A visual heuristic for promoting a rhetorically based job search. *Business Communication Quarterly, 60*(1), 163-165.

Fox, A., Stevenson, L., Connelly, P., Duff, A., & Dunlop, A. (2010). Peer-mentoring undergraduate accounting students: The influence on approaches to learning and academic performance. *Active Learning in Higher Education,* 11(2), pp. 145-156.

Freeman, K. (1999). No services needed? The case for mentoring high-achieving African American students. Peabody Journal of Education, 74(2), 15–26.

Fusani, D. S. (1994). "Extra-class" communication: Frequency, immediacy, self-disclosure, and satisfaction in student-faculty interaction outside the classroom. *Journal of Applied Communication Research, 2,* 232–255.

Gibbons, M.M. (2005). College-going beliefs of prospective first-generation college students: Perceived barriers, social supports, self-efficacy, and outcome expectations. (Doctoral dissertation). Retrieved from North Carolina Digital Online Collection of Knowledge and Scholarship.

Girves, J. E., Zepeda, Y., & Gwathmey, J. K. (2005). Mentoring in a post-affirmative action world. *Journal of Social Issues, 61*(3), 449-479.

Glaser, E.G., and Strauss, A.L., (1967), *The Discovery of Grounded Theory: Strategies for Qualitative Research,* Weidenfeld and Nicplson, London, England.

Gloria, A.M., Castellanos, J., & Orozco, V. (2005). Perceived educational barriers, cultural fit, coping responses, and psychological well-being of Latina undergraduates. *Hispanic Journal of Behavioral Sciences, 27*(2), 161-183.

Green, J. & Jackson, D. (2014). Mentoring: Some cautionary notes for the nursing profession, Contemporary Nurse, 47, 78-87.

Grundy, S. (1992). The confidence scale: Development and psychometric characteristics. *Nurse Educator,* 18, 6-9.

Hardin, S.B., Weinrich, S., Weinrich, M., Hardin, T., & Garrison, C. (1990). *An intervention to decrease disaster stress in adolescents* (Grant No. RO 1-47551). Washington, DC: National Institutes of Health.

Hauer, K. E., Teherani, A., Dechet, A., & Aagaard, E. M. (2005). Medical students' perception of mentoring: a focus group analysis. Medical Teacher, 27(8), 732–739.

Hayes, E.F. (1998). Mentoring and nurse practitioner student self-efficacy. *Western Journal of Nursing Research, 20*(5), 512-535

Hegstad, C. D., & Wentling, R. M. (2005, December). Organizational antecedents and moderators that impact on the effectiveness of exemplary formal mentoring programs in Fortune 500 companies in the United States. *Human Resource Development International,* 8(4), 467–487.

Henry, J., Bruland, H., & Sano-Franchini, J. (2011). Course-Embedded Mentoring for First-Year Students: Melding Academic Subject Support with Role Modeling, Psycho-Social Support, and Goal Setting – TA. *International Journal for the Scholarship of Teaching and Learning*, 5(2), 1-22.

Huang, H. (2015). Can students themselves narrow the socioeconomic-status-based achievement gap through their own persistence and learning time? *Education Policy Analysis Archives*, 23(108), 1-37.

Hutchinson, K. L., & Brefka, D. S. (1997). Personnel administrators' preferences for résumé content: Ten years after. *Business Communication Quarterly,* 60(2), 67-75.

Ismail, A., Abdullah, N., Zaiedy, N.I., Ab Ghani, A., & Omar, N. (2015). Mentoring program as an instrument of enhancing mentees' self-efficacy. *Acta Universitatis Danubis. Communicatio*, 9(1), 14-32.

Jaasma, M.A., & Koper, R.J. (1999). The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation. *Communication Education, 48*(1), 41-47.

Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research,* 61(4), 505-532.

Johnson-Bailey, J., & Cervero, R. M. (2004). Mentoring in Black and White: The intricacies of cross-cultural mentoring. *Mentoring and Tutoring*, 12(1), 7–21.

Kahveci, A., Southerland, S. A., & Gilmer, P. J. (2006). Retaining undergraduate women in science, mathematics, and engineering. *Journal of College Science Teaching*, 36(3), 34–38.

Kenny, M. E., Bluestein, D. L., Chaves, A., Grossman, J. M., & Gallagher, L. A. (2003). The role of perceived barriers and relational support in the educational and vocational lives of urban high school students. *Journal of Counseling Psychology, 50*, 142-155.

Kinser, K. (2007). Innovation in higher education: A case study of the Western Governors University. *New Directions for Higher Education*, 137, 15-25.

Kraemer, B.A. (1997). The academic and social integration of Hispanic students into college. *The Review of Higher Education, 20*(2), 163-178.

Kreitner, R., & Kinicki, A. (2004). *Organizational behavior* (6th ed.). New York:

McGraw-Hill/Irwin.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1984). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology, 31*, 356-362.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic success and perceived career options. *Journal of Counseling Psychology, 33*, 265-269.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1987). Comparison of three theoretically derived variables in predicting career and academic behavior: Self-efficacy, interest congruence, and consequence thinking. *Journal of Counseling Psychology, 34*, 293-298.

Levinson, D. J., Darrow, C. N., Klein, E. B., Levinson, M. H., & McKee, B. (1978). *The season's of a man's life*. New York: Knopf.

Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology, 69*, 241-251.

Luecke, R. (2004). *Coaching and mentoring: How to develop top talent and achieve*

stronger performance. Boston: Harvard Business School Press.

Luzzo, D.A. & McWhirter, E.H. (2001). Sex and ethnic differences in the perception of educational and career-related barriers and levels of coping efficacy. *Journal of Counseling & Development*, 79, 61-67.

Mangold, W. D., Bean, L. G., Adams, D. J., Schwab, W. A., & Lynch, S. M. (2003). Who goes who stays: An assessment of the effect of a freshman mentoring and unit registration program on college persistence. *Journal of College Student Retention*, 4(2), 95–122.

McCauley, C. D., & Van Velsor, E. (Eds.). (2004). *The Center for Creative Leadership*

handbook of leadership development (2nd ed.). San Francisco, CA: Jossey-Bass.

McWhirter, E. H. (1997). Perceived barriers to education and career: Ethnic and gender differences. *Journal of Vocational Behavior, 50,* 124-140.

McWhirter, E.H., Hackett, G., & Bandalos, D.L. (1998). A causal model of the educational and career expectations of Mexican-American high school girls. *Journal of Counseling Psychology, 45*(2), 166-181.

McWhirter, E. H., Rasheed, S., & Crothers, M. (2000). The effects of high school career education on social-cognitive variables. *Journal of Counseling Psychology, 47*, 330-341.

Mertler, C. A. (2014). *Action research: Improving schools and empowering educators* (4th ed.). Thousand Oaks, CA: Sage.

Milem, J. F. and Berger, J. B. 1997. A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development*, 38: 387–400.

Miller, T. E., Neuner, J. L., & Glynn, J. (1988). Reducing attrition: A college at work in research and practice. *NASPA Journal, 25*(4), 236-243.

Moody, B., Kruse, G., Nagel, J., & Conlon, B. (2008). Career development project for incarcerated youth: Preparing for the future. *Journal of Correctional Education*, 59(3), 231-243.

Moore K.M. & Amey, M.J. (1988). Some faculty leaders are born women. *New Directions for Student Services, 44*, 39-50.

Morales, E.E. (2014). Learning from success: How original research on academic resilience informs what college faculty can do to increase the retention of low socioeconomic status students. *International Journal of Higher Education*, 3(3), 92–102.

Morales, E.E., & Trotman, F.K. (2011). *A focus on hope: 50 resilient students speak*. Lanham, MD: Rowman-Littlefield/University Press of America Press.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*, 30-38.

Murray, M. M. (2001). *Beyond the myths and magic of mentoring: How to facilitate an*

effective mentoring process. San Francisco, CA: Jossey-Bass.

Nadler, M.K. and Nadler, L.B. (1995). The roles of empathy, credibility, and sex in out of class communication between faculty and students. Paper presented at the annual meeting of the Speech Communication Association. San Antonio, TX. November.

Nora, A. (1987). Determinants of retention among Chicano college students: A structural model. *Research in Higher Education 26* (1), 31–58.

