ABSTRACT

SCHOOL PSYCHOLOGY AS A PROFESSION: UNDERGRADUATE STUDENTS’ KNOWLEDGE AND INTEREST

Historically, the profession of psychology has been dominated by men. However, in recent decades there has been a shift in demographics, with now an increasing number of women practitioners. This trend has become apparent in subfields of psychology, including school psychology. In fact, the field of school psychology is now predominately populated by women practitioners, most of whom are Caucasian. Bringing more gender and cultural diversity to the field of school psychology is an ongoing concern, especially now with the heightened awareness of multicultural issues. This study investigated the interest and knowledge of school psychology as a profession, along with four other professions, among 246 college students. Gender, ethnic background, year in school, and academic major were examined as predictors of knowledge and interest in the various professions. Results showed that while students have some knowledge about school psychology, they need more information. Students had similar levels of interest in all five of the surveyed professions. University faculty should focus efforts on educating and recruiting students from all genders and ethnicities to meet the growing demand for school psychology practitioners.

Kira Armbruster
May 2015
SCHOOL PSYCHOLOGY AS A PROFESSION:
UNDERGRADUATE STUDENTS’
KNOWLEDGE AND INTEREST

by

Kira Armbruster

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submitted in partial
fulfillment of the requirements for the degree of
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May 2015
APPROVED

For the Department of Psychology:

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TABLE OF CONTENTS

| LIST OF TABLES | vii |
| LIST OF FIGURES | viii |
| CHAPTER 1: INTRODUCTION | 1 |
| CHAPTER 2: LITERATURE REVIEW | 4 |
| Career Choice | 4 |
| A Snapshot of the Field of School Psychology: Past, Present, and Future | 9 |
| Who Do School Psychologists Serve? | 10 |
| Who Are Our Current School Psychologists? | 11 |
| Finding the Ideal Mix of School Psychologists | 13 |
| Conclusion | 15 |
| Research Questions | 16 |
| CHAPTER 3: METHODS | 17 |
| Participants | 17 |
| Instruments | 19 |
| Design and Procedures | 20 |
| Research Hypotheses | 21 |
| CHAPTER 4: RESULTS | 23 |
| CHAPTER 5: DISCUSSION | 33 |
| Limitations | 38 |
| Strengths | 40 |
| Implications for School Psychology | 40 |
| REFERENCES | 43 |
| APPENDICES | 48 |
| APPENDIX A: CAREERS QUESTIONNAIRE | 49 |
APPENDIX B: CONSENT FORM.................................................................57
APPENDIX C: POST-TEST INFORMATIONAL BROCHURE.......................59
APPENDIX D: KNOWLEDGE SURVEY.......................................................63
LIST OF TABLES

Table 1  *Fall 2013 Demographics for California State University, Fresno* ........ 18
Table 2  *Study Participants versus Fresno State Students Overall: Fall 2013* ..... 24
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Knowledge scores</td>
<td>27</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Interest scores</td>
<td>27</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Mean knowledge scores by gender</td>
<td>28</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Knowledge scores by ethnicity</td>
<td>28</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Interest scores by gender</td>
<td>29</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Interest scores by ethnicity</td>
<td>29</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Interest scores by major</td>
<td>30</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Knowledge scores by major</td>
<td>30</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Knowledge scores by class status</td>
<td>31</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Interest scores by class status</td>
<td>31</td>
</tr>
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CHAPTER 1: INTRODUCTION

College is an exploratory time for students. Along with their studies, they spend time learning about careers and trying to select one appropriate to their education and interests. The process of choosing a career path can be daunting. If students do not expose themselves to a variety of career options, they may graduate without knowledge of opportunities available to them. The focus of the current study is on the career of school psychology, with somewhat similar careers also studied to provide context.

One career that may provide excellent opportunities for students of psychology is school psychology. School psychologists are critical personnel in school systems, especially in the realm of special education. Practitioners have heavy responsibilities and are looked upon as experts in their field. Responsibilities include providing appropriate assessments, reports, interventions, consultations, meetings, and more. They must have the knowledge and skill to efficiently work with students, faculty, and administration.

There is a growing need for school psychologists. Research indicates that between 2000 and 2015, over 50% of all current school psychologists will be retiring; between 2000 and 2020, more than 70% will retire (Curtis, Grier, & Hunley, 2004). Although these data are encouraging for new practitioners looking for employment, it is also worrisome for the field as a whole. In the next few years, if more than half of the current school psychologists retire, the field will face shortages. If there are not enough practitioners to meet the demand, current school psychologists will have an unmanageable workload. Therefore, it is now particularly crucial to recruit students to enter the field of school psychology.
Even though nationwide there are approximately 1,750 new school psychology students graduating and entering the field every year, that may not be enough. There is a projected shortage of 15,000 school psychology students in the near future (Curtis et al., 2004). Research has found that of the students entering graduate school to study a branch of psychology, only 12% planned to pursue school psychology (Gilman & Handwerk, 2001). The National Association of School Psychologists (NASP) has been campaigning to increase awareness of school psychology for years. During national School Psychology Awareness Week, NASP encourages school psychology programs at colleges across the nation to hold meetings and events to promote the field, answer questions, and provide information. By doing so, NASP hopes to raise awareness and interest in the field of school psychology.

Currently the field seems to lack interest, particularly among undergraduate psychology students. This poses a problem for school psychologists and the entire education system. If interest continues to be weak, school psychologists will continue to be overwhelmed with an enormous workload and students will be in danger of not receiving the care they need. The recommended ratio of school psychologists to students is 1:1,000 (NASP, 2010). This guideline helps to ensure that not only school psychologists carry a reasonable workload but also that they be able to provide quality service to every student. Unfortunately, even now this ratio is not met in some states and schools. Data comparing surveys examining the ratio of students to school psychologists from the years 2004-2005 and 2009-2010 show an increase across almost every state (Charvat, 2011). If these numbers remain the same, or continue to rise, school psychology will undoubtedly suffer.

Another dilemma facing school psychology is the imbalance of genders and ethnicities in the profession. School psychologists overwhelmingly tend to be
Caucasian women. Research currently shows women practitioners comprise nearly 80% of the field. This number is also reflected in the percentage of women in school psychology graduate programs (Castillo, Curtis, & Gelley, 2013). Having a diverse population of school psychologists is important to meet the needs of increasingly diverse student populations. The greater the ethnic and gender diversity among school psychologists, the better they will be able to effectively help a variety of students. Some students or families may react differently to a Caucasian woman than they would a person of a different ethnicity or gender. Male role models are in constant demand, especially for young boys and men.

The question remains: Why is there a current lack of interest in school psychology? The field boasts numerous benefits, including time off for school holidays and a good salary and benefits. What is keeping school psychology from becoming a more popular profession? And why does the field continue to be populated by mostly women and Caucasians? This study assessed undergraduate students’ knowledge of and interest in the profession, and differences in those by gender, ethnicity, and class status, and major. Students’ knowledge of and interest in four other professions were also assessed to provide context for findings.
CHAPTER 2: LITERATURE REVIEW

Career Choice

Many theories incorporate the process of career choice. One theory in particular describes the career selection process across the lifespan. According to Donald Super’s “life-span, life-space” theory, five stages make up the lifespan career process. During the Growth stage, children ages four to thirteen begin to develop a sense of themselves while also learning the basics of the working world. In this stage children fantasize about different occupations and begin to gain a better understanding of occupations and what they may require. As they begin to better understand themselves and their capabilities, they begin to plan for their future. Between the ages 14 to 24, young adults experience the Exploration stage, in which they set about determining which occupation they will pursue: a task known as crystallization. Crystallization involves selecting careers and exploring each one in greater detail. The Establishment stage usually occurs between the ages of 25 to 45. This stage involves individuals stabilizing themselves in their chosen career and becoming a good employee. In the Maintenance stage (typically between ages 45 to 65), workers make the decision to stay in a career and keep their skills current or they may decide to leave their career in the pursuit of another. Finally, in the Disengagement stage, workers become less focused on careers and more interested in plans of retirement (Niles & Bowlsbey, 2002).

The focus of this study is on college students, with most individuals in the Exploration phase of life. College is an ideal time for students to develop their interests while learning about different careers. Once individuals have a better understanding of themselves, as well as their interests and goals, they are better able to choose a career.
When deciding which career is best suited for them, students may utilize a variety of options. Consulting with family, friends, or counselors may be useful in helping guide them toward a career of interest. Some students may be given career questionnaires by counselors in the hopes of pointing them in a viable direction. Counselors may use a variety of other tools or methods to help students narrow down a list of career possibilities. Research shows that students who are highly intrinsically motivated are better able to identify an area of vocational interest. When high intrinsic motivation is coupled with positive family relationships, students show even better vocational identity (Shin & Kelly, 2013).

**Gender and Career Choice**

Men and women are fundamentally different. Therefore, it comes as no surprise that their career choices can be different as well. Su, Rounds, and Armstrong (2009) found significant gender differences in vocational interests. The study investigated the difference in men and women’s interest in occupations using the Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC) test and found that men tend to select occupations that are Realistic and Investigative, while women tend to select occupations that are Artistic, Social, and Conventional; men tend to be more things-oriented whereas women tend to be more people-oriented.

