

# Priming's Impact on Student Performance in Undergraduate Social Work Research Courses

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## ABSTRACT

Although research competence is a required outcome of Council on Social Work Education (CSWE) accredited baccalaureate social work (BSW) programs, research content is generally not met with much enthusiasm from BSW students. A majority of BSW students have some fear and anxiety associated with their research course. The psychological concept of priming has been used extensively to assess the power of suggestion on human behavior and attitudes. The purpose of this research is to examine the impact of priming using words such as “research” and “statistics” on BSW students' academic performance and attitudes toward research-related content. An online survey, independent of any social work research course, asked a national sample of BSW students to answer basic questions from an undergraduate introduction to social work text. Participants were randomly assigned to the primed condition ( $n = 108$ ) where the words “research” and “statistics” were included in the title of the survey, or they were assigned to the control condition with no priming ( $n = 106$ ). Findings indicate that priming using research-related language does not have a significant impact on questions answered correctly ( $p = 0.460$ ), number of questions attempted ( $p = 0.077$ ), time spent completing the test ( $p = 0.195$ ), and time spent per question ( $p = 0.178$ ). In spite of non-significant statistical differences between the primed and non-primed group there is room for hope in the findings as they suggest that the presence of simple research terms does not cause research anxiety in students.

**Keywords:** stereotype threat; statistics; research anxiety; baccalaureate education

The research literature has long confirmed the anecdotal experience of almost every social work professor teaching a research course: baccalaureate social work (BSW) students generally dread research courses (e.g. Bolin, et al., 2012). This study seeks to determine if some of the struggles of BSW students in research courses are influenced by the unconscious psychological force called “priming”. Priming “refers to the incidental activation of knowledge structures, such as trait concepts and stereotypes, by the current situational context” (Bargh et al., 1996, p. 230). In research studies, priming has been shown to influence the thoughts or actions of an individual through purposeful action, thought, or speech (Bargh et al., 1996; Dijksterhuis & Knippenberg, 1998; Doyen et al., 2012; Steele

& Aronson, 1995; Williams & Bargh, 2008a). The purpose of this research study was to determine how students in baccalaureate social work programs achieve on a basic social work knowledge exam when they are primed with the words “research” and “statistics”.

## Priming

Much of the original priming literature focuses on the sub- or unconscious impact of stereotypes on human behavior (e.g. Steele & Aronson, 1995). Researchers found that mentioning a stereotype has a pronounced effect on the way that people behave. For instance, students who were told to think of the characteristics of a professor before taking an exam did far better than students who were told to think of the characteristics of a soccer

hooligan, or a wild sports fan who is typically reckless and violent (Dijksterhuis & Knippenberg, 1998).

Just thinking about someone who is stereotypically smart allowed students to achieve better than thinking about someone irresponsible. Likewise, students who were told to think about secretaries were found to have completed exams far more quickly than other students, since secretaries are thought to be very efficient (Dijksterhuis & Knippenberg, 1998). When individuals were given a list of words to read that contained words associated with senior citizens (retired, bingo, Florida, etc.), the individuals were found to walk slower than those who did not have these words included within their lists (Bargh et al., 1996). Another study determined that temperature could affect how people viewed the character of an individual that they did not know (Williams & Bargh, 2008a). Participants in this study were asked to hold a stranger's cup of coffee for just a few seconds. The coffee cup was either warm or cold, and participants were later asked to rate that person's personality traits. It was found that "people who had briefly held the hot coffee cup perceived the target person as significantly warmer...than those who had briefly held the cup of iced coffee" (Williams & Bargh, 2008a, p. 3).

Priming also occurs on a visual level, as seen in a study that showed participants points on a graph. When the points were closer together, participants reported being close to people in their lives and were outraged by violent stories. However, when the points were spread out, participants reported more distance in their relationships and were unaffected by violent stories (Williams & Bargh, 2008b). In summary then, priming is the idea that sub- or unconscious perceptions can have a direct and pervasive impact on overt conscious behavior (Dijksterhuis & Knippenberg, 1998).

### **Undergraduate Social Work Research**

While much of the research on priming comes primarily from psychology and related fields, it seems reasonable to assume that these phenomena would also impact BSW students, specifically in their attitudes about research and related content, such as statistics. Thus, it is important to determine why BSW students

study research and what the literature suggests about their attitudes about the subject.

