
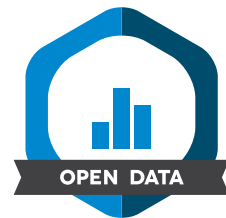


## Psychology's *Hidden Figures*: Undergraduate Psychology Majors' (In)Ability to Recognize Our Diverse Pioneers

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**ABSTRACT.** Psychology as a science professes a dedication to diversity in many forms including celebrating diverse perspectives and people. Nevertheless, women and people of color, both historically and currently, face barriers to their advancement in the field. Illustrative of one of the challenges that women and psychologists of color face, undergraduate students know very little about psychology's diverse historical roots including eminent pioneers who are women and people of color. Junior and senior psychology majors completed a name recognition task which included 42 pioneers in psychology, 21 of who were women, and 9 who were people of color. Participants recognized eminent women and people of color at significantly lower rates as compared to White, male pioneers ( $z = -12.95$ ,  $p < .001$ ,  $r = -.82$ ;  $z = -10.62$ ,  $p < .001$ ,  $r = -.68$ , respectively). Having completed a History of Psychology course increased participants' ability to recognize pioneers ( $U = 738.00$ ,  $z = -3.79$ ,  $p < .001$ ,  $r = -.38$ ) but primarily benefited White, male pioneers. Because psychology majors, professionals, and practitioners are an increasingly diverse group, implications for the psychology curriculum and minoritized students are discussed.

*Keywords:* History of Psychology, Gender, Diversity, Psychology Curriculum



Open Data, Open Materials, and Preregistration badges earned for transparent research practices. Data and materials are available at <https://osf.io/sy6ue/> and <https://osf.io/uf36h/>, respectively. The three Preregistered hypotheses are available at <https://osf.io/9chk7/>.

For psychologists, recognizing and honoring diversity is a core value. This value is evident in national and regional organizations' diversity statements, ethical guidelines, handbooks, convening of diversity councils, and through the learning outcomes for undergraduate psychology majors (APA, 2013; APA, 2017a, 2017b). Recently, Psi Chi adopted a diversity statement including language that calls for action, "supporting and

encouraging people of varied racial, ethnic, gender identity, sexual orientation, and social class backgrounds to both participate in conducting psychological research, education, practice, training, and service, and to recognize and value diverse people within these contexts" (Mission and purpose, 2018). These developments are encouraging in light of psychology's well-documented racist (e.g., Guthrie, 2003; Winston,

2004) and sexist past (Tiefer, 1991). The discipline of psychology has come a long way in meeting the lofty goals set by Psi Chi's written commitments to diversity, which is particularly important because educational literature has suggested that exposure to stories about successful individuals who possess a shared identity to minoritized students has positive educational outcomes such as increasing interest in their chosen field (Rosenthal, Levy, London, Lobel, & Bazile, 2013). And, evidence has suggested that exposure to diverse faculty members has positive outcomes on students' experiences (CGC2; Committee on Women in Psychology, 2017).

Despite these benefits, there are limitations in psychology students' knowledge of and exposure to diverse psychologists. Further, there are still significant barriers faced by women and people of color in achieving educational and occupational equity. In this article, we explore what psychology majors know about our diverse history, in particular their ability to recognize pioneers of psychology who are female and people of color, which illuminates the historical and contemporary barriers that continue to prevent women and people of color from attaining the eminence enjoyed by their White, male counterparts.

### **Historical Barriers**

In the field of psychology, contributions of women and people of color have been greatly underappreciated. This is evidenced even in the early history of the American Psychological Association (APA), which began in 1892 as a men's only organization. Despite the significant contributions women were already making to the field, they were prohibited from joining (Furumoto & Scarborough, 1986). Not only were women absent, but also people of color; all of the original members of the APA were White men (Guzman, Schiavo, & Puente, 1992). Although gender and racial inequity within psychology continued, many women and people of color pursued advanced degrees. Initially, these pioneers faced barriers in obtaining doctoral degrees, and universities would deny them their degree based solely on race and/or gender (Russo & O'Connell, 1980). Many women of the 19th century were being denied entry into graduate programs explicitly due to their gender, and being denied PhDs despite completing the requirements. Women like Mary Whiton Calkins in 1895 (who studied at Harvard), Christine Ladd-Franklin in 1882 (Johns Hopkins), and Lillian Martin (Göttingen, under Muller) were all denied

their PhDs after completing their studies (Russo & O'Connell, 1980).

For women who were able to obtain a doctoral degree, an additional barrier arose with regard to finding employment in major university settings: nepotism policies. Antinepotism policies prevented women from gaining employment in the same institutions where their husbands worked (Russo & O'Connell, 1980); a prime example of this is Mary Cover Jones. In 1929, she was working as a research associate at the University of California, Berkeley. However, due to her husband's affiliation with the university, she was denied the status of full professor and did not achieve this promotion until 1959 at age 63, 30 years later. By the year 1976, one in every four universities still had an antinepotism policy in place. This prevented many women from securing paid positions in academia and research (Furumoto & Scarborough, 1986). Although women and people of color faced significant challenges entering and staying in the academic and research fields of psychology, many began to find jobs in applied psychology, developmental psychology, and educational psychology. Women were often encouraged in this direction because these fields were seen as more fitting for "female skills" such as care taking and child rearing (Rutherford, 2015). However, many women would continue writing and conducting research with their husbands.

