"The Fact That the Author Was Male Instead of Female Provided for an Objective Opinion":
Implicit Bias in the Classroom

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ABSTRACT

This paper presents an audit-style experiential learning activity intended to gauge students' perceptions of objectivity based on author gender, encourage students to apply the concept of bias to their own learning, and participate in a research study. In this activity, students were unknowingly randomly assigned the same reading on the gender wage gap with either a "male" or "female" author. Although the differences were not statistically significant, student numerical ratings of objectivity were higher when they believed the author was male. The discussion and reflection assignments demonstrated that this exercise provided students with a unique opportunity to evaluate their own biases, engage in discussion about bias, and apply course materials. Written rationale for ratings supported this perception that male authors were more objective. This activity is useful for students in thinking about and discussing the impact of implicit bias.

KEYWORDS

Audit Study, Experiential Learning, Gender Bias, Reflections, Research Methods, Sociology, Student Learning, Teaching Activity, Teaching Gender

INTRODUCTION

This paper describes the use of an experimental audit experiential learning activity to examine students' implicit gender bias in multiple undergraduate sociology courses. We describe both the effectiveness of the activity in the classroom as well as the results of the activity looking at the effect of gender bias on students' perceptions of argument objectivity. In this activity, we assigned a reading on the gender wage gap in which we edited the authors' names so that half of the students had a "male" author and the other half had a "female" author. We asked the students to evaluate the strength and objectivity of the author's argument and gave the students an opportunity to discuss bias and their experience. While previous studies have used similar activities solely for collecting data on undergraduate students to test these questions (Jackson, Engstrom, & Emmers-Sommer, 2007; Lassonde & O'Brien, 2013), we chose to use this as a teaching opportunity for students to engage in experiential learning. Understanding implicit gender bias is crucial for students studying inequality as part of their education but also as part of their lives as these biases have real world consequences.

Experiential learning deepens student understanding of concepts, enables students to be active learners, and has been shown to be more effective than lecture teaching styles (Davis & Arend, 2012; Luna & Winters, 2017; Mckinney, 2007). The goals of this experiential learning activity were to (1) gauge students' perceptions of the strength and objectivity of an argument based on the gender of the author, (2) encourage students to apply the concept of bias to their own learning experience, (3) expose students to research on the wage gap or demonstrate the value of evaluating sources, depending on the course, and (4) expose students to the research process (informed consent, use of deception, debriefing) and provide them with an opportunity to be a part of a research study.

In the introductory level course where the activity was first used, the goal was for students to understand how implicit biases led them to interpret the objectivity or strength of argument differently. Implicit bias is defined as "a term of art referring to relatively unconscious and relatively automatic features of prejudiced judgment and social behavior" (Brownstein, 2017, para. 1). This activity was then replicated in an upper level research methods course to determine how students interpreted objectivity and strength of argument by author gender with a focus on reading and evaluating research. Although the goals for the activity in the two courses were somewhat different, the process by which the activity was carried out was the same for all courses. These activities were funded by two internal grants from the university that encouraged the implementation of applied learning activities.

BACKGROUND

While gender inequality has lessened over the past several decades in the United States (Fate-Dixon & Coontz, 2017; Hegewisch & DuMonthier, 2016), it persists in all aspects of social life. Gender inequality is reflected in ways that are observable and measurable (e.g., wages, legislation) and reflected in other more difficult-to-measure and observe ways (e.g., attitudes, biases, stereotypes). This paper focuses on an activity intended to generate thought and conversation on the difficult-to-measure and often unconscious ways in which gender inequality exists and is reproduced. Gender bias is a form of discrimination, which can be unintentional, unconscious, and even justified/internalized as fair (Auspurg, Hinz, & Sauer, 2017). Gender bias has consequences related to employment, pay, health, and housing, and many other areas; and has the potential to reinforce existing inequalities. This unconscious discrimination is sometimes referred to as implicit bias.

Gender bias is a heavily researched area, especially related to the workplace. Rice and Barth (2017) examined traditional gender role stereotypes in hiring decisions, with applicants more likely to be hired for traditionally female or male occupations. Sipe, Johnson, and Fisher (2009) considered perceptions of gender discrimination in the workforce among college students and found that students anticipated they would enter a workplace free of gender discrimination with gender discrimination not being a major concern. Gender bias is important to study in university populations in part because students anticipate equality upon entry into the labor market.