Social work students must be taught, among other things, to "demonstrate knowledge and skills regarding qualitative and quantitative research methods and analysis, and they interpret data derived from these methods" (CSWE, 2022, p. 10). In addition, one of the nine social work core competencies states that students must be able to "engage in practice-informed research and research-informed practice" (CSWE, 2015, p. 8). Although research is usually a required course, it is generally not met with much enthusiasm from students in social work programs (Bolin, et al., 2012; Green, et al., 2001; Secret, et al., 2003). There is much work left to do to improve the status of research in the minds of the typical BSW student.

While the average student does not have an extreme fear of research, it has been found that a majority of social work students have some fear and anxiety towards the course; at the same time the vast majority do say that research courses have an appeal (Secret et al., 2003). It appears that the more students understand the importance of research to social work practice, the more comfortable and less scared they become in social work research courses (Bolin et al., 2012; Secret et al., 2003). However, social work students still have more anxiety about their research courses than students in other areas of study (Green et al., 2001).

### **Summary and Limitations of the Literature**

Is it possible that priming plays a role in BSW students' negative reactions to research and statistics content? If so, are there practices that educators can engage in to reduce the impact of priming? An abundance of research focuses on different aspects of priming (e.g. Bargh et al., 1996; Dijksterhuis & Knippenberg, 1998; Doyen et al., 2012; Steele & Aronson, 1995; Williams & Bargh, 2008a; Williams & Bargh, 2008b). There have also been several studies about social work students' attitudes towards research courses (Bolin et al., 2012; Green et al., 2001; Secret et al., 2003). However, there have been no studies to determine how priming affects BSW students' performance on an exam. The purpose of this research is to test the simple

hypothesis that students who are told that they are taking a test about social work research and statistics will perform more poorly in comparison to the students who are told that they are taking a test about basic social work knowledge.

## **METHODS**

### **Research Design**

This explanatory study tested a hypothesis to provide support for existing priming studies. The study participants were asked to complete an online survey made up of multiple-choice questions and were scored on several performance variables related to the measure. The research design used was a simple post-test-only control group design with participants divided randomly into a control and an experimental condition. The control group was told that the test simply contained questions testing basic social work knowledge; while the experimental group was primed with language suggesting that the questions dealt with research and statistics concepts. This research design closely resembled previous work on stereotype threat among African Americans when completing difficult academic tests (Steele & Aronson, 1995).

### **Measurement**

The survey sent out with this study asked for basic demographic information, including gender, age, year in school, and geographical location. Participants were then asked if their phone number ended in an odd or an even number, which randomly split them into the control and experimental conditions. Those with a phone number ending with an even number were assigned to the control group. The control group participants were introduced to the survey with this question: “This survey is designed to test your understanding of basic concepts related to the profession of social work. If you would like to continue, please select yes.” Those with a phone number ending with an odd number were assigned to the experimental group. The experimental group participants were introduced to the survey with this question: “This survey is designed to test your understanding of research and statistical concepts related to the profession of social

work. If you would like to continue, please select yes.”

The measurement tool itself was a series of 24 multiple-choice questions taken from an introductory social work textbook (Suppes & Wells, 2013). The questions themselves were taken from the review questions found at the end of the chapters in the previously mentioned text or the instructor’s manual and test bank provided with the text. The choice of questions from a previously developed test bank was intended to enhance the validity of the instrument, in terms of its ability to measure basic social work knowledge.

The first question in the survey was very intentionally placed at the beginning of the survey. This question was worded as follows: “Demographics are of considerable interest to researchers and scholars because demographics:”. The correct answer from the multiple-choice options was this: “Provide statistical data on population characteristics and trends”. This question was included so that the primed group faced at least some research and statistics content on the survey, however, none of the rest of the questions were specifically about research and statistics. The remaining question topics ranged from items about social work history (e.g. the first settlement house), to questions about social work theories (e.g. the strengths perspective). There were also questions about policy and mental health and other areas relevant to social work.