Similarly, Howard et al. (2010) found that boys gravitate toward certain occupations and girls to others. A study of high school students who were given a list of 20 occupations showed that girls mostly chose “acting, fashion design, cosmetology, veterinarian, photography, dancing, psychology, and elementary school teacher,” and boys chose, “architect, police officer, professional athlete, autobody technician, computer programmer, computer engineer, mechanical
engineer, and coach.” The four occupations that were not specific to either gender were lawyer, FBI agent, musician, and artist. Additionally, results showed that the girls favored occupations that required more education.

Encouragingly, in one study, researchers found that girls were selecting careers that in past decades they would not have listed. This was also not ethnicity-specific. Girls listed nontraditional careers (e.g., lawyers, doctors) that until recently, many girls were not interested in pursuing. The researchers postulated that this may be due to girls seeing more adult women family members or in the media who have taken more nontraditional roles and have inspired them to do so as well (Bobo, Hildreth, & Durodoye, 1998).

**Ethnicity and Career Choice**

Research has shown that a person’s ethnicity may play a role in making career decisions. There are numerous factors that can impact that decision. One of these factors is socioeconomic status, which can be associated with ethnicity. Howard et al. (2010) found that, among the students identified as Asian/Pacific Islander and Native American, those who were not low-income had goals to achieve occupations which were more prominent, required more education, and had higher paying salaries than their peers from low-income backgrounds. Native American students from low-income backgrounds had lower occupational aspirations than those of low-income peers from other ethnicities. Among students who did not come from low-income backgrounds, Asian/Pacific Islander youth reported higher occupational aspirations than those of their non-low income peers from other ethnicities.

Researchers did note that the Anglo students listed more career choices than children of other ethnicities. They speculated that this may be because the
children from Anglo families came from higher socioeconomic status backgrounds; therefore they had more experiences which may have exposed them to more career possibilities. They also hypothesized that family members or family friends may have served as role models for them and have shown them a variety of careers (Bobo et al., 1998).

Caldera, Robitschek, Frame, and Pannell (2003) compared career interests of Mexican-American and non-Hispanic White women. They had originally hypothesized that Mexican-American women would choose careers based on family influence, but found less prediction than anticipated. Mexican-American women who received encouragement and support from family were able to select a career and stay with it, and, to their surprise, parent and intrapersonal variables did not make a significant impact on career selection. The study did show that non-Hispanic White women who were more committed to their career choices had more familial influence than Mexican-American women. The researchers hypothesize that perhaps if the Mexican-American women had parents with low levels of education, they may not have been able to help their daughters in the process of selecting a career.

**Personality Type and Career Choice**

Vocational interest begins to form and solidify during the middle school years. This can be influenced by a number of factors, including family involvement, teacher input, and personality. Research on personality traits and vocational interest shows that both boys and girls who score high on the trait Openness/Intellect are able to think more creatively about their future occupation and do not necessarily conform to gender stereotypes. In contrast, children who scored low on this trait selected occupations that were stereotypical to their
gender. Students who are high in Openness/Intellect, and therefore more open and creative, are able to think in more abstract terms about their future vocational interests (Woods & Hampson, 2010).

Still other research suggests that students may be able to better determine a major and later career based on personality characteristics. One study asserts that students’ ways of thinking should be matched to areas of work. By doing so, students should be provided with better options based on abilities and interests in careers. Kim (2011) studied high-achieving students and which career they would best be suited for given their personalities. Students with extroverted personalities indicated they would thrive in the social sciences, including psychology, human resources, and social work. Jobs in these areas require good interpersonal skills and a desire to interact with others. Therefore, students with extroverted personality types were predicted to do well in these and similar settings. This information should be utilized for students trying to decide on a career path. If students are aware of their personality type and thinking style, it may help optimize occupation choice.

Kim (2011) showed that career decisions may also be impacted by which school students attend. High school students attending a school focused on liberal arts were more inclined to be outgoing and people oriented than those attending schools focused on science and technology. The danger here is that students may not be exposed to different ways of thinking or acting. In order to have a well-rounded experience, students should be made aware of all their possibilities so that they may then pick the best option for themselves.
A Snapshot of the Field of School Psychology: Past, Present, and Future

Research on how gender, ethnicity, and personality traits may impact career decisions can be beneficial for the field of school psychology. Despite low numbers and interest, some students still discover the field and continue to pursue it as a career (Kratochwill, Shernoff, & Sanetti, 2004). There are various reasons students are attracted to school psychology. Perhaps the most reasonable answer is personal interaction with a school psychologist at some point in their life, whether it be from a professor who piqued their interest in the field or having worked with a school psychologist during their school age years. These and other personality characteristics may predict students who are knowledgeable and interested in the field of school psychology.

School psychology can be traced back to 1890s with the founding of the American Psychological Association (APA) in 1892 (Tharinger, Pryzwansky, & Miller, 2008). Since its founding, school psychology has grown rapidly. As school attendance began increasing, so did the demand for school psychologists. Special education laws were also enacted, which meant an increase in psychological services, contributing to the sharp increase in the number of practitioners. In fact, between the years 1920 and 1950 alone, the field saw tremendous growth, increasing from 200 to 1,000 practitioners (Fagan, 2008). Although it is difficult to pinpoint the exact number of practitioners in the field currently in the United States, Charvat (2008) estimates it to be approximately 35,400.

Filling the Gap

Although this job is crucial, there are not nearly enough individuals to fill the growing demand. The field of school psychology may still be considered new within the field of psychology and has been overlooked as a profession of interest.
Researchers have delved into this issue and found that the numbers of school psychologists in general continue to be low. NASP (2010) recommends a ratio of one school psychologist to every 1,000 students. Researchers predict that by 2020, the field will be short by 15,000 school psychologists (NASP, 2006). It is clear there is an enormous need for school psychologists now and in the near future. The field must see substantial growth immediately in order to meet the projected need.

There has been a marked increase in age among school psychologists. According to one set of researchers, the average age of school psychologists has gone from 38 to 41 to 47 (Hosp & Reschly, 2002). As time goes on, many school psychologists will be getting ready to retire, leaving room for new practitioners. However, because the number of students requiring attention continues to rise, the dilemma will be to fill the positions left vacant by those who retire. Curtis et al., (2004) stated that school psychology would be at its highest point in 2010, but then decrease through approximately 2020. This still leaves a gap of time in which school psychologists will have a larger workload than they can manage. School psychologists already face more students than they are equipped to handle, so recruiting new practitioners to ease their workload will be critical.

**Who Do School Psychologists Serve?**

Research on the demographics of school-age children shows that there is great diversity. A 2008 census showed that students were 59% non-Hispanic Caucasian, 18% Hispanic, 15% Black, 5% Asian. These data also predict that the future for ethnic diversity among students will only continue to rise (Crouch & Zakariya, 2012).
By the year 2050, the United States population is expected to expand 50%. In these coming years, research has projected the Caucasian demographic to have the smallest growth. In contrast, other demographics, including African American, Asian, Latino, and Native American, are predicted to experience large growth. This poses a major problem for school psychology if the profession cannot expand and recruit more practitioners of varying ethnicities. Not only does the growth expectancy mean more students will need to be served, but with the cultural diversity projections, there will be a greater need for bilingual professionals and practitioners who are culturally sensitive and knowledgeable. If more school psychologists from minority or ethnically diverse backgrounds can be recruited, students will be better served (NASP, 2009).

Who Are Our Current School Psychologists?

Gender

Many branches in psychology have been affected by a decline in men practitioners and an increase in women practitioners. This trend has been referred to as the “feminization of the field” (Fagan, 2008, p. 2070). Many of the early school psychologists were women, including Norma Cutts, Gertrude Hildreth, Leta Hollingsworth, and Helen Thompson Woolley (Fagan, 2008). In fact, according to research, in 1949 women made up over 60% of school psychology memberships and elected leaders. In the years 1956-1957, 54% of the 600 members were women (Fagan, 2008). However, even with these notable women practitioners, at the time of school psychology’s inception, men were still the leaders in psychology.

By the 1990s, surveys showed that female membership in NASP had grown to 65%. In the field, female representation clearly dominates, with women
accounting for 80% of school psychology graduate students and 70% of practitioners. This increase has jumped in just over 50 years (Fagan, 2008).

Some theories as to why school psychology tends to be populated mostly by women have been developed. One is that because of the flexibility provided by school psychology, women with children, or intending to have children, may be drawn to the field. Because many school psychologists enjoy free summers and holidays, the field gives numerous benefits to women who are also full-time caretakers. School psychologist jobs are in demand across the United States, which provides numerous possibilities for place to live. This also provides flexibility for practitioners who are working mothers who either need to find a job near them or need to relocate with their family. If these issues remain the same in coming years, the trend of women outnumbering men as practitioners is likely to remain.

**Ethnicity**

Research shows that the numbers of ethnic minority school psychologists are extremely low. Curtis, Lopez, Batsche, and Smith (2006) state school psychologists of Hispanic ethnicity accounted for only 3% of members, African-Americans 2%, Asian 1%, and Native American less than 1%. Another study echoes the need for ethnically diverse school psychologists. In fact, it noted that over the last 30 years the percentage of Caucasian school psychologists has not changed significantly. Ratios of African American and Hispanic practitioners remain consistently minute in comparison with those of Caucasian descent. In addition, practitioners of other minority groups were either almost unchanged, if not declining, from previous years and studies (Curtis, Castillo, & Gelley, 2010).
However, there is some question as to the accuracy of data noting the exact school psychology is primarily populated by Caucasians. Some research suggests a broader ethnicity base among non-NASP members. This could imply that researchers who have used NASP memberships as the basis for ethnicities in the field may not be adequate to represent all school psychologists (Lewis, Truscott, & Volker, 2008). Further research with a better pool of data will help to solve confusion.