Research has established the importance of implicit bias in terms of our understanding of the world and the ways in which our biases direct our actions. While implicit bias is an important topic within sociology, it is also important to consider how our bias may impact the way in which we interpret information, an important issue in higher education. Understanding the role of implicit gender bias in how students interpret and understand information in the university setting is crucial given the limited existing studies on the topic (MacNell, Driscoll, & Hunt 2015; Richeson & Ambady 2001). Implicit bias can be addressed through bias literacy, which raises awareness of the fact that implicit bias exists and then can be combatted (Devine, Forscher, Austin, & Cox, 2012; Isaac et al., 2016). Implicit bias is difficult to quantify in a real world setting despite its impact, but most often this has been done through audit studies or field experiments (Bendick & Nunes, 2012; Pager & Western, 2012).

Teaching Gender Inequality

Despite the fact that gender inequality is a key concept taught in the majority of sociology courses as well as other disciplines, getting students to understand these inequalities can be challenging. Examples of how to teach about gender inequality include addressing student resistance to sexism (Kleinman, Copp, & Sandstrom, 2006), the social construction of gender (Berkowitz, Manohar, & Tinkler, 2010; Sargent & Corse, 2013), theory (McCabe, 2013), focusing on inequality in the workplace (Giuffre, Anderson, & Bird, 2008; Sweet & Baker, 2011), and pay differences (Petrzelka, 2005; Smith, 2017). These teaching strategies range from limited student input (looking up salaries) to significant student input (having students "perform" the opposing gender). One way to teach gender inequality is to present students with the facts and then have them reflect on that information, like the differences in salaries across faculty on campus (Petrzelka, 2005) or in their desired occupations (Giuffre et al., 2008; Sweet & Baker, 2011). Another is to ask students to perform tasks as if they were members of the opposite gender, such as walking across the room or sitting in a chair (Berkowitz et al., 2010) or use digital media to examine gender performances (Sargent & Corse, 2013). Although the above activities are useful for teaching about gender inequality, most focus on other components of gender inequality and not on teaching about implicit bias.

Teaching Implicit Bias

Prior studies have used activities within the classroom to teach about implicit biases, with a few focused on implicit gender bias. Bird and Erickson (2010) used a constructive controversy case study, where the interpretation of the case study was not clear cut, and student reflections from that activity to examine gender biases in the workplace. The Implicit Association Test, which is available online for free through Harvard University, is often used to teach students about implicit bias (Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998; Morris & Ashburn-Nardo, 2010). The Implicit Association Test provides data on the preferences for specific social groups (White over Black) and relationships between two concepts (e.g., gender and science) through measuring response time to a series of prompts. Ghoshal, Lippard, Ribas, and Muir (2013) explored unconscious racial prejudices of students using the Implicit Association Test as a teaching tool. Results show that students possessed more racial prejudices then they were aware of, and students believed the exercise was beneficial and helped them learn about unconscious attitudes. There have been several classroom activities using name switching to teach about the concept of gender bias including one at Columbia Business School that tested the competency and likability of "Heidi" compared to "Howard" (Katsarou, n.d.) and another using literary texts and reverses the gender of the speakers in the dialogue (Taylor, 2009). Given the fact that audit studies are a tool used to examine biases generally, including race and gender discrimination, audit studies have been established as important tools to teach in quantitative methods (Ghoshal, 2018).

Audit Studies on Discrimination/Bias

Previous research has used audit studies to examine implicit biases. Audit studies are a type of field experiment in which researchers manipulate characteristics to evaluate discrimination. This methodology provides more generalizability than experiments in artificial settings and a greater ability to uncover causal relationships than from simple observation (Pager, 2003). Audit studies are generally used to study characteristics like age, race, gender, and attractiveness and are the best type of field experiment to measure aspects of discrimination or biases (Bendick & Nunes, 2012; Maxfield et al., 2019; Pager & Western, 2012). Field experiments better replicate real world situations by still allowing examination of causal relationships while loosening control of influences within the environment (Pager, 2007). For example, trying to convey gender using this approach has been done through using stereotypically male or female names.

Prior research has used audit studies to examine racial, gender, and economic discrimination (Milkman, Akinola, & Chugh, 2015; Pager, 2003; Quadlin, 2018; Rivera & Tilcsik, 2016; Shin, Smith,

Welch, & Ezeofor, 2016). For example, Pager (2003) used an experimental audit to evaluate the impact criminal records and race had on hiring. She found that individuals with a criminal record were less likely to be called back, as were individuals who were African American, and whites with a criminal record were called back more frequently than African Americans without a criminal record. Quadlin (2018) used an audit study to examine call back differences between men and women based on grade point average (GPA). She did this by completing job applications that varied the applicant's gender, college major, and GPA. Men with higher GPAs were more likely to be called back than women with higher GPAs, due to gendered stereotypes in employers' perceptions of value in job candidates. Furthermore, Milkman et al. (2015) inspected gender and racial discrimination in academia across disciplines by using an audit study with fictitious prospective PhD students contacting professors about research opportunities. These students' names were varied to indicate different races and genders. They found that white male students received significantly more responses to their inquiries than all other gender and racial combinations.