The questions were intentionally chosen by BSW students who designed the survey so that any student who completed an introductory social work course would be able to readily answer them. These same BSW students pilot-tested the survey on themselves and a few of their peers prior to finalizing the questions.

### **Data Collection Procedures**

All data collection procedures in this study took place in an online environment. The researchers sent the link to all BSW students at their institution. The link was also sent to professors teaching BSW students at other universities and also to a nationwide listserv of BSW faculty with the hope of obtaining a representative national sample.

**Sample**

The population being studied was made up of students currently enrolled in baccalaureate social work programs across the United States, though the vast majority reported being from the Northeast or Midwest. The sample was a non-probability convenience sample, with a specific inclusion criterion that participants had to be enrolled in a baccalaureate social work program. The participants that made up the sample for this study were mostly female; however, social work students are predominantly female and the sample closely reflects the gender breakdown for all social work students (CSWE, 2020). The Council on Social Work Education (2020) reports that 85.4% of undergraduate social work students identify as female and 10.9% identify as male. Additional demographic information for the study is provided in Table 1.

Table 1: Demographic Information

	Control Group	Primed Group
Participants in Group	106	108
Gender	Female: 91 (85.84%) Male: 12 (11.32%) Prefer Not to Say: 3 (2.83%)	Female: 90 (80.33%) Male: 14 (12.96%) Prefer Not to Say: 4 (3.70%)
Average Age	24.10*	24.42*
Year in School	First: 3 (2.83%) Second: 11 (10.38%) Third: 38 (35.85%) Fourth: 39 (36.80%) Fifth or More: 15 (14.15%) No Answer: 0	First: 8 (7.41%) Second: 4 (3.70%) Third: 37 (34.30%) Fourth: 42 (38.89%) Fifth or More: 16 (14.81%) No Answer: 1 (0.93%)
Geographical Location	Northeast: 51 (48.11%) Midwest: 29 (27.36%) South: 19 (17.92%) West: 7 (6.60%) No Answer: 0	Northeast: 63 (58.33%) Midwest: 23 (21.30%) South: 14 (12.96%) West: 5 (4.63%) No Answer: 3 (2.78%)

\*Not significant at  $p < .05$

**Data Analysis Procedure**

A total of 322 students consented to participate in this research. The random assignment procedures led to 166 participants in the control group and 166 in the experimental group. In both the control and experimental group 101 students (61%) answered all 24 of the knowledge testing questions. All of the participants who answered zero questions were excluded from the data set. The researchers also decided to exclude participants who did not answer more than five questions on the mock test. In the end, the control group consisted of 106 participants and the experimental group consisted of 108 participants.

A t-test was used to determine if there was a statistically significant difference between the control and experimental groups on the following variables: questions answered correctly, total questions answered, time spent answering questions, and time spent per question. Before the collection of data, the researchers received approval to conduct their research from the university Institutional Review Board.

**RESULTS**

**Demographic Comparison of the Control and Experimental Groups**

A summary of the demographics of both the control and experimental groups can be found in Table 1. The table provides a summary of the analysis. The demographic information collected shows that the control and primed groups are very similar.

**Comparison of Control and Primed Group Performance**

Four variables were assessed to determine the effect of priming between these two groups: 1) number of questions answered correctly, 2) total number of questions answered, 3) time spent completing the questions, and 4) time spent per question.

**Questions Answered Correctly**

The average score of the participants in the control group was 17.40 out of 24, or 72.50%. In the primed group, the average score of participants was 17.36 out of 24, or 72.33% (Table 2). To determine if the performance

between the control and primed groups was statistically significant, an independent samples t-test was conducted. The resulting p-

value ( $p=0.46$ ) did not indicate statistical significance at the .05 level.

Table 2: Statistical Comparison of Control and Primed Groups

Category	Description	N	Mean	Standard Deviation	Difference	P Value	Effect Size
Questions Correct	Control	106	17.40	3.28	-0.04	0.460	-0.01
	Primed	108	17.36	3.56			
Questions Attempted	Control	106	23.88	0.54	0.32	0.077	-0.19
	Primed	108	23.56	2.29			
Time Spent (in minutes)	Control	106	14:50	30:18	2:50	0.195	-0.12
	Primed	108	11:59	15:16			
Time Spent Per Question (in seconds)	Control	106	:37	1:15	7.10	0.178	-0.12
	Primed	108	:30	0:38			

**Questions Answered**

Participants in the control group answered an average of 23.88 questions out of the 24 questions in the survey. Participants in the primed group answered an average of 23.56 questions out of the 24 questions in the survey (Table 2.). An independent samples t-test was also conducted to determine if there was a statistically significant difference between the number of questions completed by the control and primed groups. The p-value was 0.077, which is also not significant at the 0.05 level.