Some troubling data suggest that there are higher rates of ethnic minorities in graduate programs than there are practicing in the field. Even more troubling are data that show that large numbers of students from ethnic minorities leave their psychology programs before earning their degree (APA, 2002). These rates of ethnic minority students who leave their programs before finishing may help to explain the discrepancy of ethnicities in the field (Castillo et al., 2013). Recommendations have been made to make efforts to diversify the ethnicities of graduate programs by including a broader pool of, “races, socioeconomic levels, linguistic backgrounds, cultures, religions, genders and sexual orientations” (Newell et al., 2010, p. 265).

Finding the Ideal Mix of School Psychologists

Advocacy and Recruitment

School psychologists must take an active role in advocating for the field to ensure that more students enroll in programs specifically for the purpose of becoming practitioners. According to NASP (2010), there should be one school psychologist for every 1,000 students. This is not only a practical standard to ensure school psychologists can meet the needs of students efficiently, it is also an ethical practice to ensure students are receiving quality attention and services.
However, researchers have noted that this goal has yet to be attained (Fagan, 2008).

In response to the increasing demand for school psychologists, NASP has taken several measures to promote the field. To entice students of minority backgrounds, NASP offers students scholarships. The goal of the scholarships is for recipients to graduate and go into the field of school psychology and use their cultural knowledge and awareness to support and benefit their communities and students with whom they work (NASP, 2012). It is hoped that offering a scholarship specifically designated for minority students will boost interest and popularity of school psychology among diverse ethnic backgrounds. Another way NASP is promoting awareness of the field is by spearheading the annual School Psychology Awareness Week. During the designated week, NASP encourages schools and practitioners to advocate for the profession by writing letters to elected officials and holding discussions on college campuses to raise awareness.

One study found that although the awareness of school psychology is higher than expected, it is still not pursued for graduate study as commonly as other branches of psychology. Of 135 students who participated in one study, only 16 (12%) planned on pursuing a school psychology graduate program as a first or second choice; 44% planned on pursuing clinical psychology, and 39% counseling. The researchers also noted that, ironically, when asked why they were more inclined to pursue clinical psychology, students said they wanted to serve children and their families (Gilman & Handwerk, 2001). This claim solidifies the need for further efforts in promoting awareness of school psychology.
Conclusion

Every child deserves the opportunity to receive a quality education. This education is made possible by dedicated educators and staff who guide a child toward success. Some students need extra support which can come from a variety of people, including school psychologists. School psychologists are trained to administer various tests that help them place children in settings that will benefit them the most. If a child is struggling in school, school psychologists can help determine what additional support can be given to the student. Whether it be individualized help from a teacher for a few extra minutes per day, or a more intensive special day class, school psychologists can help get students what they need in order to be successful.

Although the study of psychology dates back thousands of years, the field of school psychology is comparatively new. As parents and psychologists began to recognize the need for services to students with a variety of issues, school psychology evolved. As with many psychology branches, school psychology began as a field populated predominately by men. However, recent decades have shown that this is no longer the trend, and in fact women now outnumber men dramatically. While there is speculation as to why women seem to be drawn to the field of school psychology, there is no definite answer. Not only are women the dominant gender in school psychology, but Caucasians rank highest in ethnicity of practitioners. This has been a growing concern among school psychologists, as not every ethnicity or gender will identify and work well with Caucasian women practitioners. Through the efforts of NASP, school psychologists, and schools across the United States, awareness of the field is being promoted. Hopefully in the coming years the field will see an increase in ethnic, linguistic, and gender diversity so school psychologists can best meet the needs of students.
College is a time when individuals become aware of various careers and begin training for them. While some students enter and exit college knowing exactly what they want to do, many discover their profession during those undergraduate years. Other students enter with one major and graduate with a different one. That is why it is important for students to be exposed to a number of professions. Ideally students gain perspective and understanding of a range of professions while undergraduate students. However, because not all professions are as widely known as others, some may be overlooked, such as school psychology. Therefore, this study will help determine how much students know about school psychology and how interested they are in the field. Conducting this descriptive study will give insight into current knowledge and interest in school psychology.

Using a sample of 246 undergraduate students from California State University, Fresno, the following research questions will be asked:

**Research Questions**

1. Does knowledge and interest in school psychology differ by students’ gender or ethnicity?

2. Does knowledge and interest in school psychology differ by students’ major or class status?

3. How does knowledge and interest in school psychology differ from knowledge and interest in clinical psychology, clinical laboratory science, medicine, and university teaching?
CHAPTER 3: METHODS

Participants
For this study, 246 undergraduate students from California State University, Fresno were surveyed. The school has approximately 22,710 undergraduate students from a number of ethnic backgrounds. Participants were current students in the Introduction to Psychology (Psychology 10) or History and Systems (Psychology 184) classes in the Psychology department and Introductory Biology (Biology 1A) or Evolution (Biology 105) in the Biology department. Psychology 10 and Psychology 184 classes are required for California State University, Fresno Psychology majors and Biology 1A and Biology 105 are required for Biology majors. This is a sample of convenience.

Fall 2013 Demographics
Complete enrollment records for the Fall of 2013 at California State University, Fresno, showed 1,057 students in undergraduate and/or post-baccalaureate or graduate programs in Biology and 1,329 in Psychology. Ethnicity information was also collected from university records in order to compare demographic information with that of the current study (see Table 1).

Clearly both Biology and Psychology majors at Fresno State show ethnic diversity. This provided a good foundation for the present study. A variety of ethnicities provide stronger data because different backgrounds and cultures are represented.
Table 1

*Fall 2013 Demographics for California State University, Fresno*

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</table>
Instruments

Participants were surveyed in one of the four previously mentioned classes. The independent variables were participants’ gender (men/women), ethnicity (Caucasian, Hispanic, Asian, Other), major (Psychology, Biology, Other), and class status (Freshman, Senior Psychology, Senior Biology). The dependent variables were the participants’ knowledge and interest in five different professions, including school psychology.

A careers questionnaire (see Appendix A) was developed for this study in the attempt to determine the awareness, knowledge, and interest in professions along with demographic information. The Demographics section gathered different background information about the participants, including gender, ethnicity, age, number of undergraduate units completed, approximate high school grade point average (G.P.A.), approximate college G.P.A., intended major, intended profession, first generation college status, and plans on attending graduate school. These demographic questions are presumed reliable and valid.

The next 30 questions determined the participants’ knowledge of the five professions, with six questions each. Participants were asked closed-ended questions about the roles of each profession (e.g., “Where do school psychologists typically work?” or “How much do professors make?”). The number of correct responses created an overall measure of knowledge. Reliability indices are given in the next chapter. These variables are face valid.

The interest section had questions that collected information regarding which profession students show an interest in and if they are aware of them. There were 10 professions listed: School Psychologist, School Counselor, Clinical Psychologist, Social Worker, Medical Doctor, Entomologist, Clinical Laboratory Scientist, Neurobiologist, University Professor, and Veterinarian. The questions
asked, “How interested are you in becoming a…” with the 10 professions listed. Participants were given the numbers 1-5 along with a “?” to choose their level of interest. The “?” indicated that the student had never heard of the profession, “1” indicated that they are not at all interested in the profession, and “5” indicated that they are extremely interested. Participants were also able to select the numbers 2, 3, or 4 to indicate a level of interest between “1” (not at all) and “5” (extremely). These variables were presumed reliable and valid.

A pilot test was conducted using the school psychology knowledge portion of the overall questionnaire (see Appendix A) created for this study to test its validity and appropriateness. Nineteen students from the school psychology graduate program in their first and third years of study were recruited. After receiving the results from the school psychology knowledge portion of the questionnaire and discovering which items were most challenging (due to confusing wording), it was revised to make it more understandable and realistic. The final form of the questionnaire is included in Appendix A.

**Design and Procedures**

This study aimed to determine the awareness, interest, and knowledge of undergraduate students in five professions, including the field of school psychology. It was a non-experimental, cross-sectional study. The environment was not manipulated, there was no random assignment to groups, and the independent variables were not manipulated. The only perceived risk to participants was if students were under the age of 18, and those students were excluded from the study. A consent form was read and a signature was required (see Appendix B). All students were notified that their participation was voluntary.
Students enrolled Fall 2013 in the Introduction to Psychology, History and Systems, Introductory Biology, and Evolution classes were asked to participate. The Introduction to Psychology (Psychology 10) class requires students to participate in several experiments on campus. They are given a variety of studies or experiments to be involved in and they pick those of interest. The incentive for participation was simply credit for the Introduction to Psychology class. The History and Systems (Psychology 184) is a more advanced class required of all Psychology majors. Likewise, the Introductory Biology (Biology 1A) class is the entrance level Biology course that is offered to all undergraduate students. The Evolution (Biology 105) class is an advanced Biology course required of all Biology majors. One time during each of the four classes, participants completed the survey (see Appendix A) regarding their knowledge and interest in various occupations. After participants completed the questionnaires, they were presented with an informational brochure (see Appendix C). The brochure provided answers to the questions in the survey so that when they left, they had a summary of information on each of the five professions. References for information from the survey were provided at the end of the brochure.

**Research Hypotheses**

1. Knowledge and interest scores in school psychology will differ by students’ gender and ethnicity (Caucasian, Hispanic, Asian, Other).