There are many audit studies that examine bias and discrimination, as well as examples of techniques used to teach about bias and discrimination in the classroom. Combining an audit-style study and an experiential learning activity allows students the opportunity to experience being a participant in a research study while also benefiting from the proven effectiveness of applied learning techniques. An audit activity is particularly useful when examining biases around gender given the signaling evident in gender-specific names. Previous research has shown bias towards females on a variety of factors, from prospective student responses to hiring decisions, and many other situations. This paper uses the methodology of the audit-style study in the classroom to examine student perceptions of implicit gender bias with regards to author objectivity and strength of argument while at the same time providing an experiential learning activity for students.

METHODOLOGY: THE ACTIVITY

This graded activity was conducted in a large introductory to sociology course and three smaller research methods courses. Students in all the courses were given informed consent materials at the start of the semester to participate in a research project on applied learning. The informed consent covered this gender audit activity and all other applied learning exercises throughout the semester. In each class the students were guided through the informed consent process and given an opportunity to ask questions. Students in the Introduction to Sociology class consented electronically using a response software program (which they used for other course work and were already familiar with) and the students in Research Methods were given paper copies of the informed consent. Importantly, all students present participated in the activity but only students who gave informed consent were included in this study. This research was conducted at a mid-sized state school in the southeastern United States and was approved by the university's Institutional Review Board (IRB #19-0006 and 18-0018).

In the activity, students were provided with a short, approximately two page reading on the gender wage gap that was published by the Council on Contemporary Families as part of Women's Equality Day by Nika Fate-Dixon and Stephanie Coontz (2017). The authors' names were edited to include only a single author with a single last name. Additionally, we changed the names so that half of the students had a "male" author and the other half had a "female" author. We chose to keep the name Stephanie since it is a stereotypical female name and add a similar stereotypical male name, Stephen. The students were not aware that half the students were reading the same article with a "different" author. The only other element that varied in the two versions were the pronouns used in the follow-up questions. The questions with pronouns were a key part of the activity because they were designed to draw students' eyes to the gender of the author. Students were instructed to read the questions that included pronouns (he/his and she/her) before reading the article. After reading the article, students were asked to rate the strength of the argument and perceived bias/objectivity of the author on a scale

of 1 to 5 and provide a written rationale for the rating. In the Introduction to Sociology course the students completed the activity during class and wrote their responses on paper that they handed in. In the Research Methods courses, the students completed the activity outside of class and responded to the prompts using an online response program (Qualtrics).[1] After completing the assignment, all students were immediately debriefed in class and discussed the article, the purpose of the audit, and implicit bias. The debriefing consisted of first telling the students about the deception involved in the activity and then leading a class discussion on the criteria that students used to determine objectivity and strength of argument for the article they read. Discussion concluded with a focus on gender implicit bias generally, and the implications of implicit gender bias specifically.

This activity was used in two different courses to determine if there were differences in how it was received depending on the context of the course. In Introduction to Sociology, the activity happened in class during the week when the topic was gender. In Research Methods, the activity was introduced during the week on reading and interpreting research and sources of information (how do we know what we know?). The makeup of the Introduction to Sociology class was mostly non-majors whereas the Research Methods classes were all Sociology or Criminology majors. A majority of students in all classes were female. The process of how the activity was conducted in class is shown in Figure 1.

Sample

The activity described here was first used in a very large section of an Introduction to Sociology class and then replicated in three sections of an upper level section of a Research Methods course. Among the 174 students in the Introduction to Sociology course, 160 consented to participate in all research activities done in the semester, 14 did not consent, and a total of 135 students who consented were present in class and participated in the activity. Across the three sections of research methods, among the 77 students, 59 consented to participate, 18 did not consent, and 52 students who consented participated in this activity. Descriptive statistics of the samples are provided in Table 1. The Introduction to Sociology course was in Fall 2017, one section of the research methods course was in Fall 2018, and the other two sections of Research Methods were in Spring 2019. Two faculty (the first two authors of this manuscript) co-taught the Introduction to Sociology course and individually taught the sections of Research Methods.

