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ABSTRACT

HIGH SCHOOL SENIORS' ATTITUDES TOWARD PSYCHOLOGY AS A CAREER

Surveys and misconceptions tests about psychology reveal that classroom populations hold misconceptions and stereotypic views about psychology, and express negative attitudes toward psychology. In the present study 668 male and female high school seniors from seven different high schools in California's Central Valley were given one class period to complete a 39-item questionnaire designed to measure misconceptions and attitudes about psychology. It was hypothesized that gender, ethnicity, achievement level, completion of a psychology course, scientific literacy, and source of psychological information would yield differences in level of misconception, psychological knowledge, and attitude toward psychology. A series of t-tests, one-way ANOVAs, and post hoc comparisons revealed that specific groups of students continue to misunderstand the field of psychology and express negative attitudes toward psychology. There exists a need for providing high school students with accurate and interesting information about psychology both in and outside of the classroom.

Vira Lozano
May 1997

**HIGH SCHOOL SENIORS' ATTITUDES TOWARD
PSYCHOLOGY AS A CAREER**

by

Vira Lozano

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fulfillment of the requirements for the degree of

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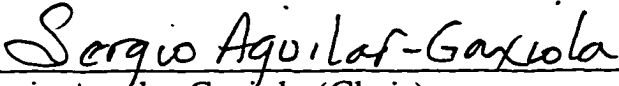
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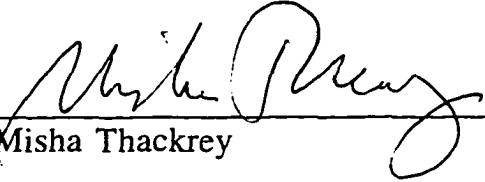
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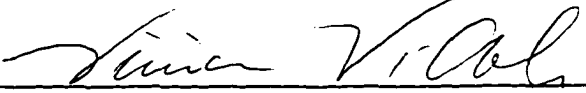
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I would like to dedicate this thesis to the memory of my mother, Maria de Jesus Padilla Lozano, and to my father, Andres Lozano. They instilled in me a strong sense of responsibility and a good work ethic. I wish that my mother could have been here to see the fruits of their labor. My parents were farm workers who toiled in the fields of this valley during the hot summers and the cold, damp winters. I never heard my parents complain about the hard work they did, or the long hours they put in each day. Their optimistic and sensible approach to life and work kept me going whenever the burden of working two jobs and completing this thesis became too unbearable. I imagined my mother scolding me for whining and crying, telling me that I had to be strong and independent because she was not going to be around forever to look after me. This thesis is proof that all those lectures paid off. *Gracias* mom and dad.

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Chapter 1

INTRODUCTION

In the book *Media Madness: Public Images of Mental Illness*, author Otto Wahl describes a meeting he attended to discuss the opening of a proposed group home in a residential area for six mentally ill females. He attended on behalf of the group home and explained to the neighborhood residents that a home of this type would provide the women with an opportunity to leave the institution and become part of the community.

The members of the community were opposed to the group home and offered several arguments in support of their points of view. Some stated that there were many elderly citizens and small children in the neighborhood and it would be inappropriate to place psychiatric patients there. Another man explained that he would be defenseless against the group home residents because of his small stature. Others stated that the location would not be suitable for such a home because there was a very busy intersection nearby and the patients would not be able to cross the streets safely. Wahl concluded that the community members' resistance and opposition were grounded in the inaccurate images and ideas they held about mental illness. Mentally ill people were seen as dangerous, potentially assaultive, and no more competent than small children (Wahl, 1995).

This townhall meeting illustrates how in the whole arena of psychology, the area of mental illness suffers from public misunderstanding. A review of the literature indicates that psychology, as a field, as a career, as a provider of human

services, and as a body of knowledge, suffers from misrepresentation in the media and from being grossly misunderstood by the general public.

Psychologists have also found that in classroom populations, especially among college and high school psychology students, misconceptions and myths about psychology abound. Furthermore, research has shown that students' misconceptions are not only resistant to change, but they tend to influence the attitudes (i.e., favorable versus unfavorable) students express toward psychology.

The following sections provide a look at the relationship between the factors of misconceptions about psychology, level of knowledge about psychology, and attitudes toward psychology. For example, results from surveys of the general public reveal that when respondents measure low on general knowledge about psychology, they express favorable attitudes toward psychology. In other words, a lack of knowledge about psychology does not impact negatively on their attitudes toward psychology, and/or psychologists.

On the other hand, studies conducted with classroom populations indicate that college and high school psychology students express negative attitudes toward psychology when they score high on misconceptions tests. Even when students have completed an introductory psychology course, they continue to score high on misconceptions tests, thus indicating that knowledge about psychology does not produce decrements in the level of misconceptions about psychology.

The discussion that follows focuses on psychologists' efforts to assess the level of misinformation about psychology reported by the general public and students, and the effect it has had on psychology's public image. Also, what has been the media's role in shaping the public's perception of psychology, and

finally, why do researchers believe that high school psychology courses have done a poor job of educating students on psychology.

Psychology's Public Surveys

A concern for psychology's public image dates back to the late 1800s when Francis Galton set up his Anthropometric Laboratory at the world's fair of 1884 in London, and proceeded to measure 17 physical characteristics of human males (e.g., eye color, height, weight, visual acuity, highest audible pitch, grip strength). His objective was to show the general public that the instruments and methods of measuring and recording man's physical characteristics should not be perceived as mysterious and threatening. Visitors to the fair proved to be willing participants; Galton obtained measures on 7,000 subjects (Perloff & Perloff, 1977).

Assessing the public's level of knowledge about psychology, the attitudes they hold toward psychology, the misconceptions that abound, and the origin of this information, became the battle cry for people in the field of psychology. One of the earliest surveys to investigate these factors was conducted in 1946 (Guest, 1948) as a project for a Market Research course at Pennsylvania State College.

Students interviewed 311 adults from various areas of New York, New Jersey, Pennsylvania, and Illinois. A three part questionnaire queried respondents on the following topics: which of several professionals would be consulted for designated services, what are the specific duties of a psychologist, and what are the qualifications of a psychologist. One final question asked respondents to make the distinction between a psychologist and a psychiatrist (Guest, 1948).

The respondents' knowledge regarding the duties and responsibilities of a psychologist was limited. They were aware that vocational guidance and mental disorders are within the psychologist's occupational domain, but they were unaware that psychologists also work in business and industry. Overall, respondents expressed a favorable attitude toward psychology, but when asked to select from a list of professions (i.e., psychologist, architect, chemist, engineer, economist) the one they would least prefer for their son, one third of the sample selected psychologist. Although 65% of respondents agreed that psychology should be taught in every high school, and 75% agreed that public schools need the services of psychologists, 38% agreed that as a group, psychologists do tend to be more odd or unusual, and in a purely social situation, talking to a psychologist could elicit feelings of unease. Finally, as a portent of what was to come, in 1946, respondents were unable to make the distinction between a psychologist and a psychiatrist (Guest, 1948).

In a survey conducted 10 years later, participants once again failed to make the distinction between psychologist, psychiatrist, and other mental health professionals. Using Osgood's Semantic Differential instrument to assess respondents' attitudes toward psychology, participants expressed a less favorable attitude toward psychologist than they did toward doctor, physician, and nurse (Nunnally & Kittross, 1958).

In the years that followed, enrollment in college psychology courses continued to grow, but on a separate front, several publications-- *The Brain Watchers* (Gross, 1962), *The Tyranny of Testing* (Hoffman, 1962), *The Hidden Persuaders* (Packard, 1957), *The Organization of Man* (Whyte, 1956)-- resuscitated psychology's negative image. The time was ripe for a "new and current study of public opinion" (Thumin & Zebelman, 1967, p. 284).

Thumin and Zebelman (1967) conducted telephone interviews using a representative sample of 400 respondents from the St. Louis metropolitan area. Like Guest (1948), the researchers were interested in the general public's attitude toward the profession of psychology, and the public's ability to distinguish psychology from psychiatry.

To determine if respondents could in fact distinguish a psychologist from a psychiatrist, they provided a list of seven specified services and asked respondents to indicate who they would solicit for these services, a psychologist or a psychiatrist. It was known by the respondents that both professions were involved in analyzing people, helping them with their problems, and studying the mind, emotions, and personality. More specifically, psychologists were associated with research, human behavior and testing; psychiatrists were associated with medicine and/or a medical degree. These results indicated that after 20 years, the public did appear to be better informed about what psychologists and psychiatrists do. On a more discouraging note, however, when respondents were asked to rank several professions in order of preference for their son, psychologist was once again the least preferred profession (Thumin & Zebelman, 1967).

Concern over psychology's public image had increased, especially among leaders and members of the American Psychological Association (APA). Suggestions to raise the level of public understanding of psychology included the establishment of a speakers bureau, forming public relations committees, having more personal contact with the public, and the publication of a public relations pamphlet (Carpenter, Lennon, & Shoben, 1957). To limit the confusion of who actually should be considered a psychologist, and to gain the respect of other professions, such as doctors, it was proposed that a doctorate degree from an approved university be the minimum requirement for anyone wanting to be

classified or recognized as a psychologist (Fein, 1954; Fox, Barclay, & Rodgers, 1982).

Yet in 1986, Webb and Speer noted that since 1948, there existed in the literature only three U. S. surveys to support the notion that the field of psychology suffered from a an unfavorable public image. They also noted that the type of survey used in prior studies (i. e., fixed-alternative questionnaire), could not adequately and comprehensively assess the public's attitudes because it was possible the items on the survey represented the researcher's biased perceptions.

To gather their own information regarding what people think of psychologists and how favorably they view psychology, they asked participants to write descriptive essays about psychologists, psychiatrists, physicians, counselors, teachers and scientists. Where previous research participants had been asked to rate psychology relative to other dissimilar professions, Webb and Speer (1986) asked participants to rate psychology relative to professions closely related to psychology.

Extracting descriptors from the essays, the researchers developed a semantic profile for each of the six professions and also a favorability rating for each. Eleven descriptive dimensions were developed for rating the professions and these fell into clusters represented by the following characteristics: alienated, arrogant, dedicated, helpful, inquisitive, patient, psychological, rich, scholarly, unappreciated, and understanding. In comparison to the other professions, results showed psychologists were portrayed as psychological, helpful, patient, inquisitive, dedicated, understanding, rich and scholarly. Arrogant, alienated, and unappreciated were not used to describe psychologists.

Furthermore, correlational computations to measure similarities between professions indicated that psychologist was most highly correlated with psychiatrist ($r = .98$), and least correlated with scientist ($r = .11$). Results also showed that implicit semantic dimensions seemed to have influenced participants' perceptions of the six professions, such as "tough-minded" versus "tender-minded" and "deals with abnormal phenomena" versus "deals with normal phenomena."

Assuming the researchers' interpretation to be correct, the study revealed that psychologists and psychiatrists were believed to be tender-minded people who deal with abnormal phenomena. Teachers and counselors were also seen as tender-minded but dealing with normal phenomena. On the other hand, physicians were presumed to be tough-minded individuals who work with abnormal phenomena, whereas scientists were seen as tough minded individuals who deal with normal phenomena. Participants did not make the connection of the psychologist as a scientist-practitioner who can be tough minded and deals with normal phenomena.