Nora, A. and Cabrera, A. F. (1996). The role of perceptions of prejudice and discrimination on the adjustment of minority students to college. *The Journal of Higher Education, 6,* 119–148.

Nora, A., & Crisp, G. (2008). Mentoring students: Conceptualizing and validating the multi-dimensions of a support system. *Journal of College Student Retention*, 9(3), 337-356.

Nora, A., & Rendón, L.I. (1990). Determinants of predisposition to transfer among community college students: A structural model. *Research in Higher Education, 31* (3), 235–255.

Pagan, R., & Edwards-Wilson, R. (2003). A mentoring program for remedial students. *Journal of College Student Retention,* 4(3), 207–225.

Pascarella, E. T., & Terenzini, P. T. (1977). Patterns of student-faculty information interaction beyond the classroom and voluntary freshman attrition. *Journal of Higher Education, 48*, 540-552.

Pascarella, E.T. and Terenzini, P.T. (1978). Student-faculty informal relationships and freshman year educational outcomes. *The Journal of Educational Research, 71,* 183–189.

Pascarella, E.T. and Terenzini, P.T. (1979). Student-faculty informal contact and college persistence: A further investigation. *The Journal of Educational Research*, 72: 214–218.

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

Pike, G.R., & Kuh, G.D. (2005) A Typology of student engagement for American colleges and universities. *Research in Higher Education, 46*(2), 185–209.

Pike, G.R., Schroeder, C.C. & Berry, T.R. (1997). Enhancing the educational impact of residence halls: The relationship between residential learning communities and first-year college experiences and persistence. *Journal of College Student Development*, *3,* 609–621.

Radnazzo, Chalice. (2012). Positioning resumes and cover letters as reflective-reflexive process. *Business Communication Quarterly*, 75(4), 377-391.

Ragins, B.R. (2016). From the ordinary to the extraordinary: High-quality mentoring relationships at work. *Organizational Dynamics*, 45, 228-244.

Ragins, B.R. & Verbos, A.K. (2007). *Positive relationships in action: Relational mentoring and mentoring schemas in the workplace,* In J. Dutton and B. R. Ragins (Eds.) Exploring positive relation-ships at work: Building a theoretical and research foundation. (Mahwah, NJ: Lawrence Erlbaum, 2007).

Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: A comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology*, 84, 529−550.

Ragins, B. R., Cotton, J. L., & Miller, J. S. (2000). Marginal mentoring: The effects of type of mentor, quality of relationship, and program design on work and career attitudes. *Academy of Management Journal*, 43, 1177−1194.

Ragins, B. R., & McFarlin, D. B. (1990). Perceptions of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior*, 37, 321−339.

Reed, H. C., Kirschner, P. A., & Jolles, J. (2015). Self-beliefs mediate math performance between primary and lower secondary school: A large-scale longitudinal cohort study. Frontline Learning Research, 3(1), 36–54.

Ross-Thomas, E., & Bryant, C. E. (1994). Mentoring in higher education: A descriptive case study. *Education*, 115(1), 70–76.

Salinitri, G. (2005). The effects of formal mentoring on the retention rates for first-year, low achieving students. *Canadian Journal of Education, 28(4): 853-873.*

Santiago, P. E. (1999). Self-analysis for career development. *Business Communication Quarterly, 62*(3), 54-56.

Santos & Reigadas (2002). Latinos in higher education: An evaluation of a university faculty mentoring program. *Journal of Hispanic Higher Education, 1*(1): 40-50.

Sayles, S., & Shelton, D. (2005). Student success strategies. *The ABNF Journal*, 16(5), 98-101.

Schlossberg, N. K.; Lynch, A. Q.; and Chickering, A. W. *Improving Higher Education Environments for Adults*. San Francisco: Jossey-Bass, 1989.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.

Schullery, N. M., Ickes, L., & Schullery, S. E. (2009). Employer preferences for résumés and cover letters. *Business Communication Quarterly, 72*, 163-176

Shunk, D. H. (1983). Goal difficulty and attainment information: Effects on children's achievement behaviors. *Human Learning, 2*, 107-117.

Shunk, D. H. (1985). Self-efficacy and classroom learning. *Psychology in the Schools, 22*, 208-223.

Schunk, D.H. & Pajares, F. (2002) The Development of Academic Self-Efficacy. Chapter in A. Wigfield & J. Eccles (Eds.), Development of achievement motivation. San Diego: Academic Press.

Smart, K. L. (2004). Articulating skills in the job search: Proving by example. *Business Communication Quarterly, 67*, 198-205.

Sorrentino, D.M. (2007). The SEEK mentoring program: An application of the goal-setting theory. *Journal of College Student Retention*, 8(2), 241-250.

Stewart, J., & Knowles, V. (2003). Mentoring in undergraduate business management programmes. *Journal of European Industrial Training,* 27/2(3/4), pp. 147-159.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2,* 53–55.

Terenzini, P.T., Pascarella, E.T. & Blimling, G.S. (1996). Students' out-of-class experiences and their influence on learning and cognitive development: A literature review. *Journal of College Student Development, 37,* 149–162.

The Education Trust. (2015). The Pell Partnership: Ensuring a shared responsibility for low-income student success.

Theophilides, C. & Terenzini, P.T. (1981). The relation between nonclassroom contact with faculty and students' perceptions of instructional quality. *Research in Higher Education, 15,* 255–269.

Tillman, L. C. (2001). Mentoring African American faculty in predominantly White institutions. *Research in Higher Education*, 42(3), 295–325.

Touchton, J. G. (2003, February 25). Women's ways of mentoring. *NASPA NetResults*. Retrieved January 13, 2010 from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwjk-4fP5uvfAhWTHDQIHaioAcUQFjAAegQIChAC&url=https%3A%2F%2Flearn.canvas.net%2Fcourses%2F1572%2Ffiles%2F609509%2Fdownload%3Fverifier%3DN3mIlHkLNsx3YQTzwh22t4I3NdzuRX5VKqrhlhgh%26wrap%3D1&usg=AOvVaw0R3dMjerpIQ3Zvkx9i9b1-.

Tracey, T. J., & Sedlacek, W. E. (1985). The relationship of noncognitive variables to academic success: A longitudinal comparison by race. *Journal of College Student Personnel, 26,* 405- 410.

Umbach, P.D, & Wawrzynski, M.R. (2005) Faculty do matter: The role of college faculty in student learning and engagement. *Research in Higher Education, 46*(2), 153–184.

U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

U.S. Department of Labor. (2018). Bureau of Labor Statistics. Retrieved from https://www.bls.gov/home.htm.

Walker, S. C., & Taub, D. J. (2001). Variables correlated with satisfaction with a mentoring relationship in first-year college students and their mentors. *Journal of The First-Year Experience & Students in Transition, 13*(1), 47-68.

Wallace, D., & Abel, R. (1997). Clearing a path for success: Deconstructing borders in higher education through undergraduate mentoring. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Albuquerque, NM.

Wallace, D., Abel, R., & Ropers-Huilman, B. R. (2000). Clearing a path for success: Deconstructing borders through undergraduate mentoring. *The Review of Higher Education*, 24(1), 87–102.

Warrington, M., Younger, M., & Williams, J. (2000). Student attitudes, image and the gender gap. British Educational Research Journal, 26(3), 393–407.

Watson, N. A. (1999). Mentoring today—the students' views. An investigative study of pre-registration nursing students' experiences, perceptions of mentoring on one theory/practice module of the Common Foundation Programme on a Project 2000 course. Journal of Advanced Nursing, 29(1), 254–262.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. Contemporary Educational Psychology, 25(1), 68-81.

Wilson, R.C., Woods, L. & Gaff, J.G. (1974). Social-psychological accessibility and faculty-student interaction beyond the classroom. *Sociology of Education, 47*, 74–92.

Winston, R.B., Ender, S.C., & Miller, T.K. (Eds.) (1982). Developmental approaches to academic advising. *New Directions for Student Services, 17*. San Francisco: Jossey-Bass.

Wood, R. E., & Locke, E. A. (1987). The relation of self-efficacy and grade goals to academic performance. *Educational and Psychological Measurement, 47*, 1013-1024.

Zellers, D.F., Howard, V.M., Barcic, M.A. (2008). Faculty mentoring programs: Revisioning rather than reinventing the wheel. *Review of Educational Research*, 78(3), 552-588.