Measures

Likert scale rankings on the objectivity and strength of argument from all the students were collected in addition to qualitative data including rationale for Likert ranking and two reflection assignments. The strength of argument question was measured through a question asking the students "How strong was the argument that he/she made for gender inequality?" with a rating from 1 (weak) to 5 (strong). The objectivity of the argument was measured by asking the students to answer "Do you believe that he/she presented an objective social science argument?" with a rating from 1 (not at all objective) to 5 (completely objective). Following each of these questions the students were asked to provide support for their rating. We included only two rating questions to make the activity concise for students.

The students in Research Methods completed a reflection assignment immediately following the exercise and all students completed a reflection assignment at the end of the semester. These reflections were two to three-page written responses to a set of prompts provided by the instructors. Some example prompts include: *Reflect back on the applied learning experience you participated in. What was the intention of the exercise (why did your instructor have you all do this)? Did the exercise and discussion to follow achieve that intention? Describe two ways in which the applied learning experience helped you to extend the information you learned in class to the real world. Did you think you had any implicit bias before you began this assignment? Or did the way you answered the questions on the assignment indicate any implicit bias? Why do you think that is?* Since the same reflection questions were not asked of all students, we did not systematically analyze their reflections. We did pull out examples that illustrated our main points in the discussion section but did not include information from the reflections in the results.

Figure 1. Process of conducting gender audit activity
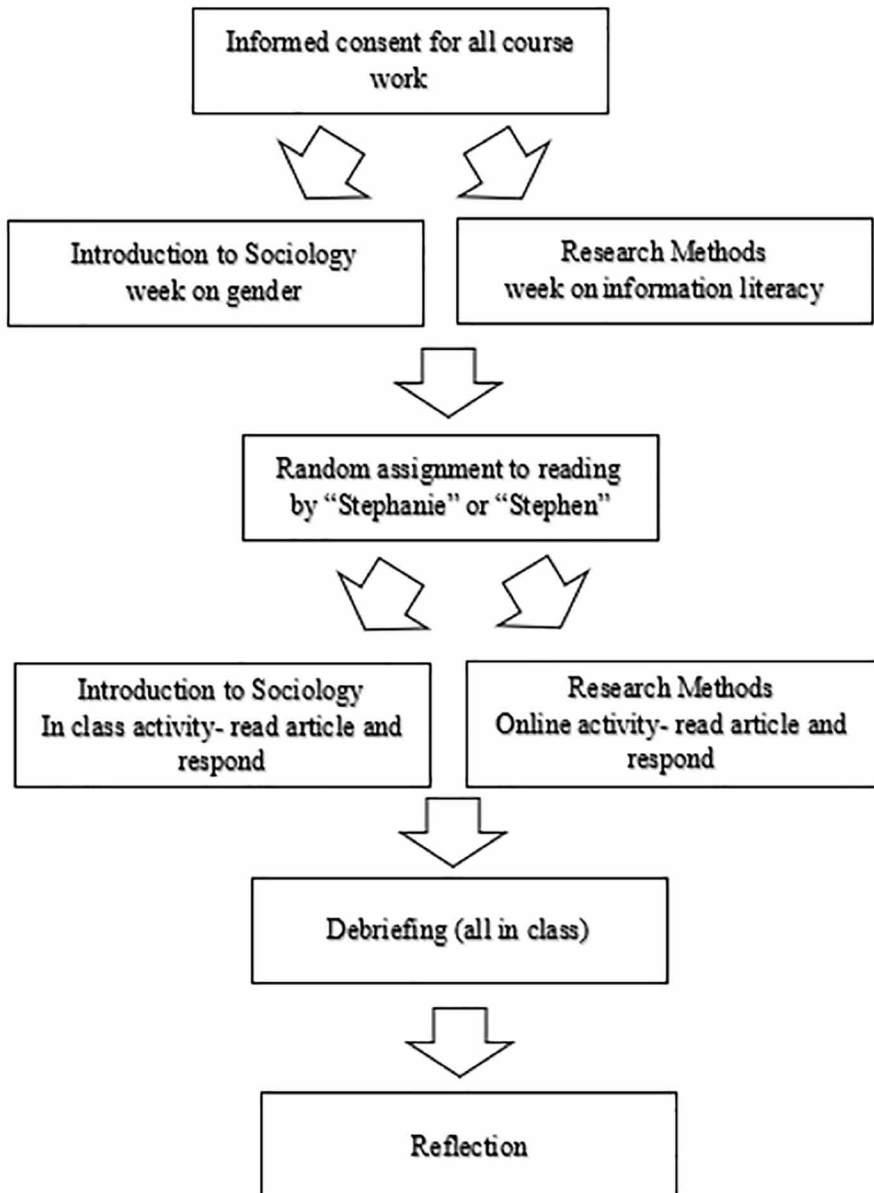
Analysis