2. Knowledge and interest scores in school psychology will differ by major (Psychology, Biology, Other) and class status (Freshman, Senior Psychology, Senior Biology).
3. Knowledge and interest scores will differ by profession (School Psychologist, Clinical Laboratory Scientist, Professor, Clinical Psychologist, Medical Doctor).
CHAPTER 4: RESULTS

School psychology is currently an under-populated field, with the majority of practitioners Caucasian women. For the present study, 246 undergraduate students were surveyed to better understand their knowledge and interest in five different professions: school psychologist, clinical laboratory scientist, professor, clinical psychologist, and medical doctor.

A total of 246 students from California State University, Fresno were surveyed in four different classes: a freshman psychology, freshman biology, senior psychology, and senior biology class. Participants varied in ethnicity and gender, similar to California State University, Fresno, students in general (see Table 2).

Table 2 shows the demographics of the participants for the current study and those of all students at the university. Participants’ mean high school grade point average was 3.31 (SD= 0.46) and the mean age was 22.04 (SD= 4.86). Gender and ethnicity demographics very closely matched that of the university population. Therefore the sample is representative. This helps give validity to the current study because sample and university demographics are closely aligned.

Demographic Variables

Research hypotheses focus on differences in awareness and knowledge of various professions by gender (male, female), ethnicity (classified here as Caucasian, Hispanic, Asian, Other), major (classified here as Psychology major, Biology major, Other), and class status (classified as Freshmen, Senior Psychology, Senior Biology).
Table 2

*Study Participants versus Fresno State Students Overall: Fall 2013*

<table>
<thead>
<tr>
<th>Classes Assessed</th>
<th>Study Participants</th>
<th></th>
</tr>
</thead>
</table>
| Psych 10         | 83                  | 33.7%
| Psych 182        | 88                  | 35.7%
| Bio 1A           | 35                  | 14.2%
| Bio 105          | 40                  | 16.3%

<table>
<thead>
<tr>
<th>Gender</th>
<th>Study Participants</th>
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</table>
| Men          | 102                 | 41.5%
| Women        | 144                 | 58.5%

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Study Participants</th>
<th></th>
</tr>
</thead>
</table>
| Caucasian   | 70                  | 28%
| Hispanic    | 108                 | 44%
| Asian       | 32                  | 13%
| Other       | 4                   | 2%

<table>
<thead>
<tr>
<th>Major Class Status</th>
<th>Study Participants</th>
<th></th>
</tr>
</thead>
</table>
| Freshman           | 120                 | 49%
| Senior             | 57                  | 21%
| Psychology         | 75                  | 30%

<table>
<thead>
<tr>
<th>Continuing Generation Status</th>
<th>Study Participants</th>
<th></th>
</tr>
</thead>
</table>
| First Generation             | 136                 | 55%
| Continuing                   | 110                 | 45%

<table>
<thead>
<tr>
<th>Graduate School Plans</th>
<th>Study Participants</th>
<th></th>
</tr>
</thead>
</table>
| Yes Wish to Continue        | 201                 | 82%
Awareness of Professions

Unfortunately upon reviewing the survey data, it became apparent that participants misunderstood the directions related to the awareness questions. The awareness and interest assessments were combined into a single item (e.g., “How interested are you in becoming a school psychologist?”). Participants were instructed to circle one choice: ?, 1, 2, 3, 4, or 5. The question mark was designated as “Never heard of this profession” to indicate lack of awareness. Participants circled the question mark more often than anticipated and for unexpected professions. For example, 28% of men and 39% of women participants circled the question mark for Professor, which is inexplicable because they were sitting in classrooms taught by professors. It is believed that participants misread or misunderstood the instructions for that portion of the survey, perhaps thinking that the question mark indicated they were not sure if they were interested in the profession. Because of this, the awareness component of this study was eliminated.

Knowledge of Professions

Knowledge was measured with six factual items per profession (see Appendix D). When summed across items, the knowledge scores had relatively low internal consistency: Cronbach alphas were 0.14 for School Psychology, 0.22 for Clinical Laboratory Scientist, 0.17 for Professor, 0.27 for Clinical Laboratory Scientist, and 0.18 for Medical Doctor. The scores appear face valid (see Figures 1, 3, 4, 8, and 9). Overall knowledge scores ranged from M=2.37 for Clinical Laboratory Scientist to M=4.21 for Medical Doctor.

Focusing specifically on responses to the School Psychology section, and first focusing on specific items, interestingly the first question (“Where do school psychologists typically work?”) participants consistently answered incorrectly.
This could be due either to how the question was worded or a fundamental misunderstanding about where school psychologists actually work. Most participants answered “All of the above” which encompassed both public and private schools. Although school psychologists may work in private schools, the correct answer was that they typically work in public schools. The data collected from these questions provides more information about the level of understanding students have about School Psychology and where they may need some more education.

**Interest in Professions**

The single item measure of interest is presumed reliable and appears face valid (see Figures 2, 5, 6, 7, and 10). However, given the confusion with the awareness scale, not all students provided an interest rating. Interest in School Psychology ratings were provided by a sample size N=243, omitting 3 participants. Interest in Clinical Laboratory Scientist ratings were provided by a sample size N=227, omitting 19 participants. Interest in Professor ratings were provided by a sample size N=243, omitting 3 participants. Interest in Clinical Psychology ratings were provided by a sample size N=238, omitting 8 participants. Interest in Medical Doctor ratings were provided by a sample size N=243, omitting 3 participants.

**Research Hypotheses**

Because the interest variables were excluded due to participant confusion, the modified research hypotheses do not include this variable. Note the first two research hypothesis are focused on the profession school psychology only. The first research hypothesis stated “Knowledge and interest scores in school psychology will differ by students’ gender and ethnicity.” Results showed no
Figure 1. Knowledge scores
*Note:* School Psychologist $M=3.20$, Clinical Laboratory Scientist $M=2.37$, Professor $M=3.02$, Clinical Psychologist $M=3.33$, and Medical Doctor $M=4.21$.

Figure 2. Interest scores
*Note:* School Psychologist $M=2.35$, Clinical Laboratory Scientist $M=1.96$, Professor $M=2.54$, Clinical Psychologist $M=2.39$, and Medical Doctor $M=2.52$. 
Figure 3. Mean knowledge scores by gender


Figure 4. Knowledge scores by ethnicity

Note for caucasian: School Psychologist M=3.26, Clinical Laboratory Scientist M=2.54, Professor M=3.30, Clinical Psychologist M=3.25, and Medical Doctor M=4.42. Note for Hispanic: School Psychologist M=3.30, Clinical Laboratory Scientist M=2.26, Professor M=2.87, Clinical Laboratory Scientist M=3.50, and Medical Doctor M=4.25. Note for Asian: School Psychologist M=2.84, Clinical Laboratory Scientist M=2.69, Professor M=2.87, Clinical Psychologist M=3.03, and Medical Doctor M=3.88. Note for Other: School Psychologist M=3.08, Clinical Laboratory Scientist M=2.08, Professor M=3.08, Clinical Psychologist M=3.28, and Medical Doctor M=4.00.
Figure 5. Interest scores by gender

*Note for men:* School Psychologist M=2.11, Clinical Laboratory Scientist M=2.10, Professor M=2.74, Clinical Psychologist M=2.11, and Medical Doctor M=2.66. *Note for Women:* School Psychologist M=2.51, Clinical Laboratory Scientist M=1.63, Professor M=2.39, Clinical Psychologist M=2.54, and Medical Doctor M=2.43.

Figure 6. Interest scores by ethnicity

*Note for Caucasian:* School Psychologist M=2.19, Clinical Laboratory Scientist M=2.00, Professor M=2.81, Clinical Psychologist M=2.29, and Medical Doctor M=2.61. *Note for Hispanic:* School Psychologist M=2.68, Clinical Laboratory Scientist M=1.69, Professor M=2.44, Clinical Psychologist M=2.56, and Medical Doctor M=2.43. *Note for Asian:* School Psychologist M=1.94, Clinical Laboratory Scientist M=1.72, Professor M=2.19, Clinical Psychologist M=1.97, and Medical Doctor M=2.84. *Note for Other:* School Psychologist M=2.00, Clinical Laboratory Scientist M=1.97, Professor M=2.57, Clinical Psychologist M=2.20, Medical Doctor M=2.37.
Figure 7. Interest scores by major

Note for psychology: School Psychologist M=3.19, Clinical Laboratory Scientist M=1.46, Professor M=2.72, Clinical Psychologist M=3.07, and Medical Doctor M=1.92. Note for Biology: School Psychologist M=1.38, Clinical Laboratory Scientist M=2.64, Professor M=2.23, Clinical Psychologist M=1.59, and Medical Doctor M=3.60. Note for Other: School Psychologist M=2.06, Clinical Laboratory Scientist M=1.70, Professor M=2.53, Clinical Psychologist M=2.08, and Medical Doctor M=2.51.

Figure 8. Knowledge scores by major

**Figure 9.** Knowledge scores by class status

*Note for freshmen:* School Psychologist $M=3.03$, Clinical Laboratory Scientist $M=2.25$, Professor $M=2.75$, Clinical Psychologist $M=3.09$, and Medical Doctor $M=3.97$. *Note for Senior Psychology:* School Psychologist $M=3.41$, Clinical Laboratory Scientist $M=2.37$, Professor $M=3.1$, Clinical Psychologist $M=3.74$, and Medical Doctor $M=4.22$. *Note for Senior Biology:* School Psychologist $M=3.23$, Clinical Laboratory Scientist $M=2.75$, Professor $M=3.65$, Clinical Psychologist $M=3.15$, and Medical Doctor $M=4.93$.