In terms of the favorability ratings, psychologists were rated better than physician, teacher, and counselor, but somewhat less favorable than psychiatrist. Psychologists fared better in this study than in previous ones, but as in prior surveys, a discernible distinction between psychologist and psychiatrist was not made, thus leaving psychology in between the proverbial rock and a hard spot. What had become the greater task for psychology: to be viewed favorably by a misinformed public? Or to be viewed unfavorably by a well-informed public? (McGuire & Borowy, 1979; Warner & Bradley, 1991; Webb & Speer, 1986, 1985).

If these public surveys had in fact revealed a true phenomenon, that psychology was suffering from a negative public image, and the public at large

was lacking in accurate information, then the next logical step would be to ferret out the factors that had contributed to the development of such an image. A retrospective look at psychology reveals some of the elements that made the strongest contribution.

Psychology's Public Image

In the early days when psychology was new to the United States, psychologists focused their efforts on transforming psychology from philosophy into a scientific discipline. The first experimental laboratories were established on university and college campuses, leaving most people outside academic circles with little understanding about psychology. The prevailing opinion among the general public was that psychology was nothing more than clairvoyance, mind reading, and spiritualism. This was the first indication that there was a need to educate the public about the scientific methods of psychology. Although there are no existing surveys from these early years that document the public's misunderstanding of psychology, there is evidence in the writings of the psychologists from this era to suggest that they were often distressed by the public's lack of understanding (Benjamin, 1986; Lent, 1990).

At the turn of the century, urban growth, the industrial revolution and the arrival of immigrants set the stage for educational reform. Psychology moved out of academe into the realm of education to apply its new experimental methods on the testing of children. Some prominent psychologists (e. g., G. Stanley Hall and Edward Wheeler Scripture) made exaggerated claims about the value of applied psychology for pedagogical purposes, but Hugo Münsterberg of Harvard University publicly denounced those claims and warned teachers that "this rush

toward experimental psychology is an absurdity. Our laboratory work cannot teach you anything which is of use to you in your work as teachers...”

(Benjamin, 1986, p. 942).

Münsterberg’s denouncement generated a turbulent flow of responses in popular magazines from the defenders of psychology’s educational research, causing other eminent psychologists, such as William James and James Mark Baldwin, to publicly support Münsterberg’s position. The public disagreement among these prominent experts in psychology fueled the public’s misunderstanding of psychology and led to more confusion (Benjamin, 1986; Dennis, 1989).

Prior to World War I (WWI) newspaper coverage of psychological research was scarce or nonexistent, leaving the public with little information about psychology. It was in the midst of this state of confusion that the public witnessed psychology’s move into the popular press. Books, magazine articles and newspaper commentaries on such topics as industrial efficiency, advertising, public speaking, sales, and other related topics began to appear. These books, magazines and newspapers became the primary source of information about psychology for the public and most of this coverage occurred after WWI.

In the years following World War I and World War II, psychologists enjoyed an increased popularity as a result of the services they provided the military during the war. Psychologists received an extended amount of publicity in the press for their involvement in the testing of new recruits, and for their clinical work with battle-scarred veterans after the war. Through their contact with the military, new opportunities in business and industry began to develop for psychologists. As psychologists moved rapidly into these areas, attempting to

solve problems with their techniques, they were once again publicly criticized by their colleagues. They were accused of engaging in fraudulent practices, making exaggerated claims and forsaking legitimate science to achieve fame and fortune. The critics' opinions were unanimous: "psychology had promised much and delivered little," thus heightening the public's mistrust of psychology (Adams, 1934; Benjamin, 1986; Dennis, 1989).

While psychology received critical praise from government, the military and industry, confusion, misunderstanding and distrust continued to plague psychology with the public. The misuse of applied methods became the most visible transgression. For example, the practice of hypnosis, was seen in movies and on stage, and in the highly publicized case of "The Three Faces of Eve." Hypnosis was popularized as a powerful technique for mind control over the masses.

Other misapplications of psychological knowledge included the implementation of motivational methods and subliminal perception in consumer research, interpersonal relations training, public relations techniques, and in the self-help literature. The use of deception in psychological studies, the wiretapping of jury rooms to improve jury selection, and the search for paranormal phenomena, all contributed to psychology's extant negative public image as these events were given extensive coverage in the popular press (McNeil, 1959; Newman, 1957).

The use of psychological testing and personality assessment by personnel directors for purposes of hiring and promoting employees also produced a negative public reaction toward psychologists. African-Americans complained that these tests were being used as a tool to maintain the status quo in both the

work force and in schools and colleges, and, “to hold down the underdog” (Lofton, 1972, p. 365).

Unable to escape this incessant negative public image, psychologists concluded that perhaps the public’s perception of the field of psychology was being shaped by the popular press. Having established that the popular press was the public’s primary source of information psychologists began to examine the manner in which psychology, its activities, and its research methods and results, were being reported in the popular press. If the public’s lack of knowledge, and their misunderstanding about psychology was causing them to mistrust and criticize psychology, then what type of information was getting through to the public, and how was it being reported?

Psychology in the Popular Press

Reviewing the way in which newspapers covered several significant events in psychology lent credence to the belief that reporters have the power to create and destroy reputations, psychologists’ included. A closer examination of the treatment given the prominent British psychologist William McDougall illustrates this point (Jones, 1987).

McDougall came to America in the 1920s to accept the position of Chairman of the Psychology Department at Harvard. There was reason to believe that he would be well received in America, having established himself as an expert in his field in England. His books *An Introduction to Social Science* (1908) and *Body and Mind* (1912), had received favorable reviews in both the professional and popular press in the United States.

However, when he arrived in America, he encountered a different climate and the views he promoted and defended aroused antagonism and controversy.

The psychological facts he defended included intelligent, purposive, goal-directed behavior, the underpinnings of human development, the study of animal behavior, the biological limitations on learning and the limitations of human adaptability. He gave lectures on eugenics that were published and caused him to become unpopular with undergraduate students. Also, his support of paranormal phenomena became public knowledge.

A content analysis of articles on McDougall published in the *New York Times* from 1916 to 1940, revealed that in comparison to his colleagues, McDougall was portrayed in a significantly negative light. He was described as “one who tried drugs on himself,” “startling,” “pessimistic,” “having quaint fantasies,” and as someone “who ought to know better.” Although his books received good reviews, McDougall was seen as someone who was interested in bringing “souls back into fashion” (Jones, 1987, p. 935). In short, the press was not entirely fair or kind in its reporting of McDougall and his research.

A further analysis of the headlines of articles about McDougall, his lectures or his writings, misrepresented his ideas. Some of the headlines read, “White Supremacy Menaced,” “Ghosts Do Exist, McDougall Admits,” “Lays Crime Wave on Race Mingling,” and “Would Reform Society by Marriage Control.” The overall perception of McDougall conveyed in the *New York Times* was that he was someone who was not to be taken seriously because he was more interested in researching sensational topics such as drugs, eugenics, and extrasensory perception. Even when applying the strictest scientific standards to discredit paranormal phenomena, he was deemed guilty of being non-scientific simply for associating with clairvoyants.

In summary, it was determined that the mass media had created McDougall’s negative image and sustained it by reporting more frequently on

him, using emotion laden descriptors, attention-grabbing headlines, and misrepresenting his ideas. It has also been asserted that McDougall's research programs in Lamarckism and psychic phenomena, and his argumentative and arrogant personality, contributed significantly to his public image problems (Alvarado & Zingrone, 1989; Jones, 1987). A by-product of this type of negative reporting was that by undermining the credibility of a representative of psychology, the credibility of psychology was also called into question.

In the 1930s another significant event took place in psychology that contributed to the decline of psychology's public image. In newspapers and magazines psychology's scientific research was starting to be popularized, oversimplified and sensationalized to grab and hold the public's attention. This sensationalistic style was used in reporting the famous study of Dr. Myrtle McGraw's developmental research of twin boys Johnny and Jimmy Woods (Dennis, 1989). An assessment of the press coverage for the years 1933 to 1942 demonstrates how the shift from scientist to reporter proved detrimental to the field of psychology, especially applied research.

McGraw had recruited a pair of male identical twins for a study to determine if stimulation at an early age could accelerate motor development in a child versus a child who is left alone to progress naturally through the stages of maturation. The study took place at a time in history when there was heightened interest in developmental research and child psychology, and the flourishing idea that better parenting through applied science would result in a socially improved world.

As the experiment progressed, it received coverage from various newspapers including the *New York Times*, and magazines such as *Newsweek*, *Parents Magazine*, *Commonweal*, *Cosmopolitan*, and *The Literary Digest*. The

experiment became somewhat of a media event and the twins received a fair amount of notoriety. Unfortunately, in order to maintain the reader's interest, a scientific study was reported as a human interest story and many of the results were sensationalized, or reported inaccurately.

Initially it became a story of environment versus heredity as differences in development and task performance between the twins were reported. For example, Johnny was scrambling up steep inclines and swimming a distance of twelve feet when he was less than 1 year old. The child could scoot around in roller skates but the press exaggerated the results and reported that Johnny was actually roller skating. It was falsely reported that the differences in training had caused the twins to develop distinct personalities, with Johnny being mentally superior, more mature, well mannered, more independent and confident than his twin. *Newsweek* magazine reported, albeit humorously, that a brilliant future awaited Johnny, but Jimmy "might make a mess of his life --much as other ordinary mortals do" (Dennis, 1989, p. 363).

The boys were studied from infancy through twenty-six months of age. Johnny was referred to as the "conditioned" twin by the press and he did outperform his twin brother on certain motor skills in the beginning. Four years after the study was terminated, however, McGraw concluded in her final report that the twins were similar in terms of their final accomplishments, that she was unsure if the early stimulation would give Johnny any long-term advantages over Jimmy, and whether the changes would be permanent. Consequently, the press quickly turned their attention from the nature-nurture debate of child development that dominated their earlier reports and adopted a more negative and suspicious tone regarding the efficacy of the science of psychology.

The press reported that scientific psychology had done no better at raising a child than had been done using common sense, thus implying that psychology was ineffective as a science. At a time when psychology was attempting to transform itself into a scientific discipline, the media had dealt it a harsh blow. The media's own lack of understanding about the process of scientific research and how results are generated, contributed to the public's inability to adequately assess the outcome of psychological research (Dennis, 1989; McCall, 1988; Stocking, 1981; Weigel & Pappas, 1981).

In the 1950s the APA encouraged psychologists to overcome their caution and inhibitions about talking to the press about their research and all topics related to psychology. It was asserted that an interested and supportive public deserved accurate information about psychology, especially when so much public funding was awarded to psychological research and development. APA members were warned that if psychologists did not work at educating the public, then they risked having the non-psychologists do so (McNeil, 1959). They were told that close scrutiny of psychology's public image should become a priority for the leaders of psychology and participation in public education "ought to be as automatic as the paying of annual dues" (Sanford, 1952, p. 48).

There were also those in the field who resisted public relations work and considered it too time consuming to reach out to doctors, educators, legislators, and commissioners (Newman, 1957). This reluctance to reach out to those outside of psychology later resulted in some of the most highly publicized criticism of psychological research by congressional leaders.