To evaluate differences in ratings we ran chi-squared analyses comparing responses on the Likert rating of objectivity and strength of argument across those with "Stephanie" and those with "Stephen." We evaluated these separately by course as well as combined (presented below). We also included qualitative responses from the student rationale for ratings. The qualitative information was reviewed and coded for mention of gender and direction of rationale (e.g., women as less objective). After coding each rationale for mention of gender, we selected student responses that illustrated each of the response types (e.g., women as less objective).

Table 1. Univariate sample and activity descriptives and outcome measures

|	N	%
Class		
Introduction to Sociology	135	72.2
Research Methods	52	27.8
Student Gender		
Male	45	24.5
Female	139	75.5
Author Gender		
(Stephen) Male	91	48.9
(Stephanie) Female	95	51.1
Objectivity Score		
Not at all (1)	3	1.6
2	20	10.8
3	35	18.8
4	86	46.2
Completely (5)	42	22.6
Strength Score		
Weak (1)	0	0
2	3	1.6
3	24	12.8
4	100	53.5
Strong (5)	60	32.1

RESULTS

Across all classes, students rated the author perceived as male as more objective than the author perceived as female, though the results were not statistically significant (chi-squared= 4.071; p= .254). The chi-squared analysis results show that 3.2% of students with Stephanie as an author rated her argument as "not at all objective" and no students with Stephen as an author rated him as "not at all objective." Due to small cell sizes, we recoded not at all and slightly (1 and 2) into a single category (2) to run the chi-squared analyses. Figure 2 graphically shows the percent of students selecting each score by author gender. While the results were not statistically significant, there is a clear pattern indicating more students rating Stephanie as less objective (15.8% not at all or slightly compared to just 8.9% for Stephen). Considering the ratings of 4 or 5, approaching completely objective, just over 60% rated Stephanie in this way while over 75% rated Stephen this way. There were no significant differences in ratings of strength of the argument by author gender. Interestingly, as shown in Figure 2, more students rated Stephanie as having a strong argument (35.8%) compared to Stephen (28.6%). These findings were consistent across all classes.

A bi-variate correlation was used to determine the relationship between strength of argument and objectivity and found a weak positive correlation (Pearson's R= .156; p=.034).

While there is a pattern in rating of objectivity by author gender, it was not nearly as pronounced as anticipated based on previous literature and the differences across author gender were not statistically

Figure 2. Stacked bar chart of objectivity and strength scores by author gender
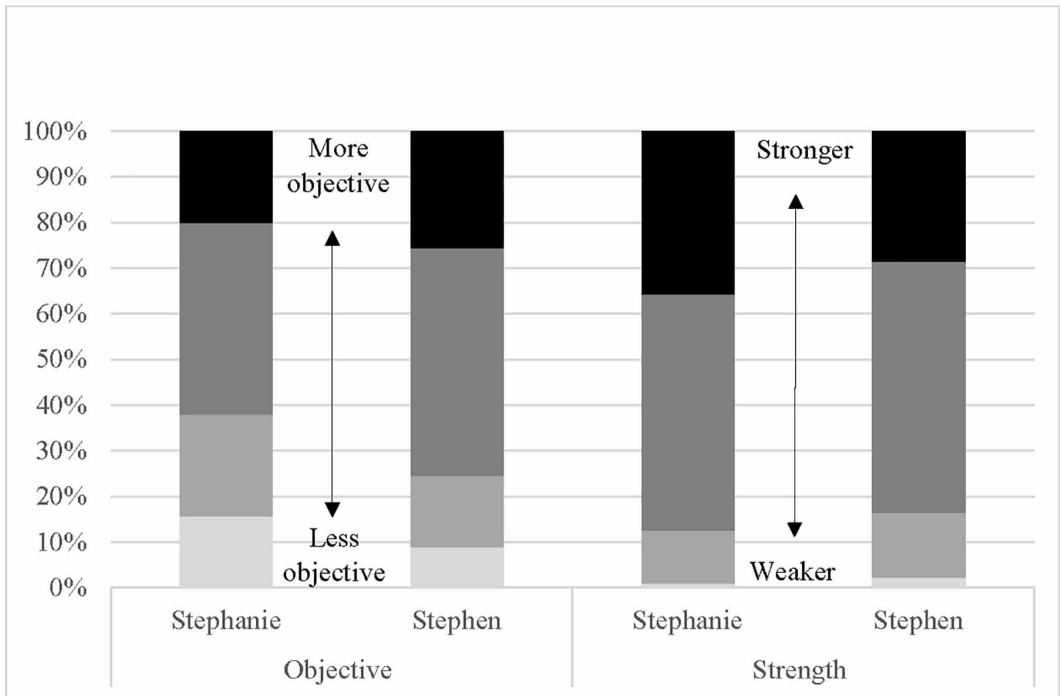
significant. To better understand the nuances of how the students were interpreting and rating the strength and bias of the authors' argument, we turned to the follow-up rationale the students provided for the rating. We examined the rationale for mentions of gender (reported in Table 2) and then selected responses that illustrated the patterns we saw in the rationales to discuss below. One student wrote:

Coontz seemed to control for several factors when assessing the wage gap and even rejected former comparisons by accounting for differences in hourly pay, race, education level, and class. However, I do realize she is a woman and may be biased in the research.

Another student wrote:

As a woman, I think it is difficult to approach the wage gap issue with a completely objective heart. I know for me personally, if I were writing a paper on the same topic, there would be some undertones of my own personal opinion bleeding through. However, this author does a really good job of bringing up valid points and research from the last few decades that suggests many groups are still not equal as far as pay despite societal efforts, and those gaps are more significant than many realize. So while the information she provides readers is fairly objective, the undertones of this article are not as objective.

As these quotes demonstrate, students may have rated Stephanie and Stephen similarly but had some concern over Stephanie's ability to be objective. When considering the rationale for the rating (what students wrote), findings indicated more nuanced opinions on gender differences in objectivity.

Table 2 shows the coded rationale for the objectivity rating students gave the article expressed through their written rationale for the score they chose. A majority of students (82.61%) did not explicitly mention the authors' gender in the rationale. Of the 32 students who mentioned gender in

Table 2. Rationale for objectivity rating by mention of gender

	N	%	% among those that mentioned gender
No mention of gender bias in rationale	152	82.61	
Women as objective[2]	3	1.63	9.38
Women less objective	18	9.78	56.25
Men more objective	10	5.43	31.25
Men less objective	1	.54	3.13

their rationale, over 87% stated rationales that were coded as either *men as more objective*, or *women as less objective*. Some quotes explicitly stated that men were more objective than women. One student wrote, "I think the fact that the author was male instead of female provided for an objective opinion." Another student wrote, "This was written by a white male, which is who the article is targeting so to say. So I don't think there is much bias since he is explaining how he's making more money." This quote was particularly interesting because the student assumed the author's race while there was no indication to indicate the authors' race.

There were not any instances of women being compared directly to men in terms of being more objective. For example, one student wrote, "She used statistics. Since she is a women, this proved to us her points are based on research and not bias." Here, the student references the author's gender and her use of data but does not make a comparison to being more objective than a man.

There was only one quote that was categorized as *men as less objective*, though this quote also illustrates that students had conflicting feelings on gender and objectivity. This student stated:

I believe that the information may have been a little biased since it was a male who wrote the article but at the same time, it isn't because he seems to provide valid points for the inequality that still exists.

The category *women as less objective* was the most populated category of those rationales including gender bias. A few quotes that stood out was one that stated, "It was extremely clear she holds resentment toward all men. She neglected several prime negatives in men's lives, while cherry picking positives. Ironic to highlight discrimination using discrimination." Another student stated, "Some of her opinions may be due to the fact that she is female." These quotes help reiterate that though gender biases were not as apparent in the overall objectivity rating scores given by students, their rationales tell us a different story of implicit biases that some may have.

DISCUSSION

We accomplished four main objectives with this audit-style experiential learning activity: gauging students' perceptions of authors based on gender, applying the concept of bias to their own learning, exposing students to topical research, and exposing students to the research process in general. This activity is a beneficial way to make students aware of the biases they have related to gender and how those biases may impact the way they interpret information, whether it is in the college classroom or other settings. It is important to teach students about bias given that most anticipate equality in the workplace (Sipe, Johnson, & Fisher, 2009). Overall, students who had a female author rated her argument as less objective than students with a male author, though the numerical ratings were not statistically significant nor were they as dramatic as expected given the rationale students provided. Furthermore, there was no relationship between strength of argument and author gender. It is important

to note an argument could be both strong and biased, so the fact that there was no relationship between strength of argument and author gender does not indicate a lack of bias.