**Figure 10.** Interest scores by class status

*Note for Freshman:* School Psychologist $M=2.17$, Clinical Laboratory Scientist $M=1.79$, Professor $M=2.36$, Clinical Psychologist $M=2.21$, and Medical Doctor $M=2.81$. *Note for Senior Psychology:* School Psychologist $M=3.06$, Clinical Laboratory Scientist $M=1.38$, Professor $M=2.74$, Clinical Psychologist $M=2.99$, and Medical Doctor $M=1.84$. *Note for Senior Biology:* School Psychologist $M=1.28$, Clinical Laboratory Scientist $M=2.90$, Professor $M=2.59$, Clinical Psychologist $M=1.41$, and Medical Doctor $M=3.18$. 
differences by either gender or ethnicity for knowledge or interest in school psychology. Overall, participants showed an average knowledge score of 3.20 for School Psychology (SD= 1.08), with a total possible score of 6. Data showed an average interest score of 2.35 for School Psychology (SD= 1.30), using a Likert scale from 1= Not at all to 5= Extremely (see Figures 1, 3, 4, 8, and 9).

The second research hypotheses stated, “Knowledge and interest scores in school psychology will differ by major and class status.” Results did show a difference in knowledge scores by major (Psychology, Biology, and Other) (F(2, 243)= 3.34, p< .05), and by class status (Freshman, Senior Psychology, or Senior Biology) (F(2, 243)= 6.57, p< .05). Psychology majors scored higher in knowledge of school psychology than biology majors. Senior Psychology students scored higher in knowledge of school psychology than Freshmen and Senior Biology students. Results showed no significant difference by major or class status for interest scores in school psychology (see Figures 2, 5, 6, 7, and 10).

The third research hypothesis stated, “Knowledge and interest scores will differ by profession.” As examined with the repeated measures ANOVA, knowledge did differ by profession (F(4, 235)= 99.84, p< .05). Overall, the highest knowledge score was for medical doctor (M= 4.21, SD= 1.12) and the lowest knowledge score was for clinical laboratory scientist (M= 2.37, SD= 1.07). All remaining professions fell between those values.

As examined with the repeated measures ANOVA, interest did not differ by profession (F(4, 231)= 2.04, p> .05). So, overall there was no statistical difference in levels of interest across professions.
CHAPTER 5: DISCUSSION

The purpose of this study was to assess the interest and knowledge of undergraduate students in relation to the career of school psychologist. In recent years Caucasian women have primarily populated the field of school psychology (Castillo et al., 2013). A call to advocacy for the profession has arisen in the hopes of capturing the interest of students.

This study surveyed 246 undergraduate students at California State University, Fresno who were enrolled in Psychology and Biology classes. Students in four different classes were targeted to assess their interest and knowledge in School Psychology, along with four other professions (Clinical Laboratory Scientist, Professor, Clinical Psychologist, and Medical Doctor). Students were either in introductory or senior classes to determine how much they knew entering, and preparing to exit, college. Ten professions related to the science field were selected to survey interest.

The first research hypothesis stated “Knowledge and interest scores in school psychology will differ by students’ gender and ethnicity.” Results showed no differences by either gender or ethnicity for knowledge or interest in School Psychology.

Previous research indicated that men and women would have distinctive preferences and interests in professions. Su et al. (2009) and Howard et al. (2010) found that men gravitated toward more hands-on types of careers while women tended to choose more people-oriented careers. However, the present study did not find significant gender differences in interest in school psychology. It should be noted that the present study utilized science-related professions. If the options for
careers to select from had been widened to include more professions outside of the science field, results may have differed.

Results hold some hope for the field of school psychology in regards to recruitment. The number of men participants for the current study was 102 (42%). Of these, 50 were Freshmen, 25 were Senior Psychology, and 27 were Senior Biology students. Participants had equal knowledge of school psychology across genders and ethnicities, which is good news for recruiters. If men and women do not gravitate toward one field, or one particular type of field, it will hopefully be easier to recruit more men. This would mean universities do not necessarily need to target one gender or ethnicity to provide more education about different professions, but that they share an equal amount of knowledge about different careers. Similarly, recruiters do not have to worry about trying to get a particular gender or ethnicity interested in certain careers since the data showed they share equivalent amounts of interest.

Ethnic diversity has been the other concern within the school psychology field. Although Day and Rounds (1998) found no significant differences among ethnicities when choosing a career, the field of school psychology continues to be populated with mostly Caucasians (Castillo et al., 2013). This study’s results showed no difference by ethnicities in regards to interest in careers. This is good news for recruiters because they do not have to spend time focusing their efforts on certain ethnicities when trying to interest students in different careers. This is also good news for school psychology because it means students from all ethnicities may have interest in the field, and therefore be recruited.

The second research hypotheses stated “Knowledge and interest scores in school psychology will differ by major and class status.” Results did show a difference in knowledge scores by major and by class status (Freshman, Senior
Psychology, or Senior Biology). Psychology majors had higher knowledge and interest scores in School Psychology than Biology or other majors. Senior Psychology students scored higher in knowledge for School Psychology. Senior Psychology students scored higher in knowledge of School Psychology than Senior Psychology students and Freshmen. Results showed no significant difference by major or class status for interest scores.

These data revealed a couple of important things. First, Seniors appear to be gaining knowledge of various careers throughout their college careers (Kratochwill et al., 2004). Although this may sound simple, it is important to universities and for this study. The goal of universities, programs, and professors is for students to be learning throughout their college time. The explicit focus is on instruction in substantive material, meaning material that students should have basic knowledge of. That type of material is important but a well-prepared graduating student should have some factual understanding of various professions in the field. Students’ knowledge does not stay stable, but instead is a vertical process. The current research show that not only is this goal is being accomplished, but that students can also apply the knowledge they have gained.

Another positive piece of information the data revealed was that Senior Psychology students had more knowledge about psychology professions than students from other fields. Universities and their respective departments aim to give students the best education in their chosen major. They are also preparing them for future careers and therefore must provide students with the best information on various career paths. It is expected that students majoring in Psychology would have learned more about psychology, and therefore, retained more information. So, for the purposes of the current study, the data showed what would be expected- departments are teaching and providing good information
about psychology careers, and students are retaining it. This is good news for professors, programs, and the university because it means that students are learning important knowledge about psychology careers, and have a better grasp on the material. It also means that students are learning the important information they need to about their field of interest and can demonstrate that in comparison with students with less college experience (Gilman & Handwerk, 2001).

The third research hypothesis stated, “Knowledge and interest scores will differ by profession.” As detailed with the repeated measures ANOVA, knowledge did differ by profession. The greatest knowledge score was for Medical Doctor and the lowest knowledge score was for Clinical Laboratory Scientist. All remaining professions fell between those values.

These results revealed several interesting things. First, students, no matter their major or year in school, had more knowledge about medical doctors than any other profession. This means that even after entering college and learning more about new careers, the Medical Doctor profession still had the greatest knowledge among students. Second, students had the least knowledge about Clinical Laboratory Scientists. It appears some professions are not getting enough attention from programs or professors, and that students should receive more education on different fields to give them exposure to a variety of careers.

The total School Psychology knowledge fell in the middle of the data, which was also surprising. At the beginning of this study, students were expected to have the least amount of knowledge in School Psychology. Knowledge about Professors was expected to be higher since more students have been exposed to Professors versus School Psychologists. However, after examining the data, School Psychology knowledge was approximately equal to knowledge about Professors.
It became clear upon reviewing the data that the more widely known profession (Medical Doctor) of those surveyed was the one students knew the most about. There are different hypotheses proposed for this. One is that media has portrayed certain professions more often than others giving students more awareness of them. There are many television shows about medical doctors but none about school psychologists, so students are more likely to know about what doctors do versus school psychologists.

Another hypothesis is that students are more likely to come into contact with medical doctors throughout their life than a school psychologist or a clinical laboratory scientist. A student will know more about who a doctor is and what they do because they have seen them growing up but they may never have come into contact with a school psychologist or clinical laboratory scientist. This is another reason why it is important for students to be exposed to a variety of professions and know what careers are available to them. Without being exposed to certain professions at some point in their life a student may never know that some careers exist. And if they do not know they exist there will be no interest in them to pursue the profession. Stinnet and Solomon (2014) found in their study that early exposure to school psychology was one of the most important predictors for whether students would later enroll in a school psychology program. Therefore, future studies may want to emphasize this and select more targeted questions to see if (a) students are truly interested in a particular field, and (b) how much they actually know about the profession. This would include questions such as specific details of the career, how current practitioners foresee the profession changing over time, the real pressures of the job, and more.
Limitations

There were several limitations encountered during the present study. Working with undergraduate students proved to be a limitation for the current study. Some students did not seem to read questions carefully or put effort into thoroughly answering the survey and this created problems when analyzing the data.

Another limitation was that data were only collected from one university. The current study would have been strengthened if students from a variety of universities could have been surveyed. That would have provided more information about what students from different universities know about professions. It may also have provided more diversity to the survey. California State University, Fresno, while large, serves mostly Hispanic students (43.2% overall). While a good, semi-diverse sample was able to be surveyed, more diversity would have been better and provided a broader understanding of students’ knowledge and interest in School Psychology. Future studies should focus on various recruitment styles to gain a wider range of students.