The Media's Impact on Psychological Research

In the 1970s and 1980s, the media played a significant role in causing psychology to lose large portions of its government funding for research. First, in 1975, Senator William Proxmire, as Chairman of the Subcommittee of the Senate Appropriations Committee that supervises the National Science Foundation (NSF), went public with a list of NSF research proposals that were deemed "outrageous wastes" of the taxpayer's money. He was especially critical of the research projects of two social psychologists, Ellen Berscheid and Elaine Walster. The research was a study on the theory of equity in intimate relationships, but Sen. Proxmire publicly discredited the research by referring to it as a study of "passionate love" and "erotic curiosity." This public condemnation of research that Proxmire considered worthless was the beginning of the "Golden Fleece" awards that he announced in press releases. Newspapers and magazines were quick to respond to the press releases, and as public interest increased, so did Proxmire's public criticism of psychological research.

In 1976, Proxmire awarded the "Golden Fleece" to Ronald Hutchinson for his research on aggression in monkeys. In a press release Proxmire stated that Hutchinson "had made a monkey out of the American taxpayer." The Senator continued his public attack on television on the Mike Douglas show, and later in a newsletter entitled "No More Monkey Business" he claimed responsibility for eliminating the funding to Hutchinson's project.

The public criticism and ridicule of psychological research, suffered at the hands of an elected official, contributed significantly to the erosion of psychology's credibility as a scientific discipline. It is believed that Proxmire proved very adept at manipulating the media, with his press releases and press conferences, and the media in its zeal to report controversial news, became a

willing participant in the further distortion and misrepresentation of psychology (Kiesler & Lowman 1980; Shaffer, 1977).

All of the negative press on the legitimacy of psychological research resulted in drastic cuts in the budget of the NSF by the Reagan Administration. It did not matter that research of the hearing problems of pigs made it possible to diagnose hearing loss in infants, or that the study of the reproductive process of the screw worm helped the cattle industry save millions of dollars by eliminating the parasite. Reporting the real scientific facts of these studies did not make interesting copy, but sensationalizing research proposals made the social and behavioral sciences vulnerable to a loss of approximately 50% to 75% of its budget in the 1982 fiscal year (Atkinson, 1977).

For psychological research, in real dollars, it translated into going from \$14 million in 1981 during the Carter administration, to \$6 million in the Reagan administration. It was concluded that the only way to stop the skepticism of the elected officials who controlled the purse strings, was to gain the support and respect of both the public and government through increased communication with elected officials, and educating the public on the importance of psychological research. Psychologists were encouraged to use the media to communicate clearly and accurately the purpose and methodology of scientific research (De Leon, VanderBos & Kraut, 1984; Walgren, 1982).

However, there were several reasons why scientists, and especially psychologists, resisted the notion of communicating with journalists, and other media representatives, about psychological research. Some psychologists believed that the media was responsible in part for creating the negative public image that so plagued psychology, to the point of being antagonistic toward the press, and intentionally avoiding contact (Walum, 1975; Weigel & Pappas, 1981).

Researchers felt that journalists and science writers on the staffs of newspapers and magazines did not consider psychology a serious or “hard” science like biology or physics. The science reporters who “cut their teeth” reporting the space missions of the 1960s referred to the social and behavioral sciences as “garbage science.” They believed that any journalist, not just those with special training or a background in science, could write about the social sciences. It was that type of disrespectful attitude that led researchers to continuously avoid the media.

Psychologists begin to note that most journalists lacked the expertise and training to accurately report research results. On newspaper and magazine staffs, psychology was normally not covered by science writers, but by general assignment writers whose stories often appeared in the “women’s” or “lifestyle” sections of major newspapers such as the *Los Angeles Times*. They observed that it was mostly non-psychologists or non-scientists who wrote about psychology.

Without the proper training, or skills to interpret research results, journalists often resorted to oversimplifying results or omitting important facts about the research. In order to make the information more comprehensible to the lay public, complex research was simplified or watered down by reporters. To the frustration of psychologists, research was often reported inaccurately, or came across as trivial and frivolous.

Journalists were accused of sensationalizing results, exaggerating results, focusing on bizarre and controversial research, and using catchy headlines to attract readership. Psychologists stated that reporters were more concerned with selling newspapers than they were about telling the truth.

In reality, oversimplification and omission of facts occurred because reporters were often under extreme pressure to meet deadlines, there was not

enough time to verify or correct facts, and they were given limited amounts of printing space to work with. In television where writers were required to condense large amounts of information to fit a three minute segment the situation worsened.

Nevertheless, most psychologists were left with the impression that journalists were simply not interested in what psychology had to say, nor did they care to report information accurately. As a result, they began to mistrust the media, and they adopted a defensive stance when reporters came calling for interviews and information. There were accusations that they were being arrogant for refusing to share information, or that some psychologists were expressing elitist attitudes and talking down to reporters (McCall, 1988).

It was said that psychologists did not know how to speak to the general public since they were more accustomed to interacting with their peers in laboratories, seminars, classrooms, or writing for professional journals. They valued an arcane language that only their colleagues could understand and reporters referred to as “baffleab” (McCall, 1988).

In summary, there were those in the field of psychology who chose not to speak to reporters. They felt misunderstood and disrespected by the profession, and most held to the strong belief that in the inner circles of scientific research, it was considered unprofessional to popularize their work (McCall, 1988). Those who felt otherwise, proceeded to use other mediums of communication to promote their work in a professional, yet creative manner.

Psychology in Television and Films

In an attempt to remedy some of the damage caused by the “Golden Fleece” awards and the budget cuts in research, some psychologists turned to the

medium of television as a means of communicating their work to the public. For example, a group of developmental psychologists successfully created and presented a series of newsfeatures that were broadcast on local news programs across the nation. By becoming involved at the production end of the project, they were able to present information that was accurate and useful (McCall, Gregory, & Murray, 1984).

Other psychologists, specifically those in teaching, have relied on feature films and documentaries to increase students' knowledge about a variety of subjects (Gronlund & Lewandowsky, 1992). For example, students were taught to critically analyze how films about mental illness can shape the public's perception about psychology, psychopathology and treatment (Fleming, Piedmont, & Hiam, 1990). In a cognitive psychology course, students reviewed a journal article and a feature film as a method of defining the parameters of cognitive psychology (Conner, 1996).

As with any tool that can be used to create or destroy, television and feature films were also used to depict psychology in more negative and inaccurate ways. More recently, in television and movies, psychologists have noticed the portrayal of the scientist and researcher as a menacing, evil mad doctor. In the feature movie *The Island of Dr. Moreau* (1996), a demented doctor turns animals into men, and in *Dr. Mabuse, The Gambler* (1922), a doctor uses hypnosis to establish a criminal empire and is eventually institutionalized as a raving lunatic. In the academy award winning movie *Silence of the Lambs* (1992) the main character is a psychiatrist who has been incarcerated in a maximum security prison for cannibalizing his patients. Not only have these inaccurate and fictional characterizations of mental illness provided a disservice to those who suffer from mental illness, but they have not contributed in any

positive way to the public image of psychology and the people who dedicate their lives to helping others by providing educational and/or psychological services (Wahl, 1995).

Summary

With the use of public surveys, psychologists have been able to determine that throughout its history, psychology has suffered, and continues to suffer, from a negative public image. The public at large has exhibited a mistrust and dislike of psychology. Research has shown that survey participants have at times expressed unfavorable views and negative attitudes toward psychology, and in cases where favorable attitudes have been expressed, the public has also demonstrated a paucity of knowledge about psychology.

Researchers have found that information about psychological methods and research has been unavailable to the public, or that the media has made available inaccurate and exaggerated information. Relying on the media to educate the public about psychology has not always proved fruitful, hence, psychologists have taken their surveys into the classrooms of universities, colleges, and high schools to investigate students' level of knowledge about psychology and the impact that has had on measures of misconceptions about psychology, and attitudes toward psychology.

College Students' Knowledge of Psychology

Psychology courses at colleges and universities have become increasingly popular over the years (Best, 1982; Ragland, 1992). In addition to being interesting and fun classes, there are a number of important course objectives instructors set out to achieve with each new incoming class of students. Psychology instructors know that not every beginning psychology student plans

to pursue a career in psychology. Nevertheless, through the teaching of psychology, it is the instructor's goal to impart on students a better understanding and appreciation of everyday life. Instructors strive to make critical thinking an integral part of the entire course, encourage personal growth, help students improve attitudes and life skills, inspire an appreciation of the scientific method and its application to human behavior, and teach students about the significant elements of their culture, as well as other diverse cultures (Davis & Palladino, 1995, p. 7; Wade & Tavis, 1996, p. 13).

The popularity of the introductory psychology course attracts a diverse group of students, from the serious, achievement-oriented student, to the student who holds only a passing interest in psychology. As a result, it has been well documented that students in beginning psychology courses hold numerous misconceptions about psychology that are resistant to change (Brown, 1983; Furnham, 1992; Gardner & Dalsing, 1986; Lamal, 1995; Vaughn, 1977).

Although some studies have shown that as students increase the number of completed psychology courses, levels of misconceptions decrease (Gardner & Dalsing, 1986; Norcross, Gerrity, & Hogan, 1993), other research has shown that students come into the classroom expressing confusion and biases about such topics as homosexuality (McCord & Herzog, 1991), misbeliefs about teaching and learning methods (Suter, 1991), misconceptions about the elderly (Panek, 1982), and a lack of knowledge about behavior analysis, more specifically the work of B. F. Skinner (Debell & Harless, 1992; Lamal, 1995).

The earliest attempts to address this problem consisted of questionnaires designed to measure the prevalence of superstitious beliefs and practice among college students. Students in introductory psychology courses at Columbia University and New York University were given a 30-item, true-false

questionnaire that included such statements as “A child comes into the world with an instinctive knowledge of good and evil. This is his conscience and is born in him.” or “A person who does not look you in the eye is likely to be dishonest” (Nixon, 1925).

Nixon (1925) found that the majority of students believed that intelligence can be increased by training, and that studying mathematics gives a logical mind. Twenty-five years later Levitt (1952) administered the same survey to his beginning psychology students and found a significant decrease in superstitious beliefs. More recently in 1986, (Tupper & Williams) the same questionnaire was administered to a group of undergraduate Australian students. Results showed no significant differences across cultures (Australian versus United States), nor across time (1925 versus 1983), nor any significant decrements in superstitious beliefs.

To assess the pervasiveness of misconceptions and misbeliefs among psychology students, researchers have used the Northwestern Misconceptions Test, the Test of Common Beliefs (TCB) and the McCutcheon Test of Misconceptions (MTM6). To the disappointment of researchers and professors of psychology, the use of these instruments has demonstrated that completing an introductory course in psychology has proven ineffective in dispelling the misconceptions held by students. For example, students at six separate universities showed no significant gains in knowledge or decrements of misconceptions on the Northwestern Misconceptions Test. Upon completion of a psychology course, they showed retention for 30 of the 100 misconceptions in the inventory. There were no differences by level of achievement (grade earned in the class) on level of misconception (McKeachie, 1960; Vaughn, 1977).

McCutcheon (1991) administered a revised version of the MTM4 (e. g., elimination of easy items) to students at Northern Virginia Community College. Some students reported having taken a psychology course in high school or at another college. In agreement with prior findings, analysis of the data indicated no significant differences in misconception scores between those students with a previous psychology course and those with no previous psychology course, thus indicating that classroom knowledge had been ineffective in dispelling misconceptions. Although other researchers have been able to show positive effects of previous psychology course on level of misconceptions, but mainly because those psychologists believed that some high school psychology courses are more rigorous than others and transfer of knowledge does occur (Hedges & Thomas, 1980).