Zimmerman, B., & Schunk, D. (2001). Self-Regulated Learning and Academic Achievement. (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Zuraidah, A. R., Zaiton, H., Masiniah, M., Jamayah, S., Sabasiah, H., & Abdul Halim, B. (2004). *Pengenalan mentoring di Institusi Pengajian Tinggi*. Kuala Lumpur: IBS.

Zimmerman, B. J. (1995). *Self-efficacy and educational development*. In A. Bandura (Ed.), Self efficacy in Changing Societies (202-231). Cambridge University Press.

APPENDIX A

PERCEPTIONS OF EDUCATIONAL BARRIERS SCALE (MCWHIRTER, 2001)

Below you will find a list of potential barriers that you or someone else might encounter in obtaining further education/training after high school. For each potential barrier in the list, please mark the responses that best fit for you.

		How likely is it to be a barrier for you?			
		Not at all Likely			**Definitely**
		A	**B**	**C**	**D**
1	Not enough money				
2	Not smart enough				
3	Not confident enough				
4	Friends don't support my plans				
5	Having to work while in school				
6	Not fitting in at new school or program				
7	Takes a long time to finish the training or schooling				
8	Being married				
9	Teachers don't support my plans				
10	Not being interested in classes/training				
11	Not being prepared enough				
12	Family responsibilities				
13	Lack of motivation				
14	Not talented enough				
15	Pressure from boy/girlfriend				
16	Sex discrimination				
17	Racial/ethnic discrimination				
18	Pregnancy/having children				
19	Lack of study skills				
20	Not knowing what kind of school or training I want				
22	Not being able to get into program I want				
23	Parents don't support my plans				
24	School too stressful				
25	Not wanting to move				

	away				
26	School/program very expensive				
27	The schooling/training I want not available here				
28	Others don't think I can do it				

	How hard would it be for you to deal with this barrier?			
	Not at all Likely			**Definitely**

		A	**B**	**C**	**D**
1	Not enough money				
2	Not smart enough				
3	Not confident enough				
4	Friends don't support my plans				
5	Having to work while in school				
6	Not fitting in at new school or program				
7	Takes a long time to finish the training or schooling				
8	Being married				
9	Teachers don't support my plans				
10	Not being interested in classes/training				
11	Not being prepared enough				
12	Family responsibilities				
13	Lack of motivation				
14	Not talented enough				
15	Pressure from boy/girlfriend				
16	Sex discrimination				
17	Racial/ethnic discrimination				
18	Pregnancy/having children				
19	Lack of study skills				
20	Not knowing what kind of school or training I want				
22	Not being able to get into program I want				
23	Parents don't support my plans				

24	School too stressful				
25	Not wanting to move away				
26	School/program very expensive				
27	The schooling/training I want not available here				
28	Others don't think I can do it				

Demographics

Please complete this last section about yourself. This section is valuable to us as it will help break down the data collected into meaningful groups of respondents.

1. What is your age?
   18-24 years old
   25-34 years old
   35-44 years old
   45-54 years old
   55-64 years old
   65-74 years old
   75 years old or older

2. What is your total household income, not including your parents' incomes?
   Less than $10,000
   $10,000-19,999
   $20,000-29,999
   $30,000-39,999
   $40,000-49,999
   $50,000-59,999
   $60,000-69,999
   $70,000-79,999
   $80,000-89,999
   $90,000-99,999
   $100,000 or more

3. To the best of your knowledge, do you currently qualify for the U.S. federal government's Pell Grant program?
   Yes
   No
   Not Sure

4. What is the highest level of education completed by your mother?
   Less than high school degree
   High school degree or GED

Associate's degree
Bachelor's degree
Graduate degree (e.g., master's, PhD, MD, JD)

5. What is the highest level of education completed by your father?
   Less than high school degree
   High school degree or GED
   Associate's degree
   Bachelor's degree
   Graduate degree (e.g., master's, PhD, MD, JD)

6. Are you currently employed?
   No
   Self-employed
   Employed for wages
   Out of work and looking for work
   Out of work and not looking for work
   Military
   Retired
   Other

7. What is your marital status?
   Single, never married
   Married or domestic partnership
   Widowed
   Divorced
   Separated

8. Are you enrolled full or part time in the program?
   Full time
   Part time

9. What level of undergraduate program are you currently enrolled in?
   Freshman
   Sophomore
   Junior
   Senior

10. Please specify your race/ethnicity.
    White
    Hispanic
    Black or African American
    Native American or American Indian
    Asian/Pacific Islander
    2 or more (please specify)

11. What is your sex?
    Male
    Female
    Other

APPENDIX B

MENTORING PROGRAM MANUAL

The Mentoring Program matches upper division Public Health students with lower division students in a one-to-one relationship. It is intended to facilitate the mentoring process among at risk students in Public Health and other health-related fields at Arizona State University. The goals are

- to provide opportunities for mentees to enrich their contributions to the College of Health Solutions and further develop as academics and eventual professionals in the field;
- to enhance the professional development of the Public Health mentee and mentor;
- to increase self-efficacy amongst the participants; and
- to increase academic retention.

Mentoring Relationship

Mentoring is a process whereby the upper division Public Health student (the mentor) guides another individual (the mentee) in the development and examination of their own ideas, learning, and professional development. This relationship has the opportunity of providing support, guidance, and knowledge to facilitate academic and professional success.

Benefits

Mentoring relationships provide great opportunities and benefits for the mentor, and mentee. Mentoring has shown to have a positive effect on a person's career and those who have been mentored tend to reach their goals faster and are more satisfied with their work and careers. The Core Competencies for Public Health Professionals, a consensus set of skills that are identified as desirable for delivering essential public health services, calls for mentoring activities[1]:

- 8A6. Tier 1: Participates in mentoring and peer review or coaching opportunities.
- 8B6. Tier 2: Establishes mentoring, peer advising, coaching or personal development opportunities for the public health workforce.
- 8C6. Tier 3: Promotes mentoring, peer advising, coaching or other personal development opportunities for the public health workforce, including him or herself.
- Gain practice advice, encouragement, and support.
- Learn from the experiences of others.
- Increase your social and academic confidence.
- Become more empowered to make decisions.
- Improve communication and personal skills.
- Develop strategies for dealing with academic and personal issues.
- Identify goals and establish an academic plan.

[1] Public Health Foundation. 2014. Core competencies for public health professionals. Washington, DC.

Benefits to the Mentee

- Access to a greater professional support system and increase a mentee's professional network.
- Develop new strategies in navigating professional career path.
- Identify gaps in knowledge and/or skill sets.
- Additional professional development.
- Gain exposure to diverse perspectives and experiences.
- Increased knowledge of academic and career success factors.
- Stay informed about the latest trends and developments in the field.

Roles and Responsibilities of a Mentor

The mentor is Lauren Savaglio, a lecturer and program coordinator for the Public Health program at Arizona State University As a mentor, it is expected that Ms. Savaglio will demonstrate coaching, academic guidance, and moral support. Evaluative feedback (goals, study advice, etc.) and other advice for the mentee is highly valued.

Tasks

- Initiate contact with the mentee.
- Exchange additional contact information with the mentee (e.g., cell phone, facetime, e-mail, etc.).
- Arrange to meet (i.e., face-to-face, by telephone, or virtually) with the mentee a minimum of one contact hour per week for six weeks.
- Assist in the development of and review the mentee's Academic Development Action Plan.
- Plan and discuss ways your experiences and resources might help their goals.
- Offer feedback on observed performances and progress in fulfilling goals of academic development.
- Encourage and demonstrate confidence in the mentee.
- Be liberal with constructive and evaluative feedback.
- Encourage independent behavior, but be willing to invest time in the mentee.
- Provide accessibility and exposure for the mentee within your own academic circle.

Roles and Responsibilities of a Mentee

Mentees are those who are classified as an undergraduate student. As a mentee, it is expected that you demonstrate an eagerness to learn, respect for the mentor's experience and knowledge, and flexibility and understanding of the mentor's commitments.

Tasks

- Initiate contact with the mentor.
- Exchange additional contact information with the mentor (i.e., cell phone, e-mail, etc.).