We found that women (who made up the majority of our students) and men both hold implicit biases towards women, which is consistent with prior literature that found that both men and women hold implicit biases favoring men (Auspurg et al., 2017). Relatedly, Centra and Gaubatz (2000) explored college course evaluations and found that female students assigned higher evaluation ratings for female instructors than male students in the same course. However, when only male teachers were evaluated, no significant differences were found in the ratings between male and female students. In our courses, even though the students were mostly female, we still saw higher ratings for Stephen overall.

This activity encouraged students to apply the concept of bias to their own learning experience and thoughtfully consider how they interpret information based on implicit biases they have about gender. Considering ones' implicit biases can help students better understand the material (Morris & Ashburn- Nardo, 2009) and consider how these biases impact their own behavior (Rudman, 2004). This was evident in follow-up discussions as well as what they wrote in their reflections in which some students acknowledged implicit bias that they had not realized prior to the exercise. For other students, it confirmed the biases that they already knew they had (even if they didn't explicitly say that). For example, a student wrote:

This applied learning experience has helped me identify the implicit bias I tend to have when reading research studies. The way the article was written to include the word choice gave off a vibe that a woman wrote it…I consciously read the article from a woman's narrative. When I saw the author was a male, I was in disbelief.

It is interesting that this student thought the author was female based on the way that the piece was written, which it was. When replicating this study, taking a piece that was originally written by a male author would provide an important contrast.

Due to how the activity was implemented, it allowed for a classroom discussion of gender bias that may have been difficult to capture using other teaching techniques such as a lecture, providing an in-class example, or looking at survey data. While implicit bias was evident in class discussion, students exhibited more overt gender bias in written comments. It is important to note here that most students (over 80%) did not mention gender in their written rationale at all. Beyond the scoring of bias and strength and rationale, we found that this activity helped students realize that they may have implicit biases and to apply the concepts from the course (gender inequality, implicit biases) to their lives. It was apparent through discussion and reflection that the students were taking this task quite seriously. One student wrote:

Now after learning of what had been done with changing the name of the authors it does make me question if the way I answered the questions had something to do with the gender of the author without me fully thinking about that.

Relatedly, another student wrote:

I have always been one to jump to conclusions about a situation happening and what is happening in that situation, but now I can use this knowledge to make more meaningful observations about situations in the world before I jump to conclusions…. While I wouldn't have known of this implicit bias I have without this exercise, I can now understand that it's there and try to refrain from jumping to conclusions based on that bias, because you never know, there may be very prominent male advocates for gender equality, and some females who feel that gender inequality isn't an issue.

We saw similar themes in the reflections of students not thinking they had implicit bias, and then discovering they did as a result of the activity.

This in-class activity exposed students to research on the wage gap (Introduction to Sociology) or demonstrated the value of evaluating sources (Research Methods), depending on the course. In general, active learning like what we did in this activity aids students in gaining a deeper understanding of the material (Davis & Arend, 2012; Luna & Winters, 2017; McKinney, 2007). We feel that given the reading, questions, and then lengthy in class discussions (in all classes) the students were exposed to the material and most left with a more in-depth understanding. This is consistent with the findings of Morris and Ashburn-Nardo (2010). Many students used this activity in discussing what they learned in class in their ending reflection assignments. In one example, a student wrote:

The article we read in class [where] the author's gender had been altered, or not, to see if it would alter our opinions was an interesting experiment. I think it applied what we had learned over the course as a whole by letting us see if we did prejudge a person's opinion passed [sic] on the gender. Personally, I prejudged that his opinions and motives based off mine being a male name, and being less bias. Which is unlike me, because I know there is more to a name than gender. It doesn't take a sociological imagination to know it is wrong to judge someone by the gender associated with a name.

This sums up how this one activity contributed to their learning over the course of the semester. Another student wrote about how the gender audit activity helped him to more critically evaluate sources. He wrote:

After experiencing [the activity] it has left me with a little added awareness to things that I read. I honestly did not even read the author's name while responding to the article until the questions began asking about the author's possible bias. Now I often inspect new information with more vigilance and care to ensure that I can get the most out of the information.