A variation of the research design assessing college psychology students has been to compare level of misconception with grade earned in the course. Researchers believe that high-achievement students (e. g., A and B grade earned) hold less misconceptions than low-achievement students (e. g., D and F grade earned) as a result of greater acquired knowledge.

The results from these studies have been mixed. Gutman (1979) demonstrated that grades in psychology correlated positively ($r = .35$) with scores on a misconception test and Best (1982) showed that even the "A" level students did not learn more facts about psychology. In a separate study, prospective university students with high grade point averages (GPA) measured high on the MTM6 (Furnham & Rawles, 1993). Even when the ability to think critically, as measured by the Walston-Glaser Critical Thinking Appraisal, has been included as an additional indicator of high achievement, students with high GPA and high Walston-Glaser scores had enough misconceptions on the MTM6 to

substantiate that high intellectual ability was not sufficient in dispelling misconceptions (McCutcheon, Apperson, Hanson, & Wynn, 1992).

Psychologists, especially those who devote their time to the teaching of psychology, have found the results from these studies disturbing. They have expressed concern that knowledge about psychology acquired in the classroom has not transferred to performance on misconceptions tests. Even when it has been ascertained that some students have received prior exposure to information in high school psychology courses, researchers have found little or no differences on level of misconception (Newman, Duncan, Bell, & Bradt, 1950).

Two assumptions have been proposed by psychologists as to why this has occurred. First, since the majority of first-year college and university students transfer in directly from secondary schools, researchers have focused their attention on examining the quality of the high school psychology course. A review of those particular studies is provided in the subsequent sections. Second, assuming that students do possess sufficient knowledge about psychology, researchers have asserted that a closer examination of the adequacy of the assessment instrument (e. g., TCB, MTM6, and Northwestern Test of Misconceptions) is required.

Taking the first assumption into consideration, the purpose of this study was to assess high school seniors, currently enrolled in high school, on levels of misconceptions about psychology, favorable or unfavorable views about psychology, whether they view psychology as a lucrative career, and the level of general knowledge they possess about psychology. Variables that are hypothesized to produce differences in students' assessment scores include grade point average (GPA), gender, ethnicity, prior exposure to a psychology course and natural sciences background. Students were also asked to provide, from a

list of options, sources of information they have relied on for obtaining knowledge about psychology. The following list of sources was provided: television, radio, movies, newspapers, magazines, talkshows, news, textbooks, peers, parents, teachers and counselors, and "Other."

In response to the second assumption, regarding the adequacy of assessment instruments used in previous research, in the present study, students were assessed using the Attitude Toward Psychology As a Career scale (Aguilar-Gaxiola & Gonzalez, 1993). This survey is quite different from the questionnaires described in the literature. Details about the instrument are provided in the methods section.

High School Students' Knowledge of Psychology

Similar to the introductory psychology course in college, the psychology course in high school had proven to be popular among high school students, but assessments of first-year college and university psychology majors revealed a persistence of misconceptions and a lack of knowledge about psychology among students. Psychologists soon came to the realization that the high school psychology course had proven ineffective in providing students with a substantial knowledge base to dispel misconceptions about psychology, and to facilitate academic achievement in beginning psychology college level courses.

Several studies have been done to assess the effectiveness of precollege psychology courses with beginning psychology students. When testing students on psychological knowledge, researchers have found that there are no significant differences on test performance between those students who have completed a high school psychology course and those who have not (Dambrot & Popplestone, 1975; Federici & Schuerger, 1976).

For example, Griggs and Jackson (1988) administered a 60-item multiple choice pretest and posttest to 199 beginning psychology students at the University of Florida. The test consisted of items representing frequently covered topics in a high school psychology course such as personality, disorders, social psychology and developmental psychology, and infrequent topics such as research methodology, statistics and physiological psychology. The results revealed no significant differences in test scores between those students who had taken a high school psychology course and those who had not. However, in a prior study employing a similar design, it was found that students who had taken a high school psychology course fared better on the pretest, but only on those items that dealt with topics frequently covered in a high school course (Cartsens & Beck, 1986).

Conversely, a study by Hedges and Thomas (1980) found that students who had taken a high school psychology course scored higher on a pretest and earned higher mid term grades than those who had not taken a precollege psychology course. The researchers attributed their results to differences in the quality of the high school courses taken by the students in their sample. They believed that the improved quality of the high school psychology course was the direct result of improved teacher preparation.

In the studies cited above on the assessment of beginning psychology students' knowledge as it relates to precollege psychology course, there were no reported differences by gender or ethnicity. In most cases, those factors were not included in the data analysis.

Assessment of Misconceptions

The number of studies assessing the level of psychological misconceptions of high school psychology students are extremely few. The large body of research that does exist pertains more to college and university samples, perhaps because it has been more convenient for researchers to assess those populations.

One such study used the questionnaire of superstitious beliefs and practice first used by Nixon in 1925 and administered it to 140 senior girls and 115 senior boys in a New York City high school (Garrett & Fisher, 1925). The questionnaire was increased from 30 to 40 statements, and to secure the students' immediate response, they were given ten minutes to complete the survey.

Based on the number of statements believed to be true, high school students proved to be more credulous than Nixon's university student sample. For example, the average number of true statements for the high school girls and boys was 19.9 and 17.6 respectively. In Nixon's sample the number of true responses were 10.5 and 12.3 for the women and men respectively (Garrett & Fisher, 1925).

In a study that asked primary, middle, and secondary school students, "What do you think psychologists do?" students indicated that psychologists are involved in helping people, as well as research type activities. In comparison to the elementary and middle school students, the high school seniors provided less incorrect responses than the younger students when asked if they knew the difference between a psychologist and a psychiatrist. Although the primary purpose of the study was to assess children's perceptions of psychology, the data did provide information regarding the level of psychological knowledge known by high school seniors (Dollinger & Thelen, 1978).

In regard to assessing differences of misconception by gender, ethnicity and GPA, the study by Garrett and Fisher (1925) did reveal some differences for gender. The female students held more superstitious beliefs than the males. In terms of GPA, the high-achievement students were no less superstitious than the low-achievement students.

Differences in level of misconception by ethnicity were reported by McCutcheon, Lummis, Lyons, and Packer (1991) in a study that assessed a group of Black students at a predominantly black university and a sample of White students from a predominantly White university. Students were administered the MTM4, and it was reported that there were significant differences on a few individual items, but overall the groups share common misconceptions, with Blacks being a little more susceptible to those misconceptions

Assessment of Favorable Views

One of the reasons that psychologists have taken on the task of assessing students' level of knowledge of psychology is to determine if less knowledge correlates highly with unfavorable views toward psychology. Does having little knowledge about psychology cause individuals to view psychology more negatively?

A review of the research conducted with college level students has shown that in an introductory college level psychology course students gave mental health professionals favorable ratings (McGuire & Borowy, 1979), took additional psychology courses after participating in psychology science fairs (Fish & Fraser, 1993), and rated psychology courses more favorably after achieving mastery of the course material (Davidson, House, & Haim, 1993).

In a separate study, children ages 10 to 16 years, participated in a summer enrichment program that involved them in small group activities designed to teach them about the principles of psychology. Lesson plans included lectures and demonstrations from the areas of sensation, perception, emotion, memory, learning, cognition, creativity, personality and social psychology (Rea, 1988).

Students were taught to use visual imagery and association to facilitate memorization of classmates' names. They also experimented with distortion goggles, finding their blind spot and tested for color blindness. At the conclusion of the summer session, students and their parents were asked to evaluate the course. Students stated that they had gained a better appreciation of psychology as a result of the accurate knowledge they had been exposed to (Rea, 1988).

To assess students' gender-stereotypic perceptions of various academic disciplines, Archer and Freedman (1989) used a seven-point semantic differential rating scale. The dimensions on the scale included polar opposite categories of difficult-easy, interesting-boring, useless-useful, masculine-feminine and science-arts. Results showed that disciplines in the physical sciences, math and engineering were rated as masculine and scientific. Psychology was also rated as scientific, but it was perceived as feminine by both male and female students.

In terms of gender differences on favorability measures, it has been reported that girls tend to favor the occupation of psychologist more so than boys, although not significantly more. Boys tend to express less favorable attitudes toward psychologists. Measures of ethnicity and favorable views toward psychology were not discussed in the studies reviewed for this section. In regards to GPA and favorable views, it has been found that students who possess low to moderate levels of psychological knowledge express both

favorable and unfavorable views about psychology (Dollinger & Thelen, 1978; Smith & Casbolt, 1984).

Psychology as a Science

The research has shown that completing a psychology course in high school does not always result in superior academic performance in an introductory psychology course in college. Rather it has been discovered that a strong background in the high school natural sciences has been a better predictor of mastery of college psychology course work (Cartsens & Beck, 1986; Griggs & Jackson, 1988).

Researchers believe that exposure to the scientific method in high school science courses is more consistent with the scientific focus of the college psychology course, thus allowing for a transfer of knowledge and skills to occur. This transfer of scientific knowledge has been more evident in the final grades earned by students in college psychology courses than in students' performance on a misconceptions test (McCall & Carlin, 1989).

Students enrolled in a pre-medical curriculum with a concentration in mathematics and chemico-physical science were administered a test of misconceptions and superstitious beliefs. It was hypothesized that students in a high-achievement group would score lower on misconceptions than students in a low-achievement group. The results indicated that a good amount of students expressed a belief in astrology, that Whites are born intellectually superior to other races, and that men are born intellectually superior to women. The group as a whole held a large number of misconceptions, but the low achievement group failed more than the high achievement group. Nevertheless, exposure to the

sciences failed to dispel misconceptions, or eradicate superstitious beliefs (Ralya, 1948; Warburton, 1956).

There is agreement among psychologists that it is important for students of psychology to perceive psychology as a science, and not as a discipline that requires no more training than everyday common sense (Wood, Jones, & Benjamin, 1986). For example, students who scored high on the Psychology as a Science (PAS) scale felt that participation in a research project had been worthwhile, educational, and that a research component should become part of the curriculum in future psychology courses (Friedrich, 1996).

Students in a college introductory psychology course who were assigned to write an essay explaining why psychologists use empirical methods, and why it is important to base results about human behavior on good research, were more apt to support the idea that psychology is a scientific discipline. Students who were assigned a neutral topic to write on chose not to participate in an experiment when given the option to do so. Students who wrote the pro-empirical essay expressed favorable attitudes about the empirical approach and viewed psychology as being useful (Friedrich, 1990).

Noting that scientific literacy has facilitated mastery of psychology, and has dispelled misconceptions to a certain degree, it has also been found in research that there are differences by gender and ethnicity in attitudes toward the sciences, and willingness to participate in the sciences.

Gender Differences

In studies of gender-stereotypic perceptions of academic disciplines, engineering, physical science and mathematics have been rated as masculine by both males and females. Disciplines such as English, French, biology, sociology

and psychology have been rated as feminine (Archer & Freedman, 1989). Girls who sex-stereotyped themselves as more feminine and perceived science as a masculine subject performed poorly on cognitive measures of science knowledge, mechanical reasoning and spatial visualization. They also believed that pursuing an education in science was not for them (Kelly & Smail, 1986).