- Arrange to meet (i.e., face-to-face, by telephone, or virtually) with the mentor a minimum of one contact hour per week for six weeks.
- Discuss your needs and expectations with the mentor.
- Develop an Academic Development Action Plan and discuss some your goals with the mentor.

Meeting Descriptions

Week	Focus of mentoring meeting
Week 1	Initial meeting, discussion on expectations from mentoring relationship, program objectives, roles, and process, define success for the mentoring relationship, set future meetings, introduce mentoring goals.
Week 2	Finalize and review mentoring goals, discuss mentee's growth areas and strengths
Week 3	Academic development action plan
Week 4	Discussion motivational processes and goals
Week 5	Review action plan, current semester, discuss any concerns or opportunities
Week 6	Review the original goals, determine success, close the relationship

APPENDIX C

MENTORING GOAL FORM

Mentee Name: _____

Mentor Name: Lauren Savaglio

It is important to spend the time at the beginning of a mentoring relationship to set goals you want to accomplish. Perhaps it is deciding on an area within the public health field within which to specialize, learning new skills, or building your communication skills, etc. Setting goals gives you short-term motivation and long-term vision. By writing down your goals and corresponding objectives, you are one step closer to being successful. You and your mentor will be working on the goals and objectives together.

Make sure your goals and objectives are:

Specific. What exactly is it you want to accomplish?

Make sure this is something you want. If you are not willing to dedicate and commit to the goals, you will likely not accomplish them.

S.M.A.R.T. Goals should be specific/significant, measurable, achievable, realistic and timely.

Specific/**S**ignificant: It is great to have a clear concise title to your goal, but you should also describe it in more detail.

Measurable/**M**eaningful: Try to write a goal that you can measure numerically. A goal can be much more motivating if you can track and record your progress, and see how you are doing.

Achievable-**A**ction-Oriented and **R**ealistic -**R**elevant: Can your goal really be done? Think not only about the goal, but about your personal circumstances.

Timely/**T**rackable: How much time will you have to put in on a regular basis to achieve this goal? How long from now do you plan to achieve this goal?

Goal #1

Objectives to Achieve Goal #1

Goal #2

Objectives to Achieve Goal #2

Goal #3

Objectives to Achieve Goal #3

APPENDIX D

ACADEMIC DEVELOPMENT ACTION PLAN

Steps to an Effective Academic Development Action Plan

1. Identify your career options.

   Review your career information, research prominent organizations, and talk to professionals in the field. Develop a refined list of career options by examining your interests, skills, and values. What motivates you and makes you happy? What do you love and what is important to you? What are you good at?

2. Prioritize and Compare.

   It is not enough to list options, you have to prioritize them. What are your top skills? What interests you the most? It helps to know what really matters to you and what are your deal-breakers. Then compare your most promising career options based on these criteria.

3. Consider other Factors.

   You should consider factors beyond personal preferences. What is the current demand for this field? If the demand is low or entry is difficult, are you comfortable with risk? What qualifications are required to enter the field? Will it require additional education or training? How will selecting this option affect you and others in your life? Gather advice from friends, colleagues, and family members. Consider potential outcomes and barriers for each of your final options.

4. Make a Choice.

   Choose the career paths that are best for you. How many paths you choose depends upon your situation and comfort level. If you are early in your planning, then identifying multiple options may be best. You may want several paths to increase the number of potential opportunities. Conversely, narrowing to one or two options may better focus your job search or graduate school applications.

5. Set SMART Goals.

   Now that you have identified your career options, develop an academic action plan to implement this decision. Identify specific, time-bound goals and steps to accomplish your plan. Set short-term goals (to be achieved in one year or less) and long-term goals (to be achieved in one to five years). What will you need to do during your undergraduate program to accomplish your vision?

   Specific -- Identify your goal clearly and specifically.
   Measurable -- Include clear criteria to determine progress and accomplishment.
   Attainable -- The goal should have a 50 percent or greater chance of success.
   Relevant -- The goal is important and relevant to you.
   Time bound -- Commit to a specific timeframe.

6. Creation Your Academic Development Action Plan.

   It is important to be realistic about expectations and timelines. Write down specific action steps to take to achieve your goals and help yourself stay organized. Check them off as you complete them, but feel free to amend your career action plan as needed. Your goals and priorities are likely to change, and that is perfectly okay!

Adapted from MIT Global Education and Career Development. (2017). Making a Career Plan. Retrieved from https://gecd.mit.edu/explore-careers/career-first-steps/make-career-plan.

APPENDIX E

DETAILS OF MENTORING MEETINGS

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
#1	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Discussed study techniques, steps to apply to graduate school, referred to nursing advisor.	Discussed barriers, coursework, study techniques, referred to another professor and graduate student, motivation.	Discussed mental health concerns, family support.	Discussed mental health concerns, family support, time and stress management, motivation.	Discussed mentoring goals program feedback.
#2	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Reviewed mentoring goals, started work on academic action plan.	Discussed action plan.	Discussed graduate school, time management.	Discussed graduate school, action plan.	Discussed coursework, action plan, mentoring goals, program feedback.
#3	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Discussed study techniques, referred to another professor, networking skills, professional-ism.	Discussed time management, study techniques, action plan, graduate school.	Discussed action plan, motivation, family support.	Discussed motivation, family support, course work.	Discussed action plan, mentoring goals, program feedback.
#4	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Discussed upcoming exam, time management, her identified strengths and weaknesses.	Discussed time management, action plan, graduate school.	Discussed coursework, motivation.	Discussed graduate school, time management, referred to another professor.	Discussed action plan, mentoring goals, program feedback.
#5	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring, discussed death of parent.	Discussed exams, professional development, time management, graduate school, and parent's death.	Discussed coursework, graduate school, action plan, referred to another student.	Discussed graduate school, action plan, motivation.	Discussed graduate school, action plan, parent's death, coursework.	Discussed action plan, mentoring goals, program feedback.
#6	Discussed history of mentoring, what are the	Discussed action plan, referred her to another	Discussed study techniques, stress	Discussed graduate school, action plan,	Discussed graduate school, time and stress	Discussed action plan, mentoring goals,

	pros/cons of mentoring relationships, expectations of mentoring.	professor, study techniques,	management, graduate school, action plan.	motivation, stress management.	management, coursework.	program feedback.
#7	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Discussed her birthday celebrations, time management, study techniques, securing financial support during school, emotional health.	Discussed time and stress management, finances, referred to advisor.	Missed due to illness.	Discussed action plan, motivations, time and stress management.	Discussed action plan, mentoring goals, program feedback.
#8	Discussed history of mentoring, what are the pros/cons of mentoring relationships, expectations of mentoring.	Discussed action plan, referred to another professor	Discussed barriers, action plan.	Discussed action plan, graduate school, referred to another professor, motivation, time and stress management	Discussed time and stress management, referred to another professor, graduate school, action plan	Discussed action plan, mentoring goals, program feedback.

APPENDIX F

SCHEDULE OF MENTORING MEETINGS

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Participant 1	09/11/18	09/20/18	09/27/18	10/01/18	10/08/18	10/14/18
Participant 2	09/11/18	09/18/18	09/25/18	10/02/18	10/19/18	10/16/18
Participant 3	09/12/18	09/21/18	09/28/18	10/05/18	10/12/18	10/19/18
Participant 4	09/13/18	09/18/18	09/25/18	10/04/18	10/11/18	10/18/18
Participant 5	09/13/18	09/20/18	09/27/18	10/04/18	10/11/18	10/18/18
Participant 6	09/13/18	09/20/18	09/27/18	10/04/18	10/11/18	10/18/18
Participant 7	09/14/18	09/19/18	09/26/18	Missed (illness)	10/10/18	10/17/18
Participant 8	09/18/18	09/20/18	09/27/18	10/02/18	10/11/18	10/18/18

APPENDIX G

GRE WRITING SECTION

* Adopted from ETS
https://www.ets.org/gre/revised_general/prepare/analytical_writing/issue/tips

Sections are 30 minutes long (each).

The Issue task presents an opinion on an issue of general interest followed by specific instructions on how to respond to that issue. You are required to evaluate the issue, consider its complexities and develop an argument with reasons and examples to support your views.

The Argument task requires you to evaluate a given argument according to specific instructions. You will need to consider the logical soundness of the argument rather than agree or disagree with the position it presents.