The survey was somewhat of a limitation as well. It was formulated using information from websites and professor knowledge. Although the survey was carefully constructed, some students were apparently confused by some of the questions. Some students did not seem to read, or clearly understand, part of the instructions for a portion of the survey. This led to problems when the data were analyzed. In addition, the knowledge scales had poor reliability, which would need to be addressed in future studies.

Another way the survey could be improved is by adding additional items. A pilot study was conducted prior to the current study with students who, at the time, were current school psychology graduate students. Students were given a
questionnaire to complete and their answers were analyzed. The questionnaire was revised for better accuracy and then used for the current study. The items utilized for this survey consisted of simple questions and did not go in depth to what the professions really entailed. More questions aimed at a deep understanding of a profession, such as the pressures faced or how the field may change in the future, may better indicate students’ real knowledge about a profession and not just basic information. In the future, the survey used for this study would need to be revisited and edited before being replicated to ensure better outcomes and clarity. Future researchers may want to more carefully formulate the survey to avoid students guessing on questions or any other confusion.

Even though students showed they were interested in the field of school psychology, this is no guarantee that more people will apply to the graduate program (APA, 2002). Since the survey was limited to a small number of professions, students may have only responded that they are interested in school psychology because another field that they are more interested in was not listed. So, although students did show interest in the field, it cannot be predicted that more students will pursue careers in school psychology.

In addition, although students showed some knowledge and interest in school psychology, this does not mean they have the qualities necessary to be successful in the profession. The survey used for this study asked basic knowledge questions about school psychology and did not provide any data that may tell whether or not students have the aptitude for to be practitioners. Some students may want to pursue the field but may not be adequately equipped to handle the program training or the demands of the profession. Future studies should incorporate items into surveys that would help to better determine if students are a good match for the field of school psychology.
Another limitation for this study was low internal consistency alpha scores (Allen & Yen, 1979). These data should be interpreted with caution. Future studies should reference the questionnaire used by Stinnet and Solomon (2014), which had higher alpha scores.

**Strengths**

There were several strengths for the present study. One relative strength of this study was the sample size surveyed. With the help and cooperation of faculty, 246 students participated in the study and completed surveys. This strong sample size gives validity to the study. In addition, the demographics of those surveyed appropriately matched the current student demographics for California State University, Fresno. This reinforced the validity of the demographics and how they are representative of the overall student population.

Another strength of this study was that it supported the fact that when students begin their college career, they are unaware of the variety of career options available to them. Universities could begin to highlight a greater variety of lesser-known fields for students to be aware of and possibly pursue. Universities can also begin to target incoming students, gauge their interest in different professions, and introduce them to a variety of possibilities within their field of interest.

**Implications for School Psychology**

This study was beneficial in many ways. It helped to highlight where university departments may be able to provide more information for certain professions. However, in every field there are a variety of careers a student may pursue. Not all biology majors need to, nor should they, become doctors. Similarly, not all Psychology majors should be therapists. But the results from the
current study indicate that students are not aware of all of the career options available to them and therefore have little interest in, or knowledge of them. Universities and future researchers may wish to target this topic to strengthen their departments and make sure students are aware of a greater variety of career possibilities.

In order to address this, Psychology departments must begin advocating for school psychology in order to recruit more students. Although students seem to know about the profession, developing a clearer, deeper understanding of what the field is and what practitioners do is crucial. Discussing different psychology fields in class would greatly help to inform students about school psychology and other career paths in psychology that may interest them. Also, helping guide students toward professions that may suit them or they show interest in can help raise awareness for school psychology (NASP, 2009). Professors should encourage students to talk to fellow students who are in programs they may be interested to get a better idea of the profession. Also, professors should try to connect students with current practitioners who can let students shadow them on the job and get first hand knowledge of the profession.

Although the awareness and interest for school psychology was not particularly high, it did show signs of hope for the field in the future. Students did show some knowledge of, and interest in, the field. The levels of awareness and interest were neither the highest nor lowest. This shows that students have at least some awareness about the field but could definitely be better educated about it. If students received more information and education about school psychology, interest levels would hopefully grow. It was encouraging, however, to find that the field of school psychology is not a completely mysterious field to students. While developing this study, the hypothesis was that it would be doubtful students would
show any awareness or interest in the field. This study shows signs of hope for the field and provided data to show that students are aware of the profession and are interested in pursuing it.

The results from this study further reinforced the fact that school psychologists must keep advocating for the profession and recruiting students to the field (NASP, 2009). With the current call for advocacy in the field of school psychology, practitioners must strive to do everything possible to educate students on the importance of the field. Practitioners must continue to engage in conversations with students interested in the profession in order to create a better awareness and understanding of the duties and roles of school psychologists. In addition, school psychologists should continue to accept practicum students and interns to supervise. This allows practitioners the chance to be an influence on future school psychologists and develop a passion in them in the hopes that they will educate others about the field.

School psychology is an incredibly important field requiring highly trained and certified professionals. School psychologists are essential to general and special education (NASP, 2012). This is why research like the current study is vital. In order to expand the field and continue to diversify, practitioners and universities must continue to advocate for the field of school psychology. Further research should be conducted to continue to gather information in this area and develop new strategies for recruitment.
REFERENCES
REFERENCES


APPENDICES
APPENDIX A: CAREERS QUESTIONNAIRE
Careers Questionnaire

Knowledge of School Psychologist (note: correct responses in bold)
1. Where do school psychologists typically work?
   a) Public schools  
   b) Private schools  
   c) All of the above  
   d) None of the above

2. What level of education is required to be a school psychologist?
   a) High School Diploma  
   b) Bachelor’s Degree  
   c) Master’s Degree  
   d) Doctorate Degree

3. How much do school psychologists make?
   a) Approx. $40-50,000  
   b) Approx. $50-60,000  
   c) Approx. $60-70,000  
   d) Approx. $70-80,000

4. How many days a year do most school psychologists work?
   a) 150  
   b) 200  
   c) 250  
   d) 300

5) A school psychologist’s typical duties include:
   a) Special education assessment, counseling, designing and evaluating interventions for students  
   b) Selecting and arranging class schedules for students  
   c) Teaching special education courses  
   d) None of the above

6) With which of the following do school psychologists not assist?
   a) Behavior management  
   b) Crisis counseling  
   c) Social skills groups  
   d) Class schedules
Knowledge of Clinical Laboratory Scientist (CLS)
1. A position as a CLS requires:
   a) 2 year community college certificate
   b) 4 year Bachelor’s degree in science
   c) 4 year Bachelor’s in science with practicum
   d) Master’s degree

2. Another name for CLS is:
   a) Medical technologist
   b) Medical technician
   c) Research scientist
   d) Laboratory assistant

3. Typical starting salary for CLS is:
   a) Approx. $20-35,000
   b) Approx. $35-50,000
   c) Approx. $50-75,000
   d) Approx. $75-100,000

4. CLS’s typically work in:
   a) Doctors’ offices
   b) Hospitals
   c) Industrial laboratories
   d) All of the above

5. CLS’s spend the majority of their work day:
   a) Drawing blood
   b) Interviewing patients
   c) Advising physicians
   d) Examining medical specimens

6. The responsibilities of the entry-level CLS include:
   a) Managing laboratory personnel
   b) Performing diagnostic testing using established scientific procedures
   c) Performing independent clinical research
   d) Diagnosing patients’ presenting symptoms
Knowledge of Professor

1. What level of education is required to be a professor at a four-year university or college?
   a) High school diploma
   b) Bachelor’s degree
   c) Master’s degree
   d) **Doctorate degree**

2. Training to be a professor focuses primarily upon:
   a) How to teach
   b) How to serve the community
   c) **How to do research**
   d) How to advocate for students

3. How much do entry-level professors make?
   a) Approx. $40-50,000
   b) **Approx. $55-65,000**
   c) Approx. $70-80,000
   d) Approx. $80-90,000

4. Professors typically work:
   a) **A 9 month position**
   b) A 12 month positions
   c) Part-time
   d) At multiple universities

5. A professor’s typical duties include:
   a) **Teaching, research, and service to the university**
   b) Grant getting and fund raising
   c) Supervising staff and students
   d) Coordinating alumni and student contacts

6. The length of time it takes a professor to obtain tenure is typically
   a) 1 year
   b) 2 years
   c) **6 years**
   d) 10 years
Knowledge of Clinical Psychologist
1. What level of education is required to be a clinical psychologist?
   a) High school diploma
   b) Bachelor’s degree
   c) Master’s degree
   d) Doctorate degree

2. Clinical psychologists work with which of the following populations?
   a) Individuals
   b) Families
   c) Groups
   d) All of the above

3. A clinical psychologist named John Smith would properly be referred to as:
   a) Dr. John Smith
   b) John Smith, therapist
   c) John Smith, LCSW
   d) John Smith, LMFT

4. Clinical psychologists earn an average of:
   a) Approx. $60-70,000
   b) Approx. $70-80,000
   c) Approx. $80-90,000
   d) Approx. $90-100,000

5. Clinical psychologists are different from psychiatrists in that:
   a) Clinical psychologists are Freudians
   b) Clinical psychologists are not medical doctors
   c) Clinical psychologists cannot serve families
   d) Clinical psychologists write prescriptions

6. Before being allowed to practice as a clinical psychologist, individuals will typically spend:
   a) 10 years of college education and hours of supervision
   b) 4 years of college education only
   c) 6 years of college education only
   d) 6 years of college education and hours of supervision
Knowledge of Medical Doctor (Physician):
1. Where do medical doctors typically work?
   a) Hospitals
   b) Private practice
   c) Federal, state, or local governments
   d) All of the above