Ethnic Differences

In regards to ethnicity, it has been noted in the literature that Latinos and African-Americans are grossly underrepresented in the sciences, both academically and occupationally. Nationwide surveys conducted by the National Opinion Research Center at the University of Chicago for the years 1972 through 1990 indicated that Latinos and African-Americans had lower confidence in science than Asians and Whites (Trankina, 1992).

At three urban middle schools in Atlanta, Georgia, where 91 percent of the student enrollment was African-American, Atwater, Gardner and Wiggins (1995), collected demographic data, assessed students' attitudes toward science, their intentions to engage in the sciences, their attitudes toward their science teachers and their perceived friends' attitudes toward science. They hypothesized that in order to understand students' commitment to the sciences and level of achievement motivation, it is important to assess attitudes toward the sciences.

The results indicated that students who expressed positive attitudes toward the sciences were more motivated to achieve in school, and also held positive attitudes about their science teachers. Almost 50% of the students indicated an interest in pursuing careers in medicine, engineering and teaching however, they failed to make the connection between a science education and science-related careers. In other words, they did not plan to continue in science

classes at the high school level since they did not view these careers as requiring a background in science. While they did find a certain percentage of students expressing positive attitudes toward science, Atwater, Gardner and Wiggins (1995), found that the majority of the African-American students held uncertain attitudes toward the sciences and the science curricula.

Summary

Psychologists have found that college and university psychology students who have completed a high school psychology course do not earn higher grades than those students who have not, and hold just as many misconceptions about psychology. In other words, high school psychology information does not transfer to the college introductory psychology course. In some studies, researchers have found that prior exposure to the scientific method and experimentation is positively correlated with academic performance in college psychology courses. A positive transfer of scientific knowledge and skills does occur as demonstrated by grades earned, but there are no decrements in level of misconceptions.

In the study conducted for this thesis, students were asked to provide a list of the science courses they had completed or were enrolled in at the time of the survey. An analysis of exposure to the sciences and level of misconceptions, attitude toward psychology and level of general knowledge about psychology was conducted and results are reported in the results section.

High School Psychology Curricula and Teacher Preparation

Based on the dismal results regarding the lack of transfer of knowledge from the high school psychology course to the college level psychology course,

some researchers have asserted that perhaps it is best if the high schools stop teaching psychology altogether. In reviewing the literature, two factors have been identified as contributing significantly to this phenomenon: the high school psychology curricula and the academic preparation and training of teachers assigned to teach high school psychology (Goldman, 1983; Griggs, Jackson, & Meyer, 1989).

Recognizing that not all secondary schools are the same, there are some schools that adopt a more rigorous approach to teaching high school psychology. For the most part, in the majority of high schools, the high school psychology course takes on a more practical focus rather than a scientific focus. For example, the topics most frequently covered in a high school psychology course include personality, developmental, abnormal, social psychology, learning, motivation, emotions, mental health, psychological adjustment and psychotherapy. The focus has been on helping students with issues of personal growth and adjustment.

Over the decades, there has been an increase in the number of secondary schools offering psychology courses to their students. Psychologists have known for some time that in the majority of cases, knowledge and skills acquired in the high school psychology course do not transfer to the college level psychology course. There are several reasons for that, as indicated by survey data collected by researchers from high school teachers of psychology (Goldman, 1983; Griggs, Jackson, & Meyer, 1989).

It has been found that teachers who are assigned to teach high school psychology have limited formal coursework in psychology. Most do not major in psychology but obtain undergraduate degrees in history or social studies. Teachers' training and academic preparation has consisted of completing 7 to 12

credit hours in undergraduate psychology courses in the areas of developmental, personality, social psychology, and learning. They are the least familiar with research methodology, statistics and physiological psychology (Abrams & Stanley, 1965; Federici & Schuerger 1976; Griggs, Jackson, & Meyer, 1989).

The teacher's academic background is reflected in the focus of the high school psychology course. In response to researchers' surveys, teachers report that the primary approach of the psychology course is to help students with vocational objectives, help gain a better understanding of life, prepare students for family living, help them develop a basic philosophy of life and help them apply basic psychological principles to personal problems. In other words, high school psychology courses have a personality-developmental focus rather than a scientific orientation (Dambrot & Popplestone, 1975; Ragland, 1992; Ware & Johns, 1990; White, Marcuella, & Oresick, 1979).

In the majority of secondary schools psychology is offered as a college preparatory elective and the duration of the class is typically one semester. The course is usually taught by a history or social studies teacher for whom teaching psychology is a part time job. In some cases the guidance counselor is assigned to teach high school psychology (Engle, 1965; Litt, 1978; Stedman, 1977).

The teaching method employed by most teachers is the lecture/discussion format. Some teachers report using guest speakers, taking field trips, showing videos and feature films, and participating in science fairs to supplement the lecture material. Few schools have the resources to offer a separate laboratory section and few teachers have the training and education to teach experimentation. An introductory psychology textbook is used in most cases and assigned readings usually include articles from *Psychology Today*. Since most teachers are not affiliated with professional associations such as the APA,

there are many curricular materials and instructional resources they have not taken advantage of (Engle, 1957, 1955; Engle & Bunch, 1956; Johnson, 1991).

In the surveys that have been collected from schools across the states, teachers have indicated that they do not belong to any professional psychological organizations. They also do not attend professional psychological conferences and seminars. A few teachers have reported that they do subscribe to professional journals and newsletters, but for the most part, the majority of high school psychology teachers report feeling isolated from other high school psychology teachers or psychologists who work in other areas of psychology (Abrams & Stanley, 1965; Epley & Schwerin, 1977; Litt, 1978; Stedman, 1977).

A review of the preceding information would seem to confirm why beginning psychology students in college continue to hold misconceptions about psychology even after completing a high school psychology course. It appears that the content of the high school psychology course is quite different from the college psychology course work. However, some researchers offer an additional explanation for the persistence of misconceptions among psychology students. There are a number of studies criticizing the various misconceptions tests that have been employed by researchers. There is concern about these assessment tools, especially when instructors of psychology who have been given the misconceptions tests report measurable levels of misconceptions, or cannot reach a consensus amongst themselves on which statements on the surveys constitute a true misconception or superstitious belief, and which do not (Gardner & Hund, 1983).

Misconceived Tests of Misconceptions

The criticisms that have surfaced in the literature are that perhaps the tests of misconceptions have been misconceived. Two points raised by Griggs and Ransdell (1987) are, that some of the misconceptions included in the questionnaire are not ever addressed in a psychology course, and, that the true-false format is not effective in assessing students' knowledge of psychology.

In the revised version of the MTM4, McCutcheon (1991) states that eliminating the easy items and adding new items to the questionnaire has led students to correct some misinformation but resulting in the adoption of new misconceptions. The revised version, the MTM6, consists of 65 multiple choice items. This new format, when administered to 60 high achieving students and 60 average achieving students in an introductory college psychology class, resulted in the high achievers making significantly less errors. Results on the revised format are consistently in contrast to what was obtained with previous versions of the test.

The misconception inventories that have been cited consist of numerous items that assess a wide range of content areas in psychology (e. g., perception, motivation). The vocabulary and concepts used in the statements are beyond the scope of knowledge of the beginning psychology student. For example, items from the Test of Common Beliefs include, "Psychiatrists are defined as medical people who use psychoanalysis," or "Genius is akin to insanity" (Vaughn, 1977). Brown's (1983) 37-item questionnaire included such statements as "Electroconvulsive therapy and insight therapy are widely used in e treatment of schizophrenia," and "LSD is a psychologically addictive hallucinogenic." Ignorance of psychological terms or an inability to master the psychologist's vocabulary can be misconstrued as misconceptions by researchers (Brown, 1984).

Perhaps what is needed to adequately assess student's attitudes and misconceptions about psychology is an inventory that limits its statements to a specific area in psychology and uses vocabulary that is familiar to the non-psychology person as well as the student of psychology (Ruble, 1986). What is required is an assessment instrument that can produce a more accurate measure of acquired classroom knowledge. The attitude survey used in the study for this thesis has been developed in such a way that high school seniors of all academic levels were able to complete it with little or no difficulty. This instrument is called The Students' Attitude Toward Psychology As a Career Scale and the details of the instrument are provided in the methods section.

Chapter 2

RESEARCH QUESTIONS

In the present study high school seniors were administered an attitude survey and their scores were analyzed for differences on the factor of level of misconceptions about psychology, favorable views toward psychology, association of economic success with psychology, and general knowledge about psychology. The research questions that were assessed are as follows:

Question 1--Are there gender differences (male and female) on the level of misconception about psychology, attitude toward psychology, level of general knowledge about psychology and economic success? The results from previous studies on gender differences have been mixed. Some studies have shown that female students tend to report higher levels of misconceptions than males, however, females express more favorable attitudes toward psychology. Other research has shown that male students express less favorable attitudes toward psychology, and are also less knowledgeable about psychology.

Question 2--Are there differences by achievement level, as measured by cumulative grade point average, using a 4-point scale (4.00 = A, 3.00 = B, 2.00 = C, 1.00 = D, 0.00 = F) by the four factors of the survey? Previous research has shown that students who earn a high grade (e. g., A or B) in psychology continue to hold misconceptions about psychology, or express unfavorable attitudes toward psychology.

Question 3--Are their measurable differences on the aforementioned four factors by ethnicity? The research in the area of ethnic differences on level of misconception about psychology and attitudes toward psychology has been

minimal. One study that addressed this question found no significant differences on level of misconceptions about psychology between White and Black students.

Question 4--Does the students' self-reported source (i. e., media, movies, peers, textbooks, etc.) for psychological information have a significant impact on the level of misconception about psychology, favorable views toward psychology, association of economic success with psychology, and general knowledge about psychology? The literature review shows that the popular press has been a primary source of psychological information for most people, and also that information about psychology has been misrepresented in the press.

Question 5--Are there differences on these four factors between students who have taken a high school course in psychology and those who have not? Some researchers have found that college students who complete a previous high school psychology course do not fare any better in a college introductory psychology course than those who have not. Also, prior exposure to a psychology course has not been found to eliminate misconceptions about psychology.

Question 6--Do students who complete more courses in the natural sciences (e. g., biology, chemistry, physics) score differently on the four factors of the survey, than those students who do not take any science classes, or complete non-college preparatory science courses (e. g., Life Science and Physical Science)? Some studies have shown that students who have completed one or more courses in the hard sciences (chemistry, biology, physics) earn higher grades in introductory psychology courses and express positive attitudes toward psychology and the sciences. However, students who are scientifically literate continue to score high on misconceptions tests.

Chapter 3

METHOD

Subjects

The subjects were 668 high school seniors (ages 17 and 18; M age=17.2) enrolled in seven different high schools in California's Central Valley.

Participants were selected on the basis of the type of class in which they were enrolled. American Government/Economics is a required course for graduation from high school, and enrollment is limited to seniors, therefore, to ensure 100% participation from high school seniors, American Government/Economics classes were surveyed. Classes from all academic levels were included (e. g., Honors, College Preparatory, and Non-College Preparatory). The seven high schools participating in the study consisted of five traditional high schools and two continuation schools. Students attending continuation schools include those experiencing academic problems due to excessive truancy, low grades and a variety of behavioral difficulties.