The two tasks are complementary in that one requires you to construct your own argument by taking a position and providing evidence supporting your views on an issue, and the other requires you to evaluate someone else's argument by assessing its claims and evaluating the evidence it provides.

Individuals taking the computer-delivered test will use a basic word processor developed by ETS. The basic word processor contains the following functionalities: insert text, delete text, cut-and-paste and undo the previous action. Tools such as a spell checker and grammar checker are not available in the ETS software, largely to maintain fairness for those examinees who must handwrite their essays at paper-delivered administrations.

Scoring

6.0 – Outstanding:

A well-articulated critique of the argument/issue, demonstrating mastery of effective writing, and displaying the following characteristics:

- Clearly identifies and analyzes the most important features of the argument with deep insight.
- Develops cogent ideas, organizes them logically, and connects them properly without sudden transitions.
- Supports the main points of the critique strongly.
- Demonstrates superior control of the English language, including diction, sentence formation, spelling, grammar and syntactic variety used in standard written English.
- Few to no flaws in the essay.

5.0 – Strong

A well-developed critique of the argument, demonstrating good control of writing, and displaying the following characteristics:

- Clearly identifies the important features of the argument and analyzes them thoughtfully.
- Develops ideas clearly, and connects them logically, with appropriate transitions.
- Gives a very sensible support to the main points of the critique.
- Has clear control of language, including diction and syntactic variety
- May have minor flaws like spelling errors, but no major flaws.

4.0 – Adequate

A satisfactory critique of the given argument, demonstrating decent control of writing, and displaying the following characteristics:

- Capable of Identifying and analyzing the main features of the argument.
- Develops and organizes ideas satisfactorily, but some important connections and transitions may be missing.
- Supports the main points of the critique.
- Demonstrates sufficient control of language, but may lack syntactic variety.
- May have many minor flaws or some major flaws.

3.0 – Limited

A satisfactory essay with clearly flawed critique of the argument, demonstrating little control of the elements of writing, and displaying the following characteristics:

- Does not identify or analyze many of the important features of the argument.
- Has limited logical development and no proper organization of ideas.
- Offers support of little relevance and value for points of the critique
- Uses language imprecisely and/or lacks sentence variety
- Contains occasional major errors or frequent minor errors in grammar, usage, and mechanics

2.0 – Seriously Flawed

An unsatisfactory essay with serious weakness in analytical writing skills, and displaying the following characteristics:

- Demonstrates no understanding of the main features of the argument.
- Almost no analyses of the main points have been made.
- Does not develop any ideas or is disorganized

- Provides nil to few relevant evidences.
- Has frequent serious problems in the use of language, grammar, spelling, and sentence structure.

1.0 – Fundamentally Deficient

An essay full of fundamental deficiencies in analytical writing skills, and displaying the following characteristics:

- Provides little to no evidence of the ability to understand and analyze the main idea.
- Failure to develop an organized response.
- Contains severe and persistent errors in language and sentence structure
- Has an unusually frequent pattern of errors in grammar, usage, and logic.
- A totally incoherent response.

0.0 – Unscorable

A paper that is totally illegible or obviously not written on the assigned topic. A score of zero is given to responses that come under one of the following cases:

- The responses are off topic.
- The responses are written in a language other than English.
- The responses are a mere copy of the given topic.
- The responses consist only of random keystroke characters.
- No response.

The 7 Elements Graders Look For:

1. Clarity

This is the most important, and also the most fundamental of all factors that the graders judge your essays on. The grader should understand what you are trying to say, by reading once. This makes their job easier, and they will understand that if it can be understood with just a single reading, then your essay has clarity.

As we discussed earlier, the grader can spend a maximum of only two minutes per essay, and it is your duty to make sure your essays have clearly composed ideas, because more often than not, graders do not bother to reread your essay and waste another couple of minutes. Consequently, you will end up with a score much lower than what you actually deserve.

Ask yourselves these two questions when you are writing the essays. What are you trying to say? What's your main point? These two questions must have solid answers by the

time the grader finishes reading the essay. If you think about it, these are the exact same questions you will have to answer, during Reading Comprehension. Just like **how you can easily solve a Reading Comprehension** question if you have answers to those two questions, graders assessing your essay will also need to find answers to these exact same questions, if you need a perfect score. Substance matters more than any other factor when it comes to your essays. So, make sure you have solid points, and clear logical reasoning that can be easily understood.

2. Structure

You should have seen it coming; structure is the second most important factor on your essays. The way an article is formatted, has a massive impact upon its readability. Your essays should read like a story; something that can be easily understood, and something that has a proper structure and organization. So, it is important that you break up your essay into distinct paragraphs, each with its own meaning and context, while maintaining a smooth transition between one paragraph and the next.

This way, every paragraph reads like a separate story, and the essay graders can easily scan through your entire response easily. Plus, since the transitions are smooth, and there aren't any sudden twists in your response, it will make the grader's job a whole lot easier.

So, ideally, you should have a structure in mind before you begin writing the essay. The general structure is to start with an introductory paragraph followed by 3-4 body paragraphs and finish off with a conclusion paragraph. So, you should make sure that there are at least 5-6 paragraphs in your essay, if you want a solid score on the AWA.

3. Sentence Variety

Even though you are writing several paragraphs on the same topic, you should ideally avoid writing similar or same sentences. If you are an avid reader of news, you get the point. No good writer under the sun writes two exactly same sentences in a single essay or article. Consecutive sentences with the same structure and length can sound monotonous and lifeless, and will obviously bore the reader.

Instead of sounding repetitive and boring, use sentence style skillfully. But this doesn't mean you should rearrange the words, or chance the voice from passive to active or vice versa. It simply means that you should use a different variety of words to mean the same thing.

For example, if you have already written the sentence 'The most important virtue of a leader is a strong sense of ethics.', and if you have to use the same sentence at a later point in the essay, you should try and rephrase that same sentence and write something like this: 'A strong moral framework is paramount for any leader.' Get the point?

In this way, you should keep varying the sentence structures, flow and rhythm by switching between short and long sentences. You should also make use of transitional and signal words to vary sentence openings and endings.

4. Vocabulary

There has been a longstanding myth among test takers that the GRE really loves heavy vocabulary, and using it on your AWA essays will boost your score. Well, this isn't true at all. We have seen students with exceptional vocabulary but poor coherence get paltry AWA scores in the past. And we have seen students with great essay scores without using heavy vocabulary.

Like we said earlier, the AWA is not testing how much vocab you have in your arsenal. There's Sentence Equivalence and Text Completion for that. AWA only tests how logically you can deduce information and write a reasonable critique about an issue or an argument made by someone else. So, don't buy those myths. As long as you use sensible reasoning, proper grammar and as long as you can defend your point intelligently and use precise vocabulary to convey meaning effectively, you should be alright. It is not needed that you use heavy vocabulary or GRE words.

5. Language and Grammar

Though officially ETS says you may have minor errors in the essay copy, that doesn't mean you can ignore silly mistakes. Even though the mistakes or errors do not interfere with overall meaning and coherence, you should understand that the time you make your first error on the essay, the grader will notice it, and will be more conscious while reading the rest of the copy. The grader will be even more vigilant to see if there are any visible or obvious blunders that you have made, and this can have a negative impact on your AWA score. So, try and make sure your essay is as spotless as possible, and eliminate all errors before submitting. Take time to proofread your essay, once you finish writing it. Don't be in a hurry to submit it off and skip to the next section.

6. Reasoning

Reasoning plays a key role in determining the overall quality of your essay. You should always look to include as many logically compelling reasons as you can to support your stance. One of the most important features about a compelling essay is its ability to convince the reader by means of sound logical reasoning. Anyone who reads your response should be totally convinced of your view point, without having second thoughts. To be able to write such a compelling and well-reasoned copy within 30 minutes would be rather difficult, but you can definitely do it with a lot of practice.

So ideally, you should be able to connect your ideas properly to the central theme or idea of the essay, and convince the reader to agree to your point of view. If the essay doesn't sound logical or reasonable, you will unfortunately have to pay the penalty, no matter how long the essay is.