This activity provided the students with a real example of what it is like to be a part of the research process (e.g., informed consent, use of deception, debriefing). Involving undergraduate students in research is a high impact practice that leads to student success (Kilgo, Ezell Sheets, & Pascarella, 2015). Students reacted quite strongly to this component of the activity as quite a few felt deceived. The strong reactions provided for very engaged discussions of the wage gap and of research ethics and processes. Given that we had already discussed informed consent and the use of deception in research in each of the courses, we were able to refer back to that information and give them an example of when deception is appropriate and the criteria for using it (must be necessary for research goals, used to the most limited extent possible, never using deception about potential harm, and always debriefing) (Neuman, 2011). We also discussed how using an audit study was the best methodology for this particular research question rather than in-depth interviews or surveys. In discussion and reflections, students commented on how this methodology enabled them to learn the material. One student wrote:

I thought the coolest part of her study was how she had to use deception to get the most accurate answers…[the] study gave me a more realistic idea of the good and bad associated with the research process which is more than I may have gotten from the textbook or in class lectures.

Another student wrote, "This exercise helped me to extend my knowledge from class of the methods taken to write a scholarly article or research paper and the research design used", indicating this activity familiarized them with the entire research process. Students were able to experience the debriefing process and talk about the experience of being part of a research study.

Limitations

The context of how this activity was done are very important, though significant differences were not found across classes. For the introduction to sociology class, the activity was implemented during the week on gender as well as administered in person. Given that the students in the Introduction to Sociology classroom did not complete the reflection until the end of the semester and the activity took place in week seven of sixteen, the salience of the activity may have been diminished. In future applications, reflection exercises would be useful immediately following the activity and at the end of the semester, which is what was done when this activity was used in the research methods course. In future introductory classes, more time should be spent discussing bias and objectivity as in some instances it was clear the students were confused as to what these terms mean. Two student responses were excluded as it was clear that they did not understand the term objectivity. In all classes, for some students this activity reinforced their belief that they are not biased. They pointed to evidence as mitigating potential author bias for female authors. For example, one student wrote:

I do not think I had any implicit bias before the assignment because the author seemed knowledgeable in her argument regardless of her gender. I noted she presented enough evidence to assure her stance was due to data and not a breach of professionality.

For the research methods classes, the activity was given during a week that was not specifically focused on gender and it was administered online. The University was closed for five weeks in the aftermath of a major weather event in Fall 2018. As a result, a large amount of instructional time was lost, and there was not enough classroom time to devote to the activity, so it was done outside of class. It is also important to acknowledge student and instructor characteristics. Given that the majority of students in all classes were female, we were unable to analyze the impact of student gender. While this is a limitation, it is also very interesting as it shows that women, in addition to men, also hold implicit biases toward women. Additionally, the gender of the instructor may have impacted the study. All classes were taught by the same two female faculty with a female teaching assistant. Research has suggested that findings on gender bias vary depending on the measurement tool used (Rivera & Tilcsik, 2016). It is possible that our 5-point Likert scale was not sensitive enough to fully capture gender bias.

Future Applications

This activity can be adapted to a variety of courses and used to explore other implicit biases. It can be replicated with other social statuses, such as altering the author's name to indicate certain races, nationalities, or status. For example, someone's status could be indicated by their academic affiliation. One author could be from an Ivy League school with name recognition whereas the other author could be from a community college. Intersectionality could also be explored by combining gender with other social statuses, which would have the added benefit of more accurately reflecting the lived experience of inequality and bias. Furthermore, since all faculty implementing this activity were female, it would be interesting to see if similar results are achieved when male faculty implement this activity. Lastly, this activity could be adapted for online courses similarly to the way the research methods classes were given the activity.

Since we first used this activity in a unit on gender inequality, it made sense for us to have students read an article on the gender pay gap. In the future, it would be interesting to use an article on a different topic unrelated to gender to determine if students would still be biased against the female author.

We created this audit-style activity to gauge student bias; and teach students about bias, the research process, and research on the wage gap and how to evaluate sources. This project is unique in that it had two complementary parts: we not only used the gender audit activity as a teaching tool to teach students about both the research process and bias, but we also collected data from our students

on how gender bias impacts perceptions of objectivity and used that information to start a discussion about objectivity and bias. Through the experiential learning activity as well as discussion and reflections that followed, we found that many students were operating with implicit biases. Students welcomed the opportunity to apply the course materials in ways that felt concrete and allowed for a deeper understanding of course content related to implicit bias and objectivity.

ACKNOWLEDGMENT

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ENDNOTES

[1]   The methodology was varied because a major weather event in the fall semester resulted in closing the university for an extended period. To be consistent, all three research methods courses (fall and spring) completed the assignment online though the courses were all taught in a face to face format.

[2]   We have labeled this as "women as objective" because the student responses were making the case that a woman can be objective but not that women were more objective than men. This is in contrast to the other categories.

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