At each school, the administration of the survey was incorporated into the students' lesson plan. The sample consisted of 341 males and 327 females. The group was ethnically diverse with 44.2 % being White, 41.6 % Latino and 14.2 % in a category of "Other" representing a combination of Native American, Afro-American, Asian, Southeast Asian, and Portuguese students. Of the entire sample, only 105 (15.9 %) students reported having previously taken a high school psychology course, and 561 (84.1 %) having no previous exposure to a psychology course. The number of students who stated that they had completed one or more natural science course was 427 (63.9 %) and 241 (36.1 %) did not.

The subjects' father's level of education ranged from 0-25 years of schooling (M years=20.84), and the mother's level of education ranged from 0-25 years (M years=17.17).

Measure

Subjects were given a survey entitled Students' Attitude Toward Psychology As a Career Scale. The 39-item questionnaire was developed by Aguilar-Gaxiola and Gonzalez (1993) with the purpose of measuring students' attitudes toward psychology as a career. It was designed for investigative work with high school seniors and the development of the scales proceeded as follows:

1. The first version of the scale was comprised of nine statements that included items involving three different content areas: (1) gross distortions or misconceptions about psychology, such as, "Only women choose a career in psychology."; (2) favorable views about psychology, such as, "I associate a career in psychology with personal success."; and (3) general views or general knowledge about psychology, such as, "The method of scientific research is one of the most important areas in the field of psychology." Each student was to respond to each item by checking one of five Likert-type alternatives. The alternatives ranged from "Completely agree" = 1 to "Completely disagree" = 5.

2. These nine statements were given to a panel of 12 experts in psychology on career counseling who were asked to rate each item on a Likert-type five-point scale using the following alternatives: 1 = Strongly Agree, 2 = Slightly Agree, 3 = Neither Agree or Disagree, 4 = Slightly Disagree, and 5 = Strongly Disagree. Some of the experts were psychologists themselves and all of them were familiar with psychology as a career and had been at one time or another involved with providing career counseling to high school/college

students. In addition to the nine items, a series of items with the stem phrase “The career of psychology...” were provided to the experts. They were asked to complete the phrase with statements they had commonly heard about psychology (either misconceptions or favorable views, or just general information about psychology).

3. Approximately 85 statements were collected from the 12 experts. Several of the statements were repetitive and ambiguous therefore, all of the collected statements were edited and modified to improve comprehensibility and clarity of language using the Edwards and Kilpatrick scale discrimination criteria for constructing attitude scales. This modification resulted in a questionnaire of 51 items.

4. The 51-item questionnaire was given to a group of three experts (different from the original group of 12) to further improve readability and eliminate repetitive statements. These statements were further edited using the Edwards and Kilpatrick scale discrimination criteria for constructing attitude scales (Edwards, 1957, p. 13-14). The final version, consisting of 41 items, was then tested with a group of high school students. Their suggestions were incorporated in the final 39-item version of the scale.

The original version was developed in Spanish and translated into English using Brislin’s method of back-translation (Aguilar-Gaxiola & Gonzalez, 1993). In addition to the 39-item survey, a cover page consisting of 13 demographic items was also included. Students were asked to provide their grade point average, age, gender, ethnicity, parents’ level of education, type of high school science course completed, previous enrollment in a psychology course, the main source for information on psychology, plans for attending college and choice of major in college.

Procedure

Specific verbal instructions were given in conjunction with instructions written at the beginning of each of the two sections of the survey.

Chapter 4

RESULTS

A series of t tests were conducted to compare mean differences of gender, previous psychology versus no previous psychology course, level of scientific literacy, and self-reported source of psychological information on the four factors of the instrument: misconception (MISCON), favorable views (FAVVIEW), economic success (ECON), and general knowledge (GENKNOW).

The results indicated significant differences on MISCON by gender ($t = 7.89$, $df = 666$, $p < .0125$) with males ($M = 2.46$) having more misconceptions than females ($M = 2.12$) with a mean difference of .34. Males ($M = 2.53$) held significantly less favorable views toward psychology than females ($M = 2.38$), ($t = 2.51$, $df = 666$, $p < .05$), with a mean difference of .15. Males ($M = 2.42$) did not view a career in psychology as economically successful as did female students ($M = 2.28$), ($t = 2.95$, $df = 666$, $p < .0125$), with a mean difference of .14. On the comparison of GENKNOW by gender, males ($M = 2.53$) measured significantly different than females ($M = 2.28$), with a mean difference of .25 and ($t = 4.37$, $df = 666$, $p < .0125$), thus indicating a weaker knowledge base about psychology.

Students were asked to respond “Yes” or “No” as to whether they had previously taken a psychology course in high school. The results of the comparison between these two groups indicated that the “No” group ($M = 2.34$) held more misconceptions about psychology than the group that had taken a previous psychology course ($M = 2.06$), ($t = 4.68$, $df = 666$, $p < .0125$), and a significant mean difference of .28. The “No” group ($M = 2.50$) had less

favorable views about psychology than the “Yes” group ($M = 2.23$), ($t = 4.40$, $df = 666$, $p < .0125$), with a significant mean difference of .27. The “No” group ($M = 2.40$) viewed the career of psychology as less economically successful than the “Yes” group ($M = 2.15$), ($t = 3.95$, $df = 666$, $p < .0125$), with a significant mean difference of .24. The “No” group ($M = 2.47$) also had less general knowledge about psychology than the “Yes” group ($M = 2.12$), with a significant mean difference of .35, ($t = 5.13$, $df = 666$, $p < .0125$).

On the variable of scientific literacy, students who reported completing one or more college preparatory science course (e. g., biology, chemistry, physics), reported less misconceptions ($M = 2.15$) than the group who reported taking no natural science courses, or non-college preparatory science courses ($M = 2.54$), ($t = 8.15$, $df = 666$, $p < .0125$). The scientifically literate students reported having more general knowledge about psychology ($M = 2.32$) than the non-college preparatory science students ($M = 2.56$), ($t = 4.04$, $df = 666$, $p < .0125$), with a significant mean difference of .23. No significant differences were found for the other two factors.

Students were provided with a list of different sources of information (PRINT MEDIA = newspapers, magazines, textbooks, ELECTRONIC MEDIA = movies, television, talkshows, radio, news, and PEOPLE = counselors, parents, peers, “other”) and asked to mark as many as they relied on for obtaining psychological information. The data analysis revealed no measurable differences on ELECTRONIC MEDIA by the four factors. Students who reported PEOPLE as a main source of psychological information reported less misconceptions ($M = 2.20$) than those who did not ($M = 2.40$), ($t = 4.08$, $df = 666$, $p < .0125$). There were no significant differences on the other three factors. Those students who relied on the PRINTMEDIA as a main source of psychological reported

significantly less misconceptions ($M = 2.17$) than those who did not ($M = 2.38$), ($t = 4.71$, $df = 666$, $p < .0125$). The PRINTMEDIA students expressed more favorable views toward psychology ($M = 2.36$ versus 2.52), ($t = 2.70$, $df = 666$, $p < .0125$), and had more general knowledge about psychology ($M = 2.26$) than those who did not rely on the print media for information ($M = 2.52$), ($t = 4.58$, $df = 666$, $p < .0125$). There were no differences on the factor of economic success.

One-way ANOVAs were used to compare differences on the variables of ethnicity (Whites, Latinos, and "other"), and GPA (HIGH = ≥ 3.00 , MEDIUM = $2.00 \leq 2.99$ and LOW ≤ 1.99) by the four factors of MISCON, FAVVIEWS, ECON SUCCESS AND GEN KNOWLEDGE.

A Newman-Keuls post hoc comparison revealed that White students ($M = 2.15$) had significantly less misconceptions than the Latino students ($M = 2.43$), and the "Other" category ($M = 2.33$) with an $F(2, 666) = 17.08$, $p < .05$. White students tended to report less misconceptions about psychology than the other two groups. The White students ($M = 2.32$), also had significantly more knowledge about psychology than the Latino students ($M = 2.50$), $F(2, 665) = 4.00$, $p < .05$, with no significant differences between those two groups and the "Other" group ($M = 2.45$). There were no ethnic group differences on the factors of favorable views and economic success.

Newman-Keuls results revealed that high achievement students reported less misconceptions ($M = 2.13$) than the medium-achievement students ($M = 2.32$), and significantly less misconceptions than the low-achievement students ($M = 2.54$), with an $F(2, 665) = 17.15$, $p < .05$. The differences between the medium group and the low group were also significant. There were no differences by achievement level on the factors of favorable views, economic success, and general knowledge.

Chapter 5

DISCUSSION

The purpose of this study was to examine if high school seniors had measurable differences on the following four factors: level of misconceptions about psychology, favorable views toward psychology, perception of psychology as an economically successful career, and level of general knowledge about psychology. It was hypothesized that there would be mean differences on these four factors by the following variables: (a) gender, (b) ethnicity, (c) GPA, (d) completion of a high school psychology course versus not having completed a psychology course, (e) scientific literacy versus no scientific literacy, and (f) sources of psychological information.

Gender Differences

There was support in the data for the hypothesis that there would be gender differences by level of misconception. The male students reported significantly more misconceptions about psychology than the females. Although 87% of those who had never taken a psychology course were males and 81% were females, that difference is not disparate enough to account for the overall gender differences on level of misconception. Gender differences can be best explained within the context of the differences from the other three factors of favorable views, general knowledge, and economic success.

When previous studies have reported gender differences, it has been in relation to measures of superstitious beliefs rather than misconceptions about psychology (Garrett & Fisher, 1925; Nixon, 1925; Tupper & Williams, 1986).

Studies in which researchers have abandoned the use of superstitious beliefs in favor of questionnaires designed to assess misconceptions, gender differences have been negligible, or they have not been assessed at all (McCutcheon, 1991; McKeachie, 1960; Vaughn, 1977).

One factor that appears to contribute significantly to high levels of misconceptions, is a lack of general knowledge about psychology. In the present sample of high school seniors, the male students had significantly less general knowledge about psychology than the females. A logical conclusion would be that having a minimal amount of knowledge about a particular topic can result in having more misconceptions, or distorted views, about that topic.

There were also significant gender differences on the factor of favorable views toward psychology versus unfavorable views. The male subjects reported significantly more unfavorable views toward psychology than the females. These results concur with findings from other studies in which males have expressed more unfavorable views, or negative attitudes, toward psychology. One reason may be that males tend to perceive psychology as an academic discipline that is more “feminine” than mathematics, chemistry, or engineering (Archer & Freedman, 1989).

Male subjects also believe that psychologists work only as clinicians or therapists, occupations that require the individual to behave in what are believed to be traditional feminine ways, sensitive and nurturing (Smith & Casbolt, 1984). A common misconception has been to view the psychologist in the role of practitioner, and rarely as a researcher, statistician, or as industrial psychologist. This view is held by more males than females and it explains why the males in this study failed to associate a career in psychology with economic success. Female-

dominated occupations are not considered high income earning occupations (Archer & Freeman, 1989; Dollinger & Thelen, 1978).

If the majority of the male students in this sample hold the perception that psychologists work only as mental health therapists, or marriage and family counselors, or child psychologists, and that to work in those professions requires a “feminine side” then that would be sufficient cause for most male high school students to avoid the topic of psychology. Taking a course in psychology would be anathema to these students, thus increasing their lack of knowledge about psychology and eliminating an opportunity to dispel some of the misconceptions they hold about psychology. Results in this study may indicate that that may be the case with this sample of 668 students. Out of 341 male participants, only 44 completed a psychology course.