Although publishing with a spouse is a creative method to stay in the field, it might have contributed to a lack of recognition these women received for the research they conducted (Russo & O'Connell, 1980). For example, Mamie Phipps Clark conducted research with her husband, Kenneth Clark, that served as evidence in *Brown v. Board of Education*, the Supreme Court case which desegregated American schools. Although some people are aware of this research, it is almost always in reference to Kenneth Clark; very few people attribute it to Mamie, who was the primary researcher (Aldridge & Christensen, 2013).

Minoritized women experience all of these barriers (educational, occupational, gender discrimination) with the added effect of racial discrimination. In 1863, the first African American individuals earned their college degrees, but the first PhD in psychology earned by an African American woman named Inez Beverly Prosser was not until 1933. In 1977, 44 years later, 6.7% of psychology doctorates were awarded to people of color, and only 2.7% went to women of color (Russo & O'Connell, 1980). Being at the complicated

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junction of two historically oppressed groups, in this case, being both female and a person of color, is known as *intersectionality*. First described by Crenshaw (1989), intersectionality refers to the compounded marginalization experienced by someone who identifies with more than one minoritized or oppressed group. Although the term had not yet been coined, Mamie Phipps Clark (1983) was keenly aware of this when she noted,

although my husband had earlier secured a teaching position at the City College of New York, following my graduation it soon became apparent to me that a Black female with a PhD in psychology was an unwanted anomaly in New York City in the early 1940s. (p. 271)

For the amount of work that she accomplished in her lifetime, she had to persist through a number of barriers before reaching eminence and success. Yet, her name is still not as recognized as that of her husband's, even within psychology.

### Contemporary Barriers

Since the time of these pioneering women, it would seem that the discipline is approaching gender and racial equity. However, contemporary movements including worldwide Women's Marches and organizations like 500 Women Scientists suggest that the fight for equity is nuanced and lengthy. Although psychology's foremothers have paved important pathways, women continue to experience "modern misogyny" in the era of "postfeminism" (Anderson, 2017). According to Anderson (2017), modern misogyny primarily stems from the belief that the goals of the feminist movement have been achieved as evidenced by antidiscrimination laws and changing norms regarding women in the workforce. Contemporary women who point out inequity and oppression are met with disbelief. Calls for modern feminist movements are at times viewed as attempts to gain more rights than men or implicate that women are superior to men instead of trying to eradicate oppression that still exists. Although less overt, contemporary barriers to women's participation in the academy, and thus recognition as "eminent," abound.

In 1995, The APA introduced a report that indicated women were beginning to outnumber men in graduate enrollment and obtaining terminal degrees. This report, and the follow up, the Changing Gender Composition (CGC2; Committee on Women in Psychology, 2017), demonstrated

steady increases in women's degree attainment compared to men and increases in degree completion by women of color. However, these numerical improvements have not necessarily resulted in better outcomes for women. The Committee on Women in Psychology (2017) concluded, "debt levels have risen and . . . women students, particularly older and minority women, emerge from their training programs with considerably higher debt than do their male, White, younger counterparts" (p. 46) and that "the salaries of women lag behind men's salaries in psychology more than in any other field" (p. 73). Thus, although more women are entering the field, it is with more debt and lower salaries.

As the CGC2 illustrates, as time has passed, the gender and ethnic composition of psychology has changed dramatically, yet women and people of color still experience disadvantages in the profession. For example, women made up 59.3% of doctorate recipients between 1975–2007, but as of 2007, only 49% of tenure-track psychology professors were women (Cundiff, 2012). It is important to point out that tenure is a lengthy process and not all female PhD recipients choose a career in academia. Meanwhile, those who do must also contend with the "leaky pipeline" in which women are less represented at higher levels of the academic career (González Ramos, Navarrete Cortés, & Cabrera Moreno, 2015). This phenomenon, primarily examined in science, technology, engineering, and mathematics fields including psychology, begins as early as high school and undergraduate programs, with women "leaking" at higher rates than men (Blickenstaff, 2005). Moreover, in the academy, women are less represented in administration, engage in more institutional "housekeeping" (committee work), and receive inequitable teaching distributions, which detracts from research productivity and ultimately, tenure (Gasser & Shaffer, 2014). Thus, although there have been strides toward equitable representation in the higher education, including experimental research indicating that hypothetical female applicants are preferred at a 2:1 ratio over male applicants (Williams & Ceci, 2015), the road to equity is a long one.