2. What level of education is required to be a medical doctor?
   a) High School Diploma
   b) Bachelor’s Degree
   c) Master’s Degree
   d) Professional degree after college

3. How much do medical doctors make?
   a) Approx. $50-100,000
   b) Approx. $100-200,000
   c) Approx. $100-500,000
   d) Approx. more than $1,000,000

4. How many days per year do most medical doctors work?
   a) 150
   b) 200
   c) 250
   d) 300

5) How many years does it take to complete medical school?
   a) 1 year
   b) 2 years
   c) 4 years
   d) 6 years

6) After medical school, students:
   a) Begin practicing medical in a private practice
   b) Complete a 3-7 years residency program
   c) Obtain a Ph.D.
   d) Perform independent research
**Interest and Awareness**

1. How interested are you in becoming a:

(?= Never heard of this profession 1= Not at all, 5= Extremely)

| Profession                  | | | | | |
|-----------------------------|---|---|---|---|
| School Psychologist         | ? | 1 | 2 | 3 | 4 | 5 |
| School Counselor            | ? | 1 | 2 | 3 | 4 | 5 |
| Clinical Psychologist       | ? | 1 | 2 | 3 | 4 | 5 |
| Social Worker               | ? | 1 | 2 | 3 | 4 | 5 |
| Medical Doctor              | ? | 1 | 2 | 3 | 4 | 5 |
| Entomologist                | ? | 1 | 2 | 3 | 4 | 5 |
| Clinical Laboratory Scientist| ? | 1 | 2 | 3 | 4 | 5 |
| Neurobiologist              | ? | 1 | 2 | 3 | 4 | 5 |
| University Professor        | ? | 1 | 2 | 3 | 4 | 5 |
| Veterinarian                | ? | 1 | 2 | 3 | 4 | 5 |
**Demographics**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
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</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
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</thead>
<tbody>
<tr>
<td>African-American</td>
<td></td>
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<tr>
<td>Asian</td>
<td></td>
</tr>
<tr>
<td>Caucasian/Non-Hispanic</td>
<td></td>
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<tr>
<td>Hispanic/Latino</td>
<td></td>
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<tr>
<td>Middle Eastern</td>
<td></td>
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<tr>
<td>Native American/Alaskan</td>
<td></td>
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<tr>
<td>Pacific Islander</td>
<td></td>
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<tr>
<td>Other: ____________________</td>
<td></td>
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</tbody>
</table>

Age __________

Number of college units completed ______________

Approximate High School G.P.A. ______________

Approximate College G.P.A. ______________

Intended Major ______________________________

Intended Profession __________________________

Are you a first generation college student? Yes No

Are you planning on attending graduate school?  Yes No

If you are planning on attending graduate school, will you be a first generation graduate student? Yes No

Any other comments?
APPENDIX B: CONSENT FORM
Consent to Participate in Research Study

You are invited to participate in a study conducted by Kira Armbruster, School Psychology Graduate Student and Constance Jones, Professor of Psychology. We hope to learn how much undergraduate psychology students know about various professions. You were selected as a possible participant in this study because you are an undergraduate student.

If you decide to participate, you will be asked to answer a questionnaire regarding various professions to gauge your understanding of them. The questionnaire should not take longer than 15 minutes. You will only be asked to complete this questionnaire once. We cannot guarantee that you will receive any benefits from this study.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. This information will be compiled for use in a graduate thesis. This results gathered from this study will provide information regarding the awareness and interest of undergraduate students in various professions.

Your decision whether or not to participate will not prejudice your future relations with California State University, Fresno. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

If you have any questions, please ask us. Questions regarding the rights of research subjects may be directed to Constance Jones, Chair, CSUF Committee on the Protection of Human Subjects, (559) 278-4468.

You will be given a copy of this form to keep.
YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

Date       Signature

________________________________________________________

Signature of Witness (if any)  Signature of Investigator

________________________________________________________
APPENDIX C: POST-TEST INFORMATIONAL BROCHURE
Did you know…

*Scho**l psychologists work in a variety of settings, including public and private schools. To work as a school psychologist, a Master’s degree is required. On average, school psychologists make $70,000 and work approximately 200 days a year. Typically, school psychologists are involved in attending meetings for, assessing, and determining, special education. They assist with things such as behavior management, crisis counseling, and social skills groups but do not help students with class schedules.

*To become a clinical laboratory scientist, a four year Bachelor’s degree in Science, plus practicum hours, are required. Clinical laboratory scientists may also be referred to as medical technologists. The typical starting salary for clinical laboratory scientists is between $35-50,000. They work in a variety of settings, including doctors’ offices, hospitals, and industrial laboratories. A typical day for a clinical laboratory scientist is spent examining medical specimens. The responsibilities for an entry-level clinical laboratory scientist are performing diagnostic testing using established scientific procedures.

*The level of education required to be a professor at a four-year university or college is a Doctorate. Training to be a professor primarily focuses on how to do research. Entry-level professors make approximately $55,000. They typically work a nine month position. A professor’s typical duties include teaching, research, and service to the university. The length of time it takes a professor to obtain tenure is typically six years.

*To be a clinical psychologist, a Doctorate degree is required. Clinical psychologists work with a variety of populations, including families, individuals,
and industrial organizations. The appropriate title for an individual who is a clinical psychologist would be Dr. (John Smith). They typically earn between $70-80,000. Clinical psychologists are different from psychiatrists in that they are not medical doctors. In order to become a clinical psychologist, individuals will typically spend 10 years of college education and hours of supervision.

*Medical doctors* work in different locations, including hospitals, private practice, and federal/state/local governments. The level of education required to become a medical doctor is a professional degree received after college. Medical doctors earn approximately $100-500,000. Most medical doctors work around 300 days a year. A medical doctors’ duties typically include diagnosing and treating injuries or illnesses; physicians examine patients, take medical histories, prescribe medications, and order, perform, and interpret diagnostic tests. They do not assist with class schedules.
References

http://www.nasponline.org/about_sp/whatis.aspx
http://www.nasponline.org/about_sp/salaryinfo.aspx
http://www.bls.gov/oes/current/oes193031.htm
http://www.bls.gov/ooh/healthcare/physicians-and-surgeons.htm#tab-1
APPENDIX D: KNOWLEDGE SURVEY
**Knowledge of School Psychologist**

<table>
<thead>
<tr>
<th>1. Where do school psychologists typically work?</th>
<th>Total</th>
<th>Psych 10</th>
<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Public schools</td>
<td>14%</td>
<td>11%</td>
<td>11%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>b) Private schools</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>c) All of the above</td>
<td>84%</td>
<td>87%</td>
<td>86%</td>
<td>84%</td>
<td>75%</td>
</tr>
<tr>
<td>d) None of the above</td>
<td>2%</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. What level of education is required to be a school psychologist?</th>
<th>Total</th>
<th>Psych 10</th>
<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) High School Diploma</td>
<td>0%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>b) Bachelor’s Degree</td>
<td>17%</td>
<td>25%</td>
<td>23%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>c) Master’s Degree</td>
<td>67%</td>
<td>52%</td>
<td>66%</td>
<td>77%</td>
<td>75%</td>
</tr>
<tr>
<td>d) Doctorate Degree</td>
<td>16%</td>
<td>22%</td>
<td>11%</td>
<td>14%</td>
<td>15%</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>3. How much do school psychologists make?</th>
<th>Total</th>
<th>Psych 10</th>
<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Approximately $40-50,000</td>
<td>16%</td>
<td>12%</td>
<td>14%</td>
<td>18%</td>
<td>23%</td>
</tr>
<tr>
<td>b) Approximately $50-60,000</td>
<td>34%</td>
<td>30%</td>
<td>37%</td>
<td>32%</td>
<td>43%</td>
</tr>
<tr>
<td>c) Approximately $60-70,000</td>
<td>36%</td>
<td>43%</td>
<td>43%</td>
<td>31%</td>
<td>25%</td>
</tr>
<tr>
<td>d) Approximately $70-80,000</td>
<td>14%</td>
<td>15%</td>
<td>6%</td>
<td>19%</td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. How many days a year do most school psychologists work?</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) 150</td>
<td>9%</td>
<td>15%</td>
<td>9%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>b) 200</td>
<td>32%</td>
<td>27%</td>
<td>37%</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>c) 250</td>
<td>39%</td>
<td>33%</td>
<td>29%</td>
<td>43%</td>
<td>48%</td>
</tr>
<tr>
<td>d) 300</td>
<td>21%</td>
<td>25%</td>
<td>26%</td>
<td>15%</td>
<td>20%</td>
</tr>
</tbody>
</table>
5) A school psychologist’s typical duties include:

a) **Assessing, selecting, and evaluating educational interventions for students**

<table>
<thead>
<tr>
<th></th>
<th>82%</th>
<th>72%</th>
<th>80%</th>
<th>92%</th>
<th>83%</th>
</tr>
</thead>
</table>

b) Selecting and arranging class schedules for students

|        | 1%  | 1.2%| 0%  | 1%  | 0%  |

c) Teaching special education courses

|        | 1%  | 0%  | 0%  | 1%  | 5%  |

d) None of the above

|        | 16% | 27% | 20% | 6%  | 13% |

6) With which of the following do school psychologists not assist?