7. Evidence

In order to make your essay sound reasonable and logically sound, you will obviously need to provide sufficient evidences. If you want to impress the readers, and convince them to agree to your point of view, you will ideally want to provide convincing evidence

to back up your thesis. Search for evidences, either direct or implied, and connect them with the essay. You can even create some random examples and evidences, as long as they fit the bill and don't sound too random. Develop examples that cogently reinforce your thesis is key to a high essay score.

So, those are the 7 most important elements that graders look for in your essays. Make sure you have all these things covered in your essay, and you're sure to see a perfect score.

Organization

Organization is given the foremost importance by many graders. And it isn't that hard to understand why. Essays that are well organized are, in fact, easy to read. That's important because you don't want to make the grader's job any more difficult than it already is. The grader has only a couple of minutes to read your entire essay, and poorly organized essays are hard to follow. This will lead the grader to give you a score lower than you actually deserve. But on the other hand, a well-organized argument is easy to follow. Since the graders are looking at your analytical abilities, it helps if they can follow your argument.

If you organization is unclear, however, then your argument is also likely to come across as unclear. In the next chapters, we will be discussing more about how your essay should be organized in order to get a high score.

Syntax

Syntactical variety is a very key aspect of writing quality content. Your essays should always have a proper syntax, and you should be using a variety of sentences to make your writing look professional enough to get a perfect score. Syntax is a fancy word for how you organize words into sentences. And you already know how important organization is. You should always try to write clear sentences that are crisp and easy to understand. Unlike what most students believe, you don't have to use extensive vocabulary, unless they really fit into the scenario. So, save the GRE vocabulary for Text Completion, and write your essays simply yet creatively. Again, you should remember that your grader has to read hundreds of essays on the same day, and they sometimes will not be thrilled to untangle a complex sentence that you have used. So, they naturally skip that sentence and read further. So, it is always better to write clearly and simply than to go for risky propositions and complex sentence structures.

Length

A general finding is that longer essays tend to score higher than their shorter counterparts. This may be attributed to various obvious reasons. First of all, if you have written a pretty long essay, it means that you have a lot of insight into the given topic and you are able to address numerous issues relevant to the discussion. Second, if you can

write a 500 word essay coherently within 30 minutes, you will be considered as a voracious writer in general. These are the abilities that are usually likely to impress a grader.

But, make sure that the quality of the essay is maintained throughout the length and breadth of your essay, for, if you don't maintain quality, you might come off as someone who is just trying to impress but is unable to organize and prioritize their thoughts. Long essays that are clearly organized, use professional language, and contain strong supporting evidences, and give enough reasons to the grader to give you a better score. We'll soon discuss more on this.

Support

Your essay response should definitely contain quality instances of premises, facts or reasons given to support the conclusion that you are trying to make. Your essay needs to contain some sort of supporting evidence, whether it be logical, statistical, factual, or other forms of justifications. Without proper support, your essay will not be able to effectively develop a firm position on the given argument or issue, and it certainly fails to persuade the reader's opinion. So, make sure you always look for supporting evidences, and provide them wherever needed.

Examples

Like discussed erstwhile, you're going to have to come up with a lot of examples that help illustrate the point you're trying to prove, if you want to make your essay stand apart from the rest of the pack. Since test takers have a mere 30 minutes to write these essays and will never know the topic beforehand, the graders are used to seeing a lot of hypothetical examples. And this is completely okay. As long as you make sure that the examples fit the point you are trying to explain, it is completely fine. But the way to make your essay stand out is to use real life examples. I know it is very difficult, but if you are lucky enough to have some background about the given topic, you should try to include an expert opinion within the essay, and if you can, you should try and add relevant facts, statistics, and case studies to your essay.

Grammar

Although the AWA does not test your grammar skills and the caliber of your writing, if your essay has a lot of grammar errors and spelling errors, it raises a serious red flag in the mind of the graders. This often happens because students tend to think that they can outsmart the grader by using fancy sounding words once in a while. While doing this doesn't hurt, it is important to remember that you should only use words you actually know. Sometimes, students might not know the exact meaning, or even worse, the spelling of a big word that they heard somewhere, but they still go ahead and use it in a sentence. And obviously, they will be wrong, one way or the other. Now, while spelling is not one of the criteria the graders look for in your essay, nothing gives them a red flag like reading "Sevaral entreprenuers" or "primery hypothesys". These are regular words used every day, and if you cannot spell them right, your score is bound to go down.

Remember that unlike MS Word or other desktop word processors, there is no spell check or grammar check available on the GRE AWA. So, don't hurt your score by using words whose spellings you don't know.

Speed

The word processor on the GRE is quite basic in nature. You'll have basic keyboard functions, plus three other features: cut, copy, paste, and undo. And that's all. No other shortcuts or spell checks or other advanced features like bold and underline. Now, these functions work exactly as they do on your computer. You can cut text from a portion of your essay and paste it in at a different point. Or you can use undo to delete your typing. Use these features and reduce the time you spend on editing your essay. Learn how to use these features, if you are new to them, and practice speed typing at home.

This is really essential in these days of email and text messaging, where most of the younger population use chat language and shortened forms of words like lyk, hw, wat, imma etc. While this form of English is of no good anywhere in your life, it is especially frowned upon by the GRE community. So, if you find yourself using these sort of words in your essay, which has often happened in the past with many students, you will see your score go down suddenly and rapidly. So, it wouldn't hurt to do a little typing practice at home before test day.

So, those are the seven major factors that help you boost your essay score on the GRE. You should analyze your AWA essays whenever you take a practice test, and see if your essays have all of these.

AWA Issue Essay:

The Analysis of an Issue essay tests your ability to "explore the complexities of an issue or opinion and, if appropriate, to take a position that is informed by your understanding of those complexities." What this means is you should properly analyze the given issue and take a strong position: either negative or positive, and then elucidate examples as to why you have chosen that particular side.

The specific directions for the issue essay task are given like this: "In this section, you will need to analyze the issue presented and explain your views on it. There is no "correct" or "best" answer. Instead, you should consider various perspectives as you develop your own position on the issue."

Before you begin writing your response, you should take a couple of minutes to think about the issue and plan a proper response before you begin writing. This helps you organize your ideas and develop them fully. Make sure to leave sufficient time to reread your response and make any revisions that you think necessary.

Following are the six simple steps that you should follow in the same order, if you want to pen down a powerful AWA Issue essay.

Step 1: Read the Essay

Obviously, this must be your first step. But you don't just read the essay. You must perform a 'smart read'. A smart read is where you read the prompt and figure out the central issue, and jot down this issue on your scratch paper, including some of the important concepts from the given topic. This is what more than 95% of students fail to do. Rather than juggling all your thoughts inside your mind, it is a lot easier to pen down whatever you have understood from reading the prompt in your own words.

Your work on this first step gets you grounded for the essay ahead. After reading the given issue, and writing it down in a few concise words, you should be able to understand exactly what the issue is and also what some of the crucial concepts related to that issue are.

Step 2: Brainstorm Reasons and Examples

This is perhaps the most crucial step of all, and this step is also where most of the heavy lifting gets done. Once you know what points you want to prove and what examples you will use to prove that point, writing the essay will be very easy. Half of the duty lies in brainstorming efficient examples and supporting reasons to supplement your point of view. So, make sure you spend adequate time on this step. Pre-planning before you start writing is of the utmost importance, because then, you will have a continuous flow of thought while writing, and there won't be any wastage of time. If you start writing without thinking through the issue or planning the structure of your essay, you run the risk of wasting time on editing and re-editing your points.

Or even worse, you might reach a dead end and there is no more evidence left with you to substantiate your point of view, but you've already spent 20 minutes on the essay that you cannot go back and write a fresh piece. So, it is important that you take the time to brainstorm some examples and then pick a side. After you've written down the central issue and the key concepts, you should ideally make a "pro" and "con" list on the scratch paper. Start thinking of reasons for both agreeing with and disagreeing with the given issue. Once you have enough reasons to pick a side, you can move further. You should think about how your personal experiences relate to the issue at hand. Think about things you have observed or experienced in daily life, read about in magazines or newspapers, or even heard about from your family members and friends.

Next, you should be coming up with some examples of your own, that support or illustrate your point of view. Good supporting examples can be the difference between a score of 4.0 and 6.0, so it is worth spending a little time trying to generate them. Don't spend more than two or three minutes on this part because you can still write a good essay without perfect examples.