**Time Spent**

The average time to complete the test among participants in the control group was 14 minutes and 50 seconds. The primed group spent an average of 11 minutes and 59 seconds on the test. This is a difference of approximately 3 minutes. An independent sample t-test was conducted, resulting in a p-value of 0.19, which is also not significant at the .05 level.

**Time Spent per Question**

In the control group, participants spent an average of 37 seconds answering each question. In the primed group, participants spent an average of 30 seconds answering each of the 24 questions in the 24-item test. An

resulting in a p-value of 0.092. Again, this is not significant at the .05 level.

**DISCUSSION**

Of those four variables analyzed in this study, the measure of the total number of questions answered showed the largest difference between the two groups. While the differences between the groups are admittedly small and not statistically significant, the students that were primed were determined to have stopped answering questions sooner than students in the control group. In addition, the primed students spent an average of approximately 3 fewer minutes on their attempt to answer the exam questions.

The findings of this study, though not statistically significant, also reflect previous research on BSW students and their attitudes towards research courses (Bolin et al., 2012; Green et al., 2001; Secret et al. 2003). On average, in this study, students primed with research and statistics content spent less time completing the mock exam questions and answered fewer questions. In spite of the very slight differences between the control and experimental group’s performances, it should be noted that the largest differences were not in areas related to innate capacity to perform, instead the differences were more noticeable in

areas related to the ability to stick with a task and finish it. This supports the idea that student anxiety about research, rather than a lack of intellectual capacity, fuels the fear of research courses and the resulting underperformance of some BSW students (Green et al., 2001).

### **Alternative Interpretation**

While no researcher relishes reporting non-significant statistics and small effect sizes, such findings still represent a relevant research result worth considering. Taken on their face, the data here show that the students in this sample were not impacted by priming using language associated with research and statistics. In other words, simple words related to research and statistics were not enough to fluster a sample of over 200 undergraduate social work students and thereby impede their performance in answering a series of questions about basic social work knowledge.

There is room for hope in this interpretation of the findings here for BSW educators. While the research literature clearly suggests that social work students experience research anxiety, the findings here suggest that such anxiety does not result from simple exposure to research and statistics terms or exam questions (e.g. Bolin et al., 2012; Green et al., 2001; Secret et al. 2003). This means that research anxiety may come from some other source than the language that flows in and around the typical research course.

### **Limitations**

There are many uncontrollable variables in an on-line survey environment. When the survey was initially sent out, both groups were primed with one of two introductory questions described previously. After this initial priming question appeared, there was an error in the running header on each page, causing both the primed and control groups to see the words “research” and “statistics” at the top of the page. This may have contaminated the priming of the participants in the control group. When the survey was sent out for a second time, this heading was removed so that neither group was influenced by the problematic heading.

One aspect of this research that could also be corrected in future research would be to add some additional questions that were related

to research and statistics to the knowledge assessment. It may be that students in the experimental group quickly realized that only the first question had anything to do with actual research or statistics content. They may have then concluded that the tool had very little to do with research and did not need to be taken seriously.

### **Future Research**

It would be most interesting to replicate this study on BSW students in a face-to-face setting. This immersion in a research course environment may have a more profound priming effect than simply reading the words on the top of an online research survey. Further, it would also be interesting to determine if these priming effects diminish after social work students have completed a research course.

### **CONCLUSION**

Baccalaureate students experience apprehension and fear when it comes to research and statistics courses and concepts. When primed with these terms, participants in the study achieved the same scores as those in the control group who were told that they were taking a test about basic social work knowledge. However, the primed group spent less time taking the exam and answered fewer questions than the control group. In spite of these differences in performance, the findings here most clearly suggest that the source of research anxiety in social work students is not simple research terms but other more complex phenomena.

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