Even though the numbers for the females are less impressive, (66 out of 327 completed a psychology course) it appears from the results that the female students are more interested in, and more knowledgeable about psychology, and are acquiring their information about psychology from sources outside of the classroom.

Differences by Ethnicity

The majority of studies that have been conducted to measure students' level of misconceptions about psychology and their attitudes toward psychology have taken place in American college and university classrooms. It is correct to state that over the past 20 years, most colleges and universities in this country have become more ethnically or racially diverse. Yet the literature review for this thesis yielded only one journal article specifically designed to assess racial differences (Black students versus White students) on levels of misconceptions

and attitudes about psychology (McCutcheon, Lummis, Lyons, & Packer, 1991). It would seem that in a country that has become increasingly diverse, there would be a larger body of work devoted to the study of ethnic differences.

The results from the present study did produce differences by ethnicity on the factors of misconceptions about psychology and general knowledge about psychology. There were two major ethnic groups in the sample of high school seniors: Whites and Latinos. The category of "Other" is a conglomerate of African-American, Native-American, Asian, Southeast Asian and Portuguese students.

The Latino students had significantly more misconceptions about psychology and significantly less general knowledge about psychology than the White students. Those two factors are related in such a way that decreased knowledge about a subject can produce a high degree of misunderstanding about that subject. It has long been known that the Latino culture does not endorse the use of mental health practices for the treatment of emotional maladies or behavioral problems, perhaps due to a lack of understanding or knowledge about the field of psychology (Canino et al., 1987; Padilla, Carlos, & O'keefe, 1978). As a result, a cycle has developed whereby a lack of knowledge about psychology causes the underutilization of psychological services which then increases the lack of knowledge.

Knowing that Latino students report more misconceptions and less knowledge about psychology can be useful in examining the enrollment numbers of Latino students in college and university psychology programs. The most effective method for increasing knowledge and reducing misperceptions about psychology is to educate people about the field of psychology. Perhaps by encouraging Latino students to pursue careers in psychology, the culture as a

whole will begin to understand and accept what psychology has to offer. It is evident from the results of this study, and the paucity of research on ethnic differences, that there is a need for further research in this area.

Differences by Achievement Level

The most common research design used to assess level of misconceptions of college and university students has been the survey method whereby scores on a misconceptions test are compared with scores on exams from a psychology course (i. e., level of psychological knowledge). A variation on the research design has been to compare the level of misconceptions scores of high-achievement students (“A” level students) with those of low-achievement students (“D” level and below). Researchers believe that students who earn high grades in a psychology course will have less misconceptions about psychology (Best, 1982; Furnham & Rawles, 1993; Gutman, 1979). The results have been mixed, with some studies showing high grades correlating highly with low levels of misconceptions and other studies showing no significant differences on levels of misconceptions between high- and low-achievers.

In response to the mixed results, one study examined the differences between students with high critical thinking skills, as measured by the Walston-Gaston Critical Thinking Appraisal, and those with low critical thinking skills. The results showed no differences on level of misconceptions between the high scoring group and the low scoring group (McCutcheon, Apperson, Hanson, & Wynn, 1992).

There was support for the hypothesis that there would be differences on the four factors of the survey by achievement level. Students with a grade point average (GPA) of 3.00 and above (high GPA) reported less misconceptions about

about psychology than the medium GPA group (2.00 to 2.99) and the low GPA group (1.99 and below). The mean differences between the three groups were significant.

Most of the research regarding achievement level and level of misconception has used the grade earned in a college psychology course as the variable for comparison. In this particular study, high school seniors provided their overall high school GPA as a variable for comparison on the four factors of the survey. The students' GPA is not indicative of academic performance in a psychology course, it is indicative of academic performance in all high school coursework completed at the time of the survey.

The results of this survey thus indicated that those students with a high GPA were able to more accurately assess which statements were misconceptions about psychology even though they did not score significantly higher than the medium and low group on general knowledge about psychology. It looks as though the students' superior academic performance provided them with the skills to critically analyze the statements of the survey without benefit of high levels of psychological knowledge.

Previous High School Psychology Versus No Previous Psychology

Students who reported that they had never taken a high school psychology course held significantly more misconceptions about psychology, held less favorable views, had less general knowledge about psychology, and did not associate a career in psychology with economic success. There was support for the hypothesis that those students who had prior exposure to a psychology course would report less misconceptions on the survey and have more knowledge about psychology. They would also report more favorable views

about psychology and hold the perception that a career in psychology can be financially profitable.

Prior studies with college level students have been consistent in showing that students who completed a high school psychology course continued to hold numerous misconceptions about psychology, or exhibited unfavorable views about psychology. Some of the studies examined the academic performance of college psychology students and found that prior exposure to psychology did not enhance their performance in the class (Dambrot & Popplestone, 1975; Federici & Schuerger, 1976; Griggs & Jackson, 1988). Other studies found that college students retained knowledge only for those topics frequently covered in a high school psychology course, or students did well in a college course because the high school teaching was presumed to have been of a superior quality (Cartsens & Beck, 1986; Hedges & Thomas, 1980).

It is usually the case that the high school psychology course is taught as a college preparatory elective. A class of this type attracts motivated, high achieving students. It is possible that the students in this sample had less misconceptions and more knowledge about psychology as a result of their superior, academic preparation and the quality of the teaching they received in their high school psychology course. It is also possible that those students who are sufficiently motivated to enroll in a high school psychology course are also interested in psychology as a career and will tend to express more favorable views toward psychology, including the view that a career in psychology can lead to economic success. Prior studies have shown that when respondents were unfamiliar with the occupation of "psychologist," they also chose it as the least preferred profession for their children (Thumin & Zebelman, 1967).

These results can be useful for encouraging more high schools to include a psychology course in their curriculum. More important, these results can assist in demonstrating to high school administrators the importance of hiring qualified teachers to teach psychology so that students can become more knowledgeable and less confused about psychology, and there can be a positive transfer of skills from the high school classroom to the college classroom.

Scientific Literacy

Psychologists found that taking a high school psychology course did not help students excel in a college introductory psychology course. Prior exposure to psychology did not reduce the number of misconceptions held by students, nor did it result in more positive attitudes toward psychology. What some researchers did find was that students who reported taking courses in the natural sciences (e. g., chemistry, physics, biology) had less misconceptions about psychology and earned higher grades in a college psychology course than those students with limited exposure to the sciences (Cartsens & Beck, 1986; Griggs & Jackson, 1988).

Although students enrolled in a pre-medical program, with a strong background in mathematics and science, did not report less misconceptions about psychology (Ralya, 1948; Warburton, 1956), other research did find that participation in a psychology science fair, or writing an essay about scientific methodology, resulted in students expressing more favorable attitudes toward psychology (Friedrich, 1990, 1996).

The results of this study did support the hypothesis that those students who completed one or more courses in the advanced sciences, such as biology, chemistry or physics, would report less misconceptions than those students who

did not. High school seniors who reported more scientific literacy had less misconceptions and more general knowledge about psychology. These results are in accord with studies that have shown that knowledge of the scientific method helps students understand psychological concepts far better than prior completion of a high school psychology course. This finding can be extremely helpful in demonstrating to high school students that psychology is considered a scientific discipline at most colleges and universities. Once students are able to comprehend that fact, they can profit from their classroom experience in psychology.

It is also important for high school psychology teachers to understand this fact and begin to teach psychology as a science and not just as a personal development course. Some psychologists have stated that it would be best if psychology was simply dropped from the high school curricula because the majority of high school teachers are ill prepared or unqualified to teach psychology (Goldman, 1983; Griggs, Jackson, & Meyer, 1989). The focus of most high school psychology courses has been on topics of personality, personal growth or family living, rather than on the physiological bases of behavior, sensation and perception or statistics. The results of this study make a strong argument for the importance of providing students with a solid foundation in the natural sciences, especially those students who have expressed an interest in studying psychology.

Sources of Psychological Information

It is indisputable that psychology has suffered from a negative public image. Surveys of the general public and classroom populations demonstrate that the field of psychology is misunderstood and there is a general mistrust toward

psychologists and their methods. What goes without question too is the role the media has played in creating and perpetuating psychology's more popular pedestrian image. To assess the damage, psychologists have taken to conducting content analyses of psychological material that has appeared in magazines, newspapers, television programs, advertising and movies. This method has been useful assuming that the media portrayals are powerful and the public's attitudes toward psychology have been shaped by those images. What researchers have not done in previous surveys is to ask respondents to state specifically where their knowledge of psychology has originated from. What sources do they rely on for information?

High school seniors were asked to indicate, from a list of 12 sources, which ones they used as a source of information for psychology. These 12 sources were collapsed into categories, ELECTRONIC MEDIA, PRINT MEDIA and PEOPLE, and these three main categories were hypothesized to produce differences on the four factors of the survey.

There were no differences on any of the four factors by ELEC MEDIA. It would be expected that the "YES" group, who garner the majority of their psychological information from television, especially the ubiquitous talkshows, would have more misconceptions and less general knowledge about psychology than the "NO" group. Psychology's popular image in feature films and on radio programs (i. e., Howard Stern, Rush Limbaugh) has not fared any better, and yet it is not clear what affect this onslaught of information had on this sample of students since there were no mean differences between the two groups. This outcome of no differences can be interpreted in two ways.

First, it is quite possible that students are getting accurate information from the electronic media, so that levels of misconceptions and unfavorable views

toward psychology were equally low for both the “YES” and “NO” groups. It is also possible that the majority of the “NO” group in ELECMED responded “YES” to the other two categories, believed to be more credible than ELECMED, thus resulting in group means that were not significantly different.

Second, it can also mean that today’s high school seniors are sufficiently sophisticated about television and radio programming, and can distinguish between accurate and inaccurate information. After all, this is the generation that has been raised with multiple television sets and VCRs in their homes. Judging from the results, it can be assumed that for these young people, television, radio and movies are primarily for entertainment. For educational information, most students have learned to access other sources, such as PRINTMEDIA.

Significant differences were found on the four factors of level of misconception, attitudes toward psychology, general knowledge about psychology and a career in psychology as economically successful by PRINTMEDIA. Although the case has been made that newspapers, magazines and books have often depicted psychology in inaccurate and unflattering ways, high school students are in a controlled environment where teachers are helping them to critically analyze information in the popular press. This can account for the significant differences between the “YES” group and “NO” group.

By the time students reach their senior year in high school, they have become accustomed to the idea that serious academic work involves a continuous process of reading the printed word and extracting information for course assignments. Students have been taught that the printed word is powerful and has pedagogical value.

The students who relied on PRINTMEDIA for information about psychology had higher levels of general knowledge and less misconceptions

about psychology than those in the “NO” group. They also expressed more favorable views toward psychology and considered a career in psychology to be financially rewarding. These results should serve as testimony to all parents and teachers who have resorted to nagging, badgering, or have simply encouraged young people to invest more time in reading books, newspapers, and magazines, and spend less time sitting in front of a television set.

The source of PEOPLE yielded significant differences on the factor of misconceptions about psychology with no differences on the other three factors. There were only 281 students in the “YES” group, with the majority of students turning to other sources for information about psychology. Students did not rely on their parents, peers, or guidance counselors to increase their knowledge about psychology. It seems that PEOPLE was used mostly for clearing up misperceptions students may have had about psychology. It appears that the majority of students rely on PRINTMEDIA as a source for academic or educational information, and PEOPLE for information of a more personal nature.