Step 3: Pick a Thesis

After you have some reasons and examples for side that you have chosen to go with, you will have to pick a proper thesis based on which you will write your opinion. This is because you don't have to actually believe the position you write about; sometimes, you may disagree with the issue at hand, but find it easier to come up with examples and reasons for the other side of the argument. So, you need to decide which thesis you are comfortable writing about. Don't mull over it for minutes together. Just choose whichever thesis allows you to write the strongest essay. In most cases, you find the "con" side easier to argue. You can find a lot of examples that way. And that is completely fine.

Now your thesis needs to state why you believe this position is correct. Take a moment to think about this, and jot your thesis down on your scratch paper. Now you are ready to outline you essay.

Step 4: Outline Your Essay

Don't start writing your essay altogether. Instead, outline your essay in the direction you want to take. Figure out what you want to write in the introduction, how you want to start off, and how you want to end the conclusion. Then, figure out what you want to write in the body paragraphs. More importantly, you will have to consider how to introduce the opposing side of the argument and how counter it with your point of view. Mentioning the other side of the coin makes the graders think that you are mature enough to have considered the various perspectives on the issue, without going ahead blindly based on intuition.

Step 5: Write Your Response

If you have finished all the previous steps properly and as planned, then this is by far the easiest step of all. All you need to do is write your response in a proper order, something that looks like this:

1. Introduction – hook the reader with an amazing intro and state your most important thesis
2. Agreeing to the given issue
3. Bringing up the negative side of the issue along with supporting facts and quotes
4. Building up the negative side further with examples and support
5. Conclusion

This is the most basic essay outline, and the most famous out there. But you can also follow an unconventional structure and still write a great essay. Some of the other structures that you can follow are:

1. Introduction
2. First argument for the side you take

3. Refute your first take and argue for the opposite side
4. Second argument for the side you take
5. Refute your take again and argue for the opposite side
6. Conclusion

This structure allows you to take a neutral step, and hence interweave the arguments for both sides, just like in a debate.

Another structure that can be used in many situations is:

1. Introduction
2. Argument for your side
3. Argument against your side
4. Argument for your side
5. Argument against your side
6. Conclusion: evaluate both sides and arrive at thesis

This structure is probably the hardest of all, but has the advantage of being new and uncommon. Graders will definitely appreciate a new structure once in a while, and tend to reward essays that move beyond the norm.

But, the point is, the writing part of the essay should really be the easiest part. Most people who think they have trouble writing actually don't have difficulty with writing, but they have trouble figuring out what exactly they are trying to say. So if you've completed the previous steps, you should know more or less what it is that you want to say about the topic.

Step 6: Proofread

Proofreading is another step that is often neglected, mainly because test takers don't have the time to. They think they cannot afford to waste one or two minutes proofreading the essay, while they can use the same time to write an additional sentence or two. But as a matter of fact, a perfect 400-word essay gets a higher score than an imperfect 450 word essay. So, you should rather focus on improving what you have already written, and try to spend at least three to four minutes on proofreading what you have written.

Since you don't have a spell checker on the AWA, you don't know if you misspelled any word in a hurry. So, be sure to check every single word, and try to refine your essay as much as you can, before the time runs out. Make sure you have all the necessary parts of your essay and the examples you meant to use. Doing these things will clean up the overall appearance of your essay and can only positively affect your score.

AWA Argument Essay

While the Analysis of an Issue task measures your ability to create your own argument, the Analysis of an Argument essay measures your ability to evaluate someone else's argument. In the words of the test writers, the argument essay tests "your ability to formulate an appropriate and constructive critique of a specific conclusion based upon a specific line of thinking."

There are two key points in these directions; "evaluate the argument," and most importantly (it's so important the directions place it in italics), "do not present your own views on the subject!" Some test takers end up basically writing an analysis of an issue essay when they are supposed to be writing an analysis of an argument essay. Your job here is simply to evaluate and critique the argument presented, not offer your own position on the subject. If you do not answer the question appropriately, you can say goodbye to a good score.

The steps for the Analysis of an Argument essay are somewhat similar to the steps for Analysis of an Issue:

Step 1: Evaluate the Argument

The Analysis of an Argument task presents you with a passage exactly like the passages found on Critical Reasoning questions. Your first task is to break the argument down into its conclusion and premises. Once you have the conclusion and the premises, the next step is to find the assumptions underlying the argument.

Step 2: Brainstorm Assumptions

These arguments are usually full of holes, even more so than Critical Reasoning arguments. You should be able to find two or three major assumptions necessary to make the conclusion work. Look for the common argument patterns: causal, sampling, and analogy. Of course, there may be a lot of assumptions spread around the entire argument, but you only need two or three good assumptions to construct your essay. Now that you have the major assumptions, you can plan the general format of your essay.

Step 3: Pick a Thesis

Picking a thesis on the argument section is rather easy and involves just one step. Just assume that whatever assumptions that the author has made have no evidences, and go completely negative on that, and prepare a thesis in your mind in that direction.

Now your thesis needs to state why you believe this position is correct. Take a moment to think about this, and jot your thesis down on your scratch paper. Now you are ready to outline you essay.

Step 4: Outline Your Essay

Once you have laid out the assumptions of the argument, you need to evaluate the strength of these assumptions. Since your task is to evaluate and critique the logic of the argument, you must consider how viable these assumptions are. Generally, the arguments on the GRE are poorly reasoned, so you should basically be looking for reasons the assumptions fail to lead to the conclusion. Think about ways you could weaken and strengthen the argument. A typical essay plan looks like this:

1. Introduction: Describe the premise and point out the flaws or state your intention
2. Detail first assumption; explain problems with it and how to weaken/strengthen the argument
3. Repeat for second assumption
4. Repeat for third assumption
5. Conclusion: Give final evaluation of the validity of the argument

This is the most basic format for the argument essay, but feel free to make changes as and when you need. You may also use one of the following structures that are less commonly used.

1. Introduction: Describe the premises, conclusion, and assumptions of the argument
2. Weaken the argument by attacking the assumptions
3. Strengthen the argument by bolstering the assumptions
4. Conclusion: Present final evaluation of the strengths and weaknesses of the argument

Another variation goes right to the assumptions in the argument:

1. Introduction
2. Detail first assumption; explain problems with it and how to weaken/strengthen the argument.
3. Repeat the same for second assumption.
4. Repeat the same for third assumption.
5. Conclusion: Evaluate the strength of the argument based on the assumptions.

Step 5: Write

The writing process on the argument essay is in some ways a little easier than that of the issue essay. Because the focus of this essay is the logic of the argument, there is no need for creative prose. Instead, you are merely presenting the flaws of the given argument in an objective fashion. Your delivery on the argument essay can be straightforward and simple and you can still get a great score, provided your analysis is sound. Following is what each paragraph needs to contain.

Introduction Paragraph

Your introduction paragraph needs to lay out the basic parts of the argument and let the reader know what the purpose of the essay is. Your introduction should have these elements:

- A statement of the conclusion
- A statement of the premises
- A statement of the essay's purpose

Body Paragraphs

The body paragraphs of an argument essay should describe the assumptions necessary to the argument and then critique them. A good critique should reveal the weaknesses of the assumptions and also show how the argument could be strengthened. Argument essays do not require specific examples and in many cases, specific examples would be inappropriate. Focus instead on dissecting the logic of the given argument. A body paragraph should have the following components:

- A description of an assumption
- An explanation of the weaknesses of the assumption
- An evaluation of the conclusion in light of the assumption

Conclusion Paragraph

The conclusion paragraph of an argument essay doesn't need to do much, but as with the issue essay, you need to have one. All you have to do is make a final evaluation of the soundness of the argument.

Step 6: Proofread

Before you leave your essay, spend one or two minutes proofreading your essay. Make sure you have all the necessary parts of your essay and that your essay is free from grammatical and spelling errors. Correct any typographical errors. Doing these things will clean up the overall appearance of your essay and can only positively affect your score.