For women of color, representation is even more concerning because only 14% of tenure-track psychology professors were women of color in 2007 (Turner, 2013). Pipeline trends also apply to researchers who are people of color as a whole; the proportion of doctoral recipients who

identified as a racial-ethnic minority between the years 1975 and 2007 was only 12.3% (APA Center for Workforce Studies, 2010). Minoritized women have found that attaining tenure-track positions does not necessarily grant them access to the world of feminist support their female, White peers may experience. Furthermore, women of color are expected to take on a myriad of other duties including advising students of color, representing a minoritized group as a committee member, and being a general support system for students of color. These responsibilities are on top of the course load and other duties already assigned to them, taking time away from scholarly productivity (Turner, González, & Lau, 2011). Although these faculty are overburdened with such responsibilities, research has emphasized the need for faculty of color to be a model for minoritized students. In fact, minoritized students report feeling more supported and satisfaction overall when mentored by individuals with a similar identity (CGC2; Committee on Women in Psychology, 2017). Additional workload, pressure to be a representative of one's identity, and lack of support exemplify systemic barriers, often referred to as institutional sexism (or racism, as the case may be), which combine to create a seemingly inescapable system of inequity not just between women and men, but between White women and women of color.

Taken together, it is clear both historically and in modern times that women and people of color face significant obstacles to entry and acceptance in the academy. It is here where contributions to the field in the form of scholarly productivity are most likely to occur. And, it is worth remembering that an extended program of research is considered one of the features that makes one "eminent" as a psychologist (Sternberg, 2016). Thus, obstacles to entry into the academy and scholarly productivity while there may account for the contributions of women and people of color being underappreciated historically. This may also explain why undergraduate psychology students are consistently less able to recognize and name accomplishments of psychologists who are women and people of color (Woody, Viney, & Johns, 2002).

### **The Current Study**

Regardless of the fact that many of these eminent researchers conducted seminal studies such as Mamie Phipps Clark, many students are unaware of psychology's diverse roots. This suggests that the accomplishments of women and people of color

within the field may be underrepresented in psychology coursework. Woody et al. (2002) asserted that students will better understand the applications of psychology if they are first taught the history of psychology. In addition, if undergraduate majors are not familiar with the significance of psychologists who are women and people of color, they will not be able to thoroughly grasp the importance of psychology's diverse historical context.

In an ever-changing multicultural climate, it is important that psychology majors possess this foundational knowledge. Moreover, we have an explicit commitment to "Ethical and Social Responsibility in a Diverse World" as a one of the five goals outlined in the APA (2013) Guidelines for the Undergraduate Psychology Major. The authors of which further suggested, "diversity issues need to be recognized as an essential feature and commitment of each of the five domains" (2013, p.12). Therefore, we believe it is important to explore undergraduate students' knowledge of pioneers of psychology, particularly women and people of color.

### **Hypotheses**

Based on the review of relevant literature, three preregistered hypotheses (<https://osf.io/9chk7/>) were tested in this study. The first was that female pioneers of psychology would be recognized at lower rates (have an overall lower recognition score) than male pioneers of psychology. Our second hypothesis was that pioneers of psychology who are people of color would be recognized at lower rates (have an overall lower recognition score) compared to pioneers of psychology who are White. Lastly, our third hypothesis is that psychology students who have had a history of psychology course would recognize pioneers of psychology at higher rates (higher recognition scores) compared to students who have not had a history of psychology course when controlling for GPA.

## **Method**

### **Participants**

Junior and senior psychology majors were recruited from eight colleges and universities across the United States. A total of 397 participants accessed the survey. Upon data clean-up, the sample became much smaller, with 26 respondents removed from the sample for not completing the survey; six participants were removed who identified as majors other than psychology; five graduate students were removed; 112 first-year students and sophomores

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were removed; 56 participants were removed for not providing demographic information; and upon exploratory data analysis, one outlier was removed due to response bias. Our final sample consisted of 247 participants (197 women, 49 men, 1 indicated “other”, median age = 22, age range: 19–60) who predominantly identified as White/Non-Hispanic (71.3%). Other ethnic groups represented were Hispanic/Latin American (13.8%), Black/African American (6.9%), Asian American (4%), and Other (4%). The class standings of participants consisted of undergraduate juniors and seniors (90 juniors, 157 seniors).

**Measures**

We created a survey to measure junior and senior psychology majors’ ability to recognize eminent

male and female pioneers in the field. Our survey was modeled after the name recognition task developed by Woody et al. (2002), being that it was the only previous survey of its kind. Their measure featured the names of 51 eminent psychologists, but only eight of them were women. Our final survey retained 20 of the 51 psychologists included in their task. We attempted to address the gender gap by asking students to rate their recognition of 21 male pioneers and 21 female pioneers (all pioneers are listed in Table 1 and <https://osf.io/uf36h/>). A total of nine pioneers included in the final measure were people of color including five women of color (Phipps Clark, Prosser, Bernal, Whitehurst) and four men of color (Clark, White, Williams II, Sumner).