a) Behavior management

|        | 2%  | 7%  | 3%  | 1%  | 0%  |

b) Crisis counseling

|        | 4%  | 6%  | 0%  | 5%  | 3%  |

c) Social skills groups

|        | 4%  | 1%  | 6%  | 3%  | 8%  |

<table>
<thead>
<tr>
<th>Total</th>
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<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
</table>

d) Class schedules

|        | 90% | 89% | 91% | 91% | 90% |

**Knowledge of Clinical Laboratory Scientist (CLS)**

1. A position as a CLS requires:

a) 2 year community college certificate

|        | 48% | 54% | 54% | 35% | 58% |

b) 4 year Bachelor’s degree in science

|        | 17% | 18% | 26% | 8%  | 25% |

c) 4 year Bachelor’s in science with practicum

|        | 0%  | 0%  | 0%  | 0%  | 0%  |

d) Master’s degree

|        | 35% | 28% | 20% | 57% | 18% |
2. Another name for CLS is:
   a) Medical technologist 9% 13% 6% 3% 13%
   b) Medical technician 26% 22% 29% 25% 33%
   c) Research scientist 44% 46% 29% 56% 25%
   d) Laboratory assistant 22% 19% 37% 16% 30%

3. Typical starting salary for CLS is:
   a) Approximately $20-35,000 12% 10% 14% 9% 23%
   b) Approximately $35-50,000 26% 22% 34% 26% 28%
   c) Approximately $50-75,000 49% 53% 37% 53% 43%
   d) Approximately $75-100,000 13% 16% 14% 11% 8%

4. CLS’s typically work in:
   a) Doctors’ offices 4% 5% 3% 2% 5%
   b) Hospitals 11% 7% 20% 8% 18%
   c) Industrial laboratories 15% 13% 17% 15% 15%
   d) All of the above 71% 75% 60% 75% 63%

5. CLS’s spend the majority of their work day:
   a) Drawing blood 5% 2% 11% 2% 8%
   b) Interviewing patients 18% 24% 17% 16% 8%
   c) Advising physicians 8% 10% 6% 10% 3%
   d) Examining medical specimens 70% 64% 66% 71% 83%
6. The responsibilities of the entry-level CLS include:

a) Managing laboratory personnel

   11%  12%  9%  16%  3%

b) **Performing diagnostic testing using scientific procedures**

   62%  49%  63%  61%  90%

c) Performing independent clinical research

   21%  29%  20%  21%  5%

d) Diagnosing patients’ presenting symptoms

   6%  10%  9%  2%  3%

<table>
<thead>
<tr>
<th>Total</th>
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<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
</table>

**Knowledge of Professor**

1. What level of education is required to be a professor at a four-year university or college?

a) High school diploma 0% 0% 0% 0% 3%

b) Bachelor’s degree 8% 13% 6% 7% 0%

c) Master’s degree 51% 57% 56% 51% 33%

d) **Doctorate degree** 41% 29% 38% 42% 65%

2. Training to be a professor focuses primarily upon:

a) How to teach 49% 53% 53% 48% 38%

b) How to serve the community

   3%  1%  0%  6%  3%

c) **How to do research** 32% 21% 35% 32% 53%

d) How to advocate for students

   17%  25%  12%  15%  8%
3. How much do entry-level professors make?
   a) Approximately $40-50,000  26%  27%  21%  32%  20%
   b) **Approximately $55-65,000  42%**  41%  29%  46%  **50%**
   c) Approximately $70-80,000  25%  27%  38%  21%  23%
   d) Approximately $80-90,000  6%  6%  12%  2%  8%

4. Professors typically work:
   a) **A 9 month position**  52%  42%  50%  61%  **55%**
   b) A 12 month positions  18%  21%  15%  11%  30%
   c) Part-time  10%  7%  6%  14%  13%
   d) At multiple universities  20%  30%  29%  14%  3%

5. A professor’s typical duties include:
   a) **Teaching, research, and service to the university**
      98%  96%  100%  99%  **100%**
   b) Grant getting and fund raising
      1%  1%  0%  1%  0%
   c) Supervising staff and students
      1%  2%  0%  0%  0%
   d) Coordinating alumni and student contacts
      0%  0%  0%  0%  0%
6. The length of time it takes a professor to obtain tenure is typically
a) 1 year  
   
   b) 2 years  
   
   c) 6 years  
   
   d) 10 years  

Knowledge of Clinical Psychologist

1. What level of education is required to be a clinical psychologist?
   a) High school diploma  
   0% 0% 0% 0% 0%  
   b) Bachelor’s degree  
   6% 8% 15% 0% 8%  
   c) Master’s degree  
   35% 31% 47% 31% 40%  
   d) Doctorate degree  
   59% 60% 38% 69% 53%  

2. Clinical psychologists work with which of the following populations?
   a) Individuals  
   7% 8% 9% 5% 10%  
   b) Families  
   0% 0% 3% 0% 0%  
   c) Groups  
   1% 1% 6% 0% 0%  
   d) All of the above  
   91% 90% 82% 96% 90%  

3. A clinical psychologist named John Smith would properly be referred to as:
   a) Dr. John Smith  
   68% 68% 68% 71% 65%  
   b) John Smith, therapist  
   11% 11% 9% 9% 15%  
   c) John Smith, LCSW  
   13% 15% 21% 7% 15%  
   d) John Smith, LMFT  
   9% 7% 3% 14% 5%
4. Clinical psychologists earn an average of:
   a) Approximately $60-70,000  14%  11%  18%  11%  25%
   b) **Approximately $70-80,000**  26%  21%  21%  **32%**  **33%**
   c) Approximately $80-90,000  **37%**  **48%**  **38%**  **32%**  23%
   d) Approximately $90-100,000  22%  21%  24%  25%  **20%**

5. Clinical psychologists are different from psychiatrists in that:
   a) Clinical psychologists are Freudians
      
      |      |      | 5%  | 0%  | 5%  |
      | 4%  | 5%  | 9%  | 0%  | 5%  |

   b) **Clinical psychologists are not medical doctors**
      
      | 58% | 48% | 44% | 74% | 58% |

   c) Clinical psychologists cannot serve families

<table>
<thead>
<tr>
<th>Total</th>
<th>Psych 10</th>
<th>Bio 1A</th>
<th>Psych 182</th>
<th>Bio 105</th>
</tr>
</thead>
<tbody>
<tr>
<td>2%</td>
<td>4%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
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</table>

   d) Clinical psychologists write prescriptions
      
      | 37% | 44% | 47% | 25% | 38% |

6. Before being allowed to practice as a clinical psychologist, individuals will typically spend:
   a) **10 years of college education and hours of supervision**
      
      | 31% | 34% | 29% | 35% | 18% |

   b) 4 years of college education only
      
      | 3%  | 4%  | 6%  | 1%  | 5%  |

   c) 6 years of college education only
      
      | 5%  | 7%  | 0%  | 3%  | 5%  |

   d) 6 years of college education and hours of supervision
      
      | **62%** | **55%** | **65%** | **61%** | **73%** |
**Knowledge of Medical Doctor (Physician):**

1. Where do medical doctors typically work?
   - a) Hospitals: 7% 8% 12% 5% 8%
   - b) Private practice: 2% 2% 0% 1% 3%
   - c) With public agencies (federal, state, or local governments): 0% 1% 0% 0% 0%
   - d) All of the above: 91% 88% 88% 94% 90%

2. What level of education is required to be a medical doctor?
   - a) High School Diploma: 0% 0% 0% 0% 0%
   - b) Bachelor’s Degree: 0% 1% 0% 0% 0%
   - c) Master’s Degree after college: 11% 19% 12% 6% 3%
   - d) Professional degree after college: 89% 80% 88% 94% 98%

3. How many years does it take to complete medical school?
   - a) 1 year: 0% 0% 0% 0% 0%
   - b) 2 years: 5% 4% 3% 8% 0%
   - c) 4 years: 49% 42% 53% 35% 88%
   - d) 6 years: 47% 54% 44% 57% 13%
4. After medical school, students:

a) Begin practicing medical in a private practice
   - 7% 11% 12% 3% 0%

b) Complete a 3-7 years residency program
   - 76% 60% 77% 83% 93%

c) Obtain a Ph.D.
   - 15% 25% 9% 11% 8%

d) Perform independent research
   - 2% 4% 3% 2% 0%

5. How many days per year do most medical doctors work?

a) 150
   - 0% 1% 0% 0% 0%

b) 200
   - 7% 6% 6% 8% 8%

c) 250
   - 20% 29% 18% 19% 5%

d) 300
   - 73% 64% 77% 73% 88%

<table>
<thead>
<tr>
<th>Total</th>
<th>Psych 10</th>
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<th>Psych 182</th>
<th>Bio 105</th>
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<td>7%</td>
<td>6%</td>
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<td>8%</td>
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<td>20%</td>
<td>29%</td>
<td>18%</td>
<td>19%</td>
<td>5%</td>
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<tr>
<td>73%</td>
<td>64%</td>
<td>77%</td>
<td>73%</td>
<td>88%</td>
</tr>
</tbody>
</table>

6. How much do medical doctors make, on average?

a) Approximately $50-100,000
   - 5% 1% 3% 8% 5%

b) Approximately $100-200,000
   - 47% 51% 32% 48% 50%

c) Approximately $100-500,000
   - 45% 45% 59% 42% 38%

d) More than $1,000,000
   - 4% 4% 6% 2% 8%

Note: Correct item response in bold; most frequent response in bold.
Fresno State

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