This information should be of interest to high school guidance counselors who’s job it is to provide students with accurate information about careers. One of their primary goals should be to increase their students’ knowledge base, especially those who have expressed an interest in studying psychology. It is imperative that guidance counselors increase their own knowledge about psychology, and become reliable sources of information for students, since it has been well documented in the literature that in high schools across the nation, they are most often given the assignment to teach psychology (Engle, 1965; Litt, 1978; Stedman, 1977).

Conclusion

The purpose of this study was to investigate, if, from a large sample of high school seniors, significant differences would emerge on scores of a survey measuring levels of misconceptions about psychology, general knowledge about psychology, and students' attitudes toward psychology as a career. Based on the information that has been presented for discussion, there is no doubt that certain groups of students do hold distorted views about psychology, and that certain conditions exist that can both aggravate and mitigate those distortions. The factor with the most significant differences across the independent variables was level of misconception. What are the implications of these results, and what direction should future research take?

First of all, there are plenty of studies to confirm that students, as well as the general public, hold numerous misconceptions about psychology. Study after study will attest to the lack of knowledge people have about psychology and how that has caused some people to express negative attitudes toward psychology and psychologists. The male students in this study fit the profile of those subjects who misunderstand psychology, lack knowledge about psychology, and express unfavorable attitudes toward psychology. Given these findings, the focus of any future research should be on how to address that problem.

If males continue to hold on to their distorted views about psychology, they will avoid opportunities to educate themselves about psychology, such as enrolling in psychology courses. Their avoidant behavior will only exacerbate the problem and perpetuate the misperception that psychology is women's work. As males continue to avoid psychology, that misperception will become a self-fulfilling prophecy.

It is important for high school guidance counselors and teachers and members of professional psychological organizations to actively recruit males into the field of psychology. Young male students should be given every opportunity to rid themselves of the distorted views they have about psychology, and this can be accomplished primarily through education.

Another group of individuals that can benefit from active recruitment into psychology are Latino students. Latinos have long held the belief that only insane or “crazy people” seek the services of mental health professionals. There is a negative stigma associated with consulting a psychologist for problems that members of the culture believe can best be handled by the family physician, the local parish priest or one’s trusted friend or “compadre” (Canino, et al., 1987; Padilla , Carlos & O’Keefe, 1978). It is disturbing to note that the misconceptions about psychology that are so prevalent in the adult Latino community have taken also root in the younger members of the culture. Psychology has much to offer to those in need of its services, and it should no longer be acceptable to psychologists that an entire group of people, who by virtue of their cultural beliefs, will remain on the fringes of psychology, utilizing what little assistance may come their way.

What direction should future research take? Every effort must be made to combat the ignorance and/or stereotypical views Latinos have about psychology, and the passive resistance they employ when confronted by psychology. High school counselors and teachers can begin the process by encouraging more Latino students to enroll in natural science courses and psychology courses. They must provide assistance outside of the classroom to Latino students to prevent them from becoming frustrated by the sciences and dropping out of

science programs. Latino students should be encouraged to participate in science fairs and gain more hands-on experience with the scientific method.

Enrollment numbers of Latino students in college and university psychology programs need to increase. Preparing Latinos for the various careers in psychology will help increase their visibility in the community. Serving as role models for both the young and old members in their culture can help demystify psychology and Latinos can begin benefit from all the good psychology has to offer. It profits no one to continue administering surveys that confirm what is already known. It is time to move on to the next phase: the education phase.

Psychologists have blamed the media for the part it has played in shaping the public's attitudes toward psychology. The mass media is not going to go away any time soon, and the communication and transmitting technology will only continue to improve. The work that lies ahead for psychologists is to combat the problem of ignorance by utilizing every type of communication medium available, from television, newspapers, and movies, to the on-line computer services. The content analyses of material dealing with psychology must continue, and psychologists should be responsible for monitoring the accuracy of psychological information that appears on television and in feature films. If psychologists are interested in increasing the public's awareness about psychology, it must be accomplished by disseminating only the most accurate information in an interesting and informative manner.

In years past when the APA commanded its members to promote psychology, most psychologists balked at the idea. The philosopher George Santayana said "Those who do not know history are doomed to repeat it" (Hergenhahn, 1986, p. 7). Psychologists know that keeping psychology to themselves gave birth to psychology's negative public image.

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APPENDICES

APPENDIX A
SURVEY INSTRUCTIONS

Instructions To Answer Survey

- * Purpose
- * Interested in your honest opinions.
- * Data will be treated confidentially. No one will be identified by name.
- * It is very important that you complete all of the answers, otherwise will be unable to use the survey.
- * The survey has two parts: A cover page with demographic information and the survey which goes from page 2 to 6.
- * Please notice that the survey has back-to-back copies.
- * Do not write anything on the top of page two.
- * Please enter the parent's education in number of years of completed.
- * If you make a mistake in answering the survey, please indicate which is the correct answer.
- * Please raise your hand if do not understand a statement or question, and I will come over and help you.

APPENDIX B
ATTITUDE SURVEY

STUDENTS' ATTITUDES TOWARD PSYCHOLOGY AS A CAREER

This is a survey of students' opinions about psychology as a career. The information you give will be absolutely confidential. The data will be treated as group responses so it will not be possible to identify anyone individually.

BACKGROUND INFORMATION

- | | | |
|---|-------------------------|---------------|
| 1. Gender: M ___ F ___ | 2. Age (in years) _____ | 1/ ___ |
| | | 2/ ___ |
| 3. Ethnicity: American Indian _____ Asian _____ White _____ | | 3/ ___ |
| Hispanic/Latino _____ Southeast Asian _____ | | |
| Mexican-Amer _____ African-Amer _____ Other _____ | | |
| 4. Name of your current high school _____ | | 4/ ___ |
| 5. Class level: Junior _____ Senior _____ | | 5/ ___ |
| 6. What city do you live in? City _____ | | 6/ ___ |
| 7. If you currently live in Tulare County, how long have you lived here?
_____ years | | 7/ ___ |
| 8. What is the highest grade (in years), in school completed by your parents?
Father _____ Mother _____ | | 8/ ___ |
| 9. Have you taken any psychology classes in high school? Yes ___ No ___ | | 9/ ___ |
| If yes, how would rate the quality of your psychology class? | | |
| Excellent ___ Good ___ Fair ___ Poor ___ A waste of time ___ | | ___ |
| 10. Of the following science courses offered in high school, mark the ones you have completed, or are now enrolled in. What grade did you earn? For example, indicate: A, B, C, D, F, W= withdrew or CE= currently enrolled | | 10/ ___ |
| ___ Life Science | ___ Biology | ___ |
| ___ Physical Science | ___ Chemistry | ___ |
| ___ Advanced Biology | ___ Physics | ___ |
| 11. From which of the following have you gotten your information about psychology? Mark as many as apply to you. | | 11/ ___ |
| ___ Television | ___ Talk Shows | ___ News |
| ___ Movies | ___ Newspaper | ___ Magazines |
| ___ Radio | ___ Text books | ___ Parents |
| ___ Friends/Peers | ___ Counselors | ___ Other |
| If "other", please specify _____ | | ___ |
| 12. Do you plan to attend college after high school? Yes ___ No ___ | | 12/ ___ |
| What do you plan to major in? _____ | | ___ |

ID Number				1-4/ _____
Students' Attitudes Toward Psychology as a Career				5/ _____
Date				6-11/ _____
Timeline	1-Pre	2-Post	3-Follow-Up	12/ _____
Interviewer				13/ _____

This is a survey of students' opinions about psychology as a career. Following is a series of statements with which people agree or disagree. After each statement five possible alternatives are given to the right. Please indicate the answer that best describes your opinion by marking an "x" in the box. Read each item carefully before you mark your choice. Try to treat each statement independently. It's important that you give your honest opinion and not what you think your response should be. This is not a test and there are no right or wrong answers. We are only interested in your honest opinions.

- | | | |
|---|---|-----------|
| 1. Only women choose a career in psychology. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 40/ _____ |
| 2. Choosing a career like psychology represents a good personal economic investment for the future. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 41/ _____ |
| 3. A career in psychology is a good way to learn to be good parents. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 42/ _____ |
| 4. Only people who want to resolve their own psychological problems choose a career in psychology. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 43/ _____ |
| 5. I associate a career in psychology with professional success. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 44/ _____ |
| 6. Psychologists think that psychological problems are caused only by sexual conflict. | <input type="checkbox"/> Agree Strongly
<input type="checkbox"/> Agree Slightly
<input type="checkbox"/> Neither agree nor disagree
<input type="checkbox"/> Disagree Slightly
<input type="checkbox"/> Disagree Strongly | 45/ _____ |

7. My parents and relatives would help me pursue a career in psychology.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	46/ _
8. The difference between what a psychologist does and what a psychiatrist does, is clear to me.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	47/ _
9. Psychology allows me to understand aspects of the person that other careers don't.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	48/ _
10. A career in psychology is not an option for me because it will change the way I think about personal values.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	49/ _
11. I'm afraid to study psychology because those who choose it as a career can go crazy.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	50/ _
12. There are jobs for psychologists when they finish their training.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	51/ _
13. A good place for psychologists to work is in the schools.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	52/ _
14. In these hard economic times, no one would think of living on a psychologist's salary.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	53/ _
15. The only thing psychologists do is give psychological tests.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	54/ _

16. Studying psychology as a career helps develop one's personality.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	55/ __
17. A career in psychology is difficult and totally absorbing.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	56/ __
18. Psychologists work in industry where they help workers adapt to their jobs.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	57/ __
19. With a career in psychology, culture is acquired.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	58/ __
20. People feel uncomfortable with psychologists because they are analyzed by them.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	59/ __
21. After choosing a career in psychology, one's behavior and thinking can become odd.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	60/ __
22. A career in psychology sensitizes people to better understand commitment and social justice.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	61/ __
23. A career in psychology allows one to understand people better.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	62/ __
24. In the marketplace, other professionals are preferred over psychologists.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	63/ __

25. A career in psychology is necessary since an individual can't resolve his or her problems alone.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	64/ _
26. Psychologists live in a world that is unreal.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	65/ _
27. A career in psychology is like any other career.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	66/ _
28. Students who want a career where they won't have to study math, chose psychology.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	67/ _
29. Students who choose a career in psychology have to be very aware of human nature.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	68/ _
30. Psychologists divorce frequently, or live together without the benefit of marriage.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	69/ _
31. A career in psychology is for the rich.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	70/ _
32. Those who choose a career in psychology usually end up teaching psychology classes.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	71/ _
33. It is very easy to secure financial aid to pursue a career like psychology.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	72/ _

34. Its a good decision to study psychology when you already have another career that compliments it.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	73/ _
35. Psychologists only treat people who are crazy or mixed up.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	74/ _
36. Studying psychology is to prepare to be a psychiatrist's assistant.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	75/ _
37. Choosing a career in psychology allows for more integrated personal development.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	76/ _
38. Generally people don't know what psychologists do after completing their training.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	77/ _
39. The method of scientific research is one of the most important areas in the field of psychology.	<input type="checkbox"/> Agree Strongly <input type="checkbox"/> Agree Slightly <input type="checkbox"/> Neither agree nor disagree <input type="checkbox"/> Disagree Slightly <input type="checkbox"/> Disagree Strongly	78/ _

THANKS FOR YOUR COOPERATION!