To generate names, a general Google search for

**TABLE 1**

**Median and Mean Recognition Scores for Each Pioneer**

Women	Median Recognition Rating	Mean Recognition Rating (SD)	Men	Median Recognition Rating	Mean Recognition Rating (SD)
Karen Horney	0.00	1.02 (1.19)	Sigmund Freud	3.00	2.90 (0.39)
Mary Ainsworth	0.00	0.97 (1.02)	B.F. Skinner	3.00	2.68 (0.62)
Elizabeth Loftus	0.00	0.68 (0.98)	Ivan Pavlov	3.00	2.72 (0.66)
Carol Gilligan	0.00	0.40 (0.71)	Jean Piaget	3.00	2.49 (0.80)
Anna Freud	2.00	1.46 (1.07)	Carl Rogers	2.00	1.87 (1.13)
Mary Whiton Calkins	0.00	0.49 (0.79)	Carl Jung	2.00	1.96 (1.14)
Margaret Floy Washburn	0.00	0.52 (0.76)	Abraham Maslow	3.00	2.40 (0.89)
Ann Johnson	0.00	0.26 (0.62)	Wilhelm Wundt	2.00	1.96 (1.12)
Eleanor Maccoby	0.00	0.29 (0.58)	Erik Erikson	3.00	2.36 (0.90)
Melanie Klein	0.00	0.26 (0.58)	John B. Watson	3.00	2.17 (1.02)
Mamie Phipps Clark*	0.00	0.39 (0.75)	Albert Bandura	3.00	2.12 (1.14)
Leta Stetter Hollingworth	0.00	0.26 (0.59)	Kenneth Bancroft Clark*	0.00	0.40 (0.74)
Sandra Bem	0.00	0.15 (0.44)	Joseph L. White*	0.00	0.26 (0.56)
Inez Beverly Prosser*	0.00	0.19 (0.49)	Robert Lee Williams II*	0.00	0.40 (0.71)
Martha Bernal*	0.00	0.18 (0.46)	Francis Cecil Sumner*	0.00	0.32 (0.63)
Ruth Howard*	0.00	0.26 (0.56)	Gordon Allport	0.00	0.62 (1.02)
Dorothea Lynde Dix	0.00	0.68 (0.97)	Alfred Binet	1.00	1.49 (1.12)
Florence Goodenough	0.00	0.19 (0.47)	Edward Lee Thorndike	1.00	1.43 (1.16)
Mary Cover Jones	0.00	0.26 (0.59)	Paul Broca	1.00	1.36 (1.18)
Keturah Elizabeth Whitehurst*	0.00	0.32 (0.62)	William James	1.00	1.15 (1.19)
Christine Ladd Franklin	0.00	0.17 (0.42)	James McKeen Cattell	0.00	0.72 (1.07)

*Note.* A score of 0 indicates “never heard of this person,” 1 = “heard of the name, but cannot name one thing the person did,” 2 = “know of the person’s name and a minimal number of their contributions,” and 3 = “can recall the person and the majority of their accomplishments easily.”  
\*Indicates psychologists of color.

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“famous psychologists” yielded 51 people including seven women (Horney, Ainsworth, Loftus, Gilligan, A. Freud, Calkins, and Washburn). All seven women were included in the task. The top 11 men on the same list were included (S. Freud, Skinner, Pavlov, Piaget, Rogers, Jung, Maslow, Wundt, Erikson, Watson, and Bandura). Other online sources including the Association for Psychological Science (Isanski, 2011) and the Complete University Guide (n.d.) were used to add Johnson, Maccoby, and Klein. Many of the same names were yielded with a search for “most famous female psychologists.” Between this search, the pioneers profiled in the APA Women’s Program Office’s “I am Psyched!” pop-up museum (APA Women’s Program Office, n.d.), and women featured in Woody et al. (2002), Phipps Clark, Prosser, Howard, Hollingworth, Bem, Bernal, Dix, Goodenough, Jones, Ladd-Franklin, and Whitehurst were added to the list of women. A separate search for men of color in psychology yielded Clark, White, Williams II, and Sumner (Wallace, 2015). To ensure gender balance, an additional six men were selected from the task used by Woody et al. (2002; Allport, Binet, Broca, Thorndike, James, Cattell), bringing the total to 42 pioneers of psychology.

Participants were asked to rate how well they recognized each psychologist with a 4-point Likert-type scale. The scale was identical to that of the Woody et al. (2002) measure: 0 = *never heard of this person*, 1 = *heard of the name, but cannot name one thing the person did*, 2 = *know of the person’s name and a minimal number of their contributions*, and 3 = *can recall the person and the majority of their accomplishments easily*.

It is important to note that Woody et al. (2002) treated this scale as interval data, thus reporting mean scores. However, it could be argued that the current measure produces ordinal data, rather than interval, being that distances between scale options are unknown. Thus, both mean and median recognition scores were calculated for the each of 21 women and 21 men (see Table 1). Subscales were created by calculating median recognition scores for all the women together, all the men together, all the people of color together, all the Whites together, all the women of color, all the White women, all the men of color, all the White men, and an overall median recognition score for all 42 pioneers. For the purposes of comparison to Woody et al. (2002), mean subscales were also calculated and are reported along with medians. Median and mean recognition subscales are reported in Table 2.

Reliability estimates were not reported for the

original measure in the Woody et al. (2002) article. However, reliability estimates for the current form of the measure are as follows. Based on Cronbach’s (1951) guidelines, reliability was good for the full scale ( $\alpha = .90$ ), White pioneers ( $\alpha = .89$ ), men pioneers ( $\alpha = .86$ ), White men pioneers ( $\alpha = .86$ ), and women pioneers ( $\alpha = .82$ ). Reliability estimates were found to be in the acceptable range for pioneers of color ( $\alpha = .78$ ) and the White women pioneers ( $\alpha = .77$ ). Based on Cronbach’s guidelines, reliability estimates for women of color pioneers ( $\alpha = .64$ ) and men of color pioneers ( $\alpha = .63$ ) are questionable. However, Vaske, Beaman, and Sponarski (2016) pointed out that it is not uncommon for alpha levels to drop with fewer items in a scale, allowing for greater flexibility in interpreting results.

In addition to the name recognition task, participants responded to demographic questions and identified whether their university offered a History of Psychology/History and Systems course (hereafter referred to as “History of Psychology”) and History of Women or Gender Studies course. If these courses were available, student were asked whether they had taken them and the grade they received. Further, students self-reported their overall grade point average as well.

**Procedures**

Prior to conducting the current study, institutional review board approval was obtained (#18-27). Participants completed a Qualtrics survey online and on their own time through the use of a computer or personal device. No incentives for participation were offered to participants. The survey was

**TABLE 2**

**Subscale Scores for Name Recognition Task**

Subscale	Mean Subscale (SD)	Median Subscale
Women	0.45 (0.34)	0.00
Men	1.60 (0.48)	2.00
People of color	0.30 (0.38)	0.00
White	1.23 (0.42)	1.00
Women of color	0.26 (0.37)	0.00
White women	0.51 (0.37)	0.00
Men of color	0.35 (0.48)	0.00
White men	1.91 (0.55)	2.00
Overall Recognition Score	1.03 (0.37)	0.00

*Note.* A score of 0 indicates “never heard of this person,” 1 = “heard of the name, but cannot name one thing the person did,” 2 = “know of the person’s name and a minimal number of their contributions,” and 3 = “can recall the person and the majority of their accomplishments easily.”

distributed electronically, via e-mail to eight different colleges and universities across the United States which had professional ties to the faculty researchers. Regions represented in the sample include: Eastern, Southeastern, Rocky Mountain, and Western. Location specific links were generated and shared with psychology professors who agreed to provide access to their students. Additionally, undergraduate researchers distributed a link generated for their home institution on social media platforms (including Facebook and Twitter) and other electronic sources including campus and personal email.

### Results

Exploratory data analysis of mean subscales revealed skewness values of greater than 1.0 for the dependent variable subscales for women, people of color, women of color, White women, and men of color. In other words, recognition was so low for the pioneers represented by the items used to calculate these subscales, and their means were so positively skewed that the assumption of normality was violated. Because this scale may also be considered ordinal data, median subscales were calculated. Exploratory analyses on median subscales yielded excessive skewness for the same subscales. Due to these violations, and because this scale arguably represents ordinal data, nonparametric statistical tests were employed using both mean and median subscales, and means are reported in order to directly compare results to the Woody et al. (2002) study. Original and final datasets may be accessed at <https://osf.io/sy6ue/>.

#### Hypothesis 1

A paired-samples nonparametric *t* test (Wilcoxon Signed Ranks test) was used to evaluate differences in participants' ability to recognize women versus men pioneers of psychology. The Wilcoxon Signed Ranks test demonstrated that median women recognition scores were significantly lower ( $Mdn=0.00$ ) than men recognition scores ( $Mdn=2.00$ ),  $z=-12.95$ ,  $p<.001$ ,  $r=-.82$ . An additional Wilcoxon Signed Ranks was conducted to examine mean subscale differences and demonstrated that mean women recognition scores were significantly lower ( $M=0.45$ ,  $Mdn=0.38$ ) than men recognition scores ( $M=1.61$ ,  $Mdn=1.62$ ),  $z=-13.63$ ,  $p<.001$ ,  $r=-.87$ . These results support our first hypothesis that women pioneers would receive lower recognition scores than men pioneers by junior and senior undergraduate psychology students.

#### Hypothesis 2

Another nonparametric *t* test was conducted to identify differences in participants' ability to recognize White pioneers of psychology compared to those who are people of color. The Wilcoxon Signed Ranks test revealed that median recognition scores for people of color were significantly lower ( $Mdn=0.00$ ) than recognition scores for pioneers who were White ( $Mdn=1.00$ ),  $z=-10.62$ ,  $p<.001$ ,  $r=-.68$ . Again, similar results were yielded when examining mean subscales. A second Wilcoxon Signed Ranks test revealed that mean recognition scores for people of color were significantly lower ( $M=0.30$ ,  $Mdn=0.11$ ) than recognition scores for pioneers who were White ( $M=1.23$ ,  $Mdn=1.24$ ),  $z=-13.61$ ,  $p<.001$ ,  $r=-.87$ .

Because the White pioneers outnumbered the pioneers who are people of color, we opted to select a random matched sample (generated by SPSS) of nine White pioneers from our survey to compare to the nine people of color. The random sample included four White men and five White women: Thorndike, James, Rogers, Broca, Hollingsworth, Calkins, Johnson, Goodenough, and Horney. Another Wilcoxon Signed Ranks test was conducted using these parameters and similar results were yielded. The random sample of White pioneers attained higher recognition scores ( $Mdn=0.00$ ) than the nine people of color ( $Mdn=0.00$ ), resulting once again in a significant difference between the two groups,  $z=-7.91$ ,  $p<.001$ ,  $r=-.50$ . Taken together, these results support our second hypothesis that pioneers who are people of color would receive lower recognition scores than White pioneers by undergraduate psychology students.

Mean subscale analyses mirror these findings. A Wilcoxon Signed Ranks test was conducted using the mean subscale of the identical sample of White pioneers and demonstrated higher recognition scores ( $M=0.88$ ,  $Mdn=0.89$ ) for White pioneers than the nine people of color ( $M=0.30$ ,  $Mdn=0.11$ ), resulting once again in a significant difference between the two groups,  $z=-12.65$ ,  $p<.001$ ,  $r=-.80$ . Furthermore, a visual examination of mean and median recognition scores reveals that pioneers who are both women and people of color received the lowest scores ( $M=0.26$ ,  $Mdn=0.2$ ), which supports the idea that intersectionality presents an additional barrier to recognition. A final Wilcoxon Signed Ranks test was conducted to examine this more closely. When using mean subscales between White women ( $M=0.50$ ,  $Mdn=0.45$ ) and women of color ( $M=0.26$ ,  $Mdn=0.20$ ), a significant

difference was yielded,  $z = -10.22$ ,  $p < .001$ ,  $r = -.65$ . However, the same analysis using median subscales did not yield significance.

### Hypothesis 3

Our third hypothesis considers the influence of a History of Psychology course on our participants' ability to recognize pioneers of psychology. Of our sample, 47 (19%) participants had previously completed their school's History of Psychology course, 99 (40%) participants were currently enrolled in their school's History of Psychology course, 54 (21.9%) of participants had not taken their school's History of Psychology course, and 14 (5.7%) of participants reported that their school did not offer a History of Psychology course at all ( $n = 33$  had missing data). Our survey also asked participants to report whether their school offered a History of Women or Gender Studies course. So few respondents ( $n = 23$ ; 9.3%) had taken their school's History of Women/Gender Studies course that we opted against analyzing data with this as an independent variable.

A Kruskal-Wallis (nonparametric Analysis of Variance) was conducted using the median overall recognition score as the dependent variable to evaluate whether taking a History of Psychology course influenced participants' ability to recognize pioneers of psychology. These analyses excluded participants who reported that they were currently enrolled in a History of Psychology course. Thus, the analysis included 47 participants who indicated that they had completed a History of Psychology course and 54 who reported that they had not. Results yielded a significant difference in median overall recognition scores between students who completed a History of Psychology course,  $X^2(2) = 16.41$ ,  $p < .001$ ,  $r^2 = .40$ , with a mean rank score for those who completed a History course of 63.72, and a mean rank of 39.93 for those who have not.

To test this hypothesis as outlined in our preregistration, we also examined this using mean subscales. An Analysis of Covariance using the overall recognition score as the dependent variable and overall GPA as the covariate was conducted to evaluate whether taking a History of Psychology course influenced participants' ability to recognize pioneers of psychology. These analyses excluded participants who reported that they were currently enrolled in a History and Systems course and those who did not report their GPA. Thus, the analysis included  $n = 46$  who indicated that they had completed a History of Psychology course and  $n = 53$

who reported that they had not. Results yielded a significant difference in mean overall recognition scores between students who completed a History of Psychology course ( $M = 1.26$ ,  $SD = 0.35$ ) and those who have not ( $M = 0.93$ ,  $SD = 0.29$ ),  $F(1, 96) = 25.85$ ,  $p < .001$ ,  $partial \eta^2 = .21$ , controlling for GPA. These results supported our third hypothesis and corroborate results from the Kruskal-Wallis assessing medians, indicating that students who completed a History of Psychology course have higher recognition scores than students who had not taken the course. See Table 3 for medians and means by group.

### Exploratory Analysis

Beyond our preregistered hypotheses, we elected to examine these data through additional analyses. First, to determine whether differences exist in participants' recognition of different groups of psychologists, a nonparametric Friedman test of differences among repeated measures was conducted. Specifically, a total of eight median subscales was included for men, women, people of color, Whites, White women, White men, women of color, and men of color pioneers. The Friedman test yielded an astounding Chi-Square value of 1288.05, which was significant at the  $p < .001$  level. We conducted a second Friedman analysis using mean subscales,

**TABLE 3**

**Mean Recognition Subscales Scores and Median Recognition Subscale Scores for Participants Who Have Taken a History of Psychology Course and Have Not Taken a History of Psychology Course**

Subscale	Completed History of Psychology Course ( $n = 47$ )		Have Not Taken History of Psychology ( $n = 54$ )	
	Mean recognition score (SD)	Median recognition Score	Mean recognition score (SD)	Median recognition score
Women	0.61 (0.38)	0.00	0.36 (0.24)	0.00
Men	1.92 (0.38)	2.00	1.50 (0.40)	1.50
People of color	0.35 (0.39)	0.00	0.20 (0.23)	0.00
White	1.51 (0.38)	2.00	1.13 (0.34)	1.00
Women of color	0.32 (0.44)	0.00	0.19 (0.25)	0.00
White women	0.69 (0.38)	0.00	0.41 (0.26)	0.00
Men of color	0.39 (0.40)	0.00	0.20 (0.33)	0.00
White men	2.28 (0.47)	3.00	1.80 (0.47)	2.00
Overall Recognition Score	1.26 (0.35)	1.00	0.93 (0.29)	0.00

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which also yielded a large Chi-Square value of 1425.58, also significant at the  $p < .001$  level. The Friedman allows for a nonparametric version of a repeated-measures analysis and demonstrates significant differences among our subscales. However, with such astronomical Chi Square values, these results must be reported with caution. The recommended follow-up post hoc for a Friedman analysis is individual Wilcoxin Signed Rank tests (Laerd Statistics, 2018), some of which have already been reported (see Hypotheses 1 and 2).

A second exploratory analysis involves examining the potential influence of a History of Psychology class more closely. A series of Mann-Whitney U tests were conducted to examine differences among students who had and had not completed History of Psychology on the dependent measures of the eight median subscales for men, women, White pioneers, people of color pioneers, White men, White women, men of color, women of color, with a Bonferroni adjusted  $p$  value of .006 (calculated using a  $p$  value of .05 with 8 comparisons).

Significant differences were found. Students who had taken a History of Psychology course rated pioneers higher than those who had not taken the course on the dependent median subscales for men, Whites, White men, and White women pioneers. Recognition of men was better for participants who completed a History of Psychology course ( $Mdn = 2.00$ ) than participants who had not ( $Mdn = 1.50$ ),  $U = 738.00$ ,  $z = -3.79$ ,  $p < .001$ ,  $r = -.38$ . Recognition of Whites was better for participants who completed a History of Psychology course ( $Mdn = 2.00$ ) than those who had not ( $Mdn = 1.00$ ),  $U = 653.50$ ,  $z = -4.14$ ,  $p < .001$ ,  $r = -.41$ . Recognition of White men was better for participants who had completed a History of Psychology course ( $Mdn = 3.00$ ), than participants who had not ( $Mdn = 2.00$ ),  $U = 713.50$ ,  $z = -4.17$ ,  $p < .001$ ,  $r = -.42$ . Lastly, recognition of White women was better for participants who had completed a History of Psychology course ( $Mdn = 0.00$ ) than participants who had not ( $Mdn = 0.00$ ),  $U = 829.50$ ,  $z = -3.86$ ,  $p < .001$ ,  $r = -.38$ .

All of these subscales, with the exception of White women, were normally distributed so the tests may be reported with confidence. Caution should be taken with the finding regarding White women pioneers due to a nonnormal distribution of this subscale, which increases the likelihood of Type I error. Although it is important to mention that other subscales also possessed nonnormal

distributions, it is also notable that no significant differences were yielded for those: women, people of color, women of color, men of color. In other words, taking a History of Psychology course resulted in no appreciable difference in participants' recognition scores for women overall and people of color.

## Discussion

The results of the current study reflect a disheartening reality in the field of psychology, and the nation as a whole. Undergraduate majors' inability to recognize female pioneers in psychology compared to male pioneers, as well as pioneers of color versus White pioneers, is reflective of a national trend in gender and racial inequality (Pew, 2016, 2017). Further, the combined racial and gender inequality represented in the results of the current study provides support of intersectionality being a barrier to women of color in the field of psychology not only in the past, but in current day (Cundiff, 2012; Turner, 2013). Illustrative of the aforementioned modern misogyny, even though she is not a woman of color, but is one of the few contemporary pioneers, Elizabeth Loftus only received a mean recognition score of 0.68, and a median recognition score of 0.

As elucidated previously, there were a number of roadblocks for women and people of color in their advancement in the field of psychology (Furumoto & Scarborough, 1986). The current study illustrates that not only did women and people of color experience educational, occupational, and gender discrimination a century ago, but suggests that they are still experiencing such discrimination present day in the classroom. With recognition scores so low for women and people of color, it is a possibility that these pioneers are not recognized by students because their histories and contributions may be absent from the classroom. Based on these findings, it is plausible that not only are women and people of color underrecognized, they are also underrepresented in the curriculum. By not talking about their contribution in our classrooms, programs, and in our textbooks, the profession continues to silence these women and men of color. Instead of perpetuating the problem of discrimination within our history, the field of psychology should not only recognize the achievements of these women and people of color, but utilize their achievements as a way to celebrate our diverse roots. Further, the pioneers can also be used as models for the ever increasing minoritized

students in psychology programs.

Although the APA has charged institutions of higher learning with including more diversity, exhibiting respect for diverse groups, and increasing awareness related to issues of privilege, power, and discrimination within their programs, it is possible that this has been implemented inconsistently at the curricular level with regard to the historical roots of our field (APA, 2013). Thus, a disservice is likely being done to undergraduates in psychology because they are not learning the full scope of the role that women and people of color have played in the development of this field, and how their history of discrimination and oppression can help the field continue to improve. When minoritized groups' contributions and historical barriers are not part of the curriculum, it is difficult to notice when discriminatory practices are occurring in less overt, more modern ways.

It is essential to note that taking a class on the History of Psychology is one important step to recognizing the impact of women and people of color in this field. Indeed, the results of this study suggest that, overall, students who completed a History of Psychology course have higher recognition scores of pioneers when compared to students who have not completed a History of Psychology course. This finding is important because these results not only reflect students' individual awareness about pioneers of psychology, but also illuminate what students are learning in their psychology classes up until they complete a History of Psychology course (Woody et al., 2002). Of note however, even among the group who completed a History course, there was lower recognition scores of marginalized groups, which was also found in the overall sample. Astoundingly, it appears that the benefits of a History of Psychology course disproportionately fall on White, male pioneers, rather than the other groups. Specifically, recognition scores of White males were half a point higher for those who had completed History of Psychology courses as compared to those who had not. When examining mean scores for people of color and White women, the difference in recognition scores is less powerful, at only approximately a 0.2 or less. In other words, students who had completed History of Psychology only recognized White women and people of color marginally more than those who had not completed the course. Thus, with a similar trend as the overall sample, students in these courses are still lacking in knowledge about pioneers in psychology who are both women

and people of color, but they are lacking most in knowledge about those who were women of color. This suggests a lack of knowledge of an entire section of pioneers in psychology by students even after completing a History of Psychology course. This disparity calls for further investigation of the information sources for such courses.

### **Limitations**

Limitations to our research include the lack of diversity in the present sample. The majority of students who completed the survey were White/Non-Hispanic, women. On one hand, this can pose severe limitations to the research. However, when looking at the gender representation of psychology majors, the current sample matches the field, in which approximately 77% of graduates are women (Olson, 2014). Surprisingly, with women dominating the field of psychology for the last 40 years, one would assume there would be better recognition of female pioneers. However, because men still hold the majority of positions in academia (APA, 2014), it is possible that highlighting the accomplishments of women is an unrecognized need among this group.

Although the gender breakdown was fairly representative of the field, the ethnic breakdown is skewed toward White students. The overall population of White undergraduates in psychology is only 55%, with Hispanic or Latino individuals representing 19%, and Black or African students encompassing approximately 12% of the majors, and other groups to a lesser degree. Further, White women only represent 44% of undergraduate degree earners in the United States (Data USA, 2016). Thus, the current study might have yielded different results if there was a better ethnic representation within the sample.

Further limitations include the online nature of the survey, and a limited sample of universities within the United States. Although online survey platforms have a number of advantages, they can also lend to participants being distracted while completing the research. Thus, if this survey were given in paper format in a controlled environment, participants might have yielded better recognition scores. Further, the institutions which participated in the current study did so via professional contacts of the faculty researchers, or personal contacts of the student researchers via social media and e-mail. Therefore, it is possible that other universities not solicited would have garnered better scores. For instance, psychology majors at Minority Serving Institutions, Historically Black Colleges and

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Universities, or all women's universities might have had a different educational experience with regard to pioneers of psychology; thus, yielding more positive results.

### **Future Directions**

To fully understand U.S. junior and senior psychology students' knowledge and recognition of pioneers of psychology, further research is needed. Woody and colleagues (2002) paved the way for such an exploration. However, the researchers did not have a representative illustration of female pioneers in their survey. The current study is the first of its kind to engage in an in-depth analysis using a diverse group of pioneers in the field including those with marginalized identities. However, one study is not enough. More work needs to be done looking at specific types of institutions that may be teaching their psychology majors differently such as those with underrepresented populations and those in certain regions of the country.

Further, a sample with more ethnically diverse participants also needs to be utilized in future studies. And, of the utmost importance, understanding is needed for why students recognize only White men as the pioneers of the field. Future research needs to explore what information is included in textbooks for various classes to ensure that textbooks begin to reflect the reality of the past, rather than an illusion of history. In addition, research needs to assess the content of what professors are teaching with regard to the History of Psychology. Although students did not recognize women and pioneers of color, this does not mean that their professors are not teaching about them. Thus, a study exploring what is actually being taught, and how it is being taught (e.g., via text books, in class activities, supplemental readings) should also be conducted.

### **Recognizing Diversity: Responding to National Calls**

In recent years, APA (2017) has updated their Multicultural Guidelines, in which the taskforce emphasized that psychologists should increase