Pool of Issue Topics:
https://www.ets.org/gre/revised_general/prepare/analytical_writing/issue/pool
Pool of Argument Topics:
https://www.ets.org/gre/revised_general/prepare/analytical_writing/argument/pool

APPENDIX H

COVER LETTER INSTRUCTIONS

A general rule when applying to positions is to submit a cover letter with your resume. Customize the cover letter for each specific job for which you apply. The purpose of a cover letter is to intrigue the employer so that they which to review your resume more closely. It shows your communication skills (including how detail orientated you are) and experience. Employers want to know how your skill set and interests will benefit them and allow them to feel comfortable bringing you in for an interview.

Pretend you are interview to a position which you are interested in. Pick a specific organization (such as a hospital, clinic, health department, etc.) to which to tailor your letter. For example, a physical therapy technician at a local clinic. As with all cover letters, research the organization before you write the cover letter. Go to their website, use the information you find to demonstrate that you are knowledgeable about the company.

Cover letters are formal letters, so you should adhere to certain formatting standards.

Your Contact Information

Name
Full Address

Date

Employer Contact Information

Salutation

Do not use "Mrs." Either use Ms. or if they have a known title (such as Dr., Professor). If you don't know the person's name, job title, and gender, call the organization and ask for the hiring manager or human resources to assist you.

Body of the Cover Letter

The first paragraph of your letter should include information on why you are writing. Mention the position you are applying for and where you found the job listing (include requisition number if you know it). Common key phrases: "Please find my enclosed letter of application and resume…", "Your web site indicated your need for…", and "Per your advertisement on May 1st on Monster.com…"

The middle paragraphs should describe what you have to offer the employer. Mention specifically how your qualifications match the job you are applying for. Summarize your resume, highlight important areas. Show how previous achievements relate to the position for which you are applying. Give concrete and specific examples demonstrating your

qualifications. Key phrases: “According to the requirements stated in the position description…”, “My qualifications include…”, and “My experience in ____ makes me qualified…”

The final paragraph should thank the employer for considering you for the position. Express your enthusiasm for the position and your eagerness to interview. “I would appreciate an opportunity to discuss my qualifications…”, “I’m excited about putting my skills to work for you…”, and “I’m confident I can meet your needs for…”

In total, it should be 3-4 paragraphs long. Brief and concise is best.

Closing

This is your sign off. Print it out to sign and then send as a PDF or use an electronic signature and send as a PDF.

Important Tips

Be sure to proofread! If a letter has typos, the application will likely be automatically disposed.

Don’t overuse the word “I”. It gives the subtle impression that you are self-centered.

Keep all content related to the position and professional growth. Do not use personal anecdotes or comments (I’ve always wanted to live in that city).

Don’t express dissatisfaction with a present or former employer (or school, or professor). This gives the impression that you are not an easy to manage employee and that you will negatively influence the work environment.

APPENDIX I

RESUME POWERPOINT

Resume

Resume versus Curriculum Vitae

Resume	CV
Most employers	Research-based, academia
1-2 pages (1 is ideal)	Several pages
Showcases your experience and education	Showcases research, publications, teaching
Tailored to each job/industry	Does not change for each job
Summarizes skill sets	Submitted as PDF
Submitted as PDF	

Resume Sections

- Contact information
- Objective/Summary
- Education
- Experience
- Activities, Skills, Honors
- Additional Sections

Contact Information

- **Your name**: Keep it bold and bigger than other information
- **Address**: Full address, including zip code
- **Phone**: Use a private number with area code (be sure your voicemail message is professional)
- **Email**: Use a personal, professional email (school emails can expire) and remove blue hyperlink

Objective/Summary

- Objective: Best for those with a specific position in mind or people who do not have a lot of experience in their field.
  - To obtain a Nursing internship position at Good Samaritan Hospital in the fall of 2015 where I can contribute my experience in medical-surgical settings and skills in therapeutic communication.
- Summary: Best for highlighting your relevant skills as they apply to a specific industry or people who already have experience
  - Two years of experience as a Registered Nurse. Provide care for pediatric patients in an acute setting. Experienced in ventilator care, wound care, and family education. CPR and AED certified.

Education

- List in reverse chronological order.
- Include the formal name of the school, city and state (do not include the street address or zip code), date you graduated (or will graduate), formal name of degree and/or minors obtained and your course of study.
- You may include bullets for study abroad, activities, awards (dean's list), GPA (if you have 3.0 and above).

Work Experience

- List in reverse chronological order.
- Emphasize only those experiences that best relate to your career (clinical rotations, volunteer roles, full-time work experience in your field).
- Condense or remove sections that are not relevant.
- Do not include supervisor's names or contact information.
- Headings can include: Clinical Rotations, Healthcare Experience, Work Experience, Additional Experience, Relevant Experience, [Your field here] Experience, and more!

Activities, Skills, Honors

- Each of these may be listed as a new section (space permitting), or incorporated as a bullet in another section.
- **ACTIVITIES/LEADERSHIP**
  List only those that best relate to your career objective. If you have done a lot with an organization that is very relevant to your goal, use a few bullets to describe your accomplishments, and format like you would for work experience.
- **SKILLS**
  Common skills you may wish to list include technical skills, laboratory skills, language skills (if fluent), teamwork skills and organizational skills. Basic computer skills such as Word, Excel, Email, Internet and PowerPoint are <u>not</u> necessary to include.
- **HONORS/AWARDS**
  If an award or scholarship is not self-explanatory, include a one-line description.
  Example: "CHOP Star Award – Recognized for the most volunteer hours in 2014"

Additional Sections…

- Certificates (include certificate number and issuing state if applicable)
- Licenses (include license number and issuing state)
- Professional Memberships
- Community Involvement/Volunteer Experience
- Publications
- Language Skills may go here as well

APPENDIX J

FIELD NOTES GUIDE FOR MENTEES

Field Notes are notes that are intended to be evidence to produce an understanding of the culture, social situation, or phenomenon being studied. In this case, fieldnotes will be evaluated. Since we are all subject to forgetting things, please complete fieldnotes immediately after the completion of each mentoring meeting. Delays may result in the loss of key information and insights.

In each entry, please include the date and your thoughts and insight about the meeting. To help guide your notes here are some questions:

1. After this meeting, how do you feel about completing your academic program? What barriers do you feel stand in your way and do you believe you can overcome them?
2. How do you feel your confidence has changed if at all?

APPENDIX K

INSTITUTIONAL REVIEW BOARD APPROVAL

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Molly Ott
Division of Educational Leadership and Innovation - Tempe
-
Molly.Ott@asu.edu

Dear Molly Ott:

On 6/14/2018 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	The Impact of Faculty Mentoring on Self-Efficacy and College-Completion Perceptions in At-Risk Undergraduate Public Health Students
Investigator:	Molly Ott
IRB ID:	STUDY00008369
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Focus Group Questions, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Action Plan, Category: Participant materials (specific directions for them); • Mentoring Manual, Category: Participant materials (specific directions for them); • Recruitment Email.pdf, Category: Recruitment Materials; • IRB Protocol 06.11.docx, Category: IRB Protocol; • IRB Consent Form, Category: Consent Form; • Mentoring Goal Form, Category: Participant materials (specific directions for them); • Barriers Scale - Pre- and Post-Test, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Field Notes Guide, Category: Measures (Survey questions/Interview questions /interview guides/focus

	group questions);

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (1) Educational settings, (2) Tests, surveys, interviews, or observation on 6/14/2018.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Lauren Savaglio
Lauren Savaglio

APPENDIX L

FOCUS GROUP QUESTIONS

Introduction Statement:

"Hello everybody, my name is Lauren Savaglio. Thank you for participating both in the mentoring program and this discussion. I will conduct the discussion and may take some brief notes. I will ask you several open questions. Your personal opinions and view are very important. There are no right or wrong answers. Please feel welcome to express yourself freely during the discussion. This conversation will be audio recorded. This is only for purpose of the research, only Dr. Molly Ott and I will listen to the tape. No names or personal information will be used in the report.

Some practical issues: the discussion will last for about one hour to one hour and a half. I ask you to please switch off your mobile phones. Please give everyone the chance to express their opinion during the conversation. You can address each other when expressing your opinion, we are only here to assist in the discussion. Is everything clear about the course of the focus group discussion?"

1. How do you feel about the mentoring program in general?
2. What aspects of this program did you like the best? Any specific activities that appealed to you the most?
3. What aspects of this program did you like the least?
4. Do you feel like you made process towards your academic goals?
5. What could I have done to make our program a better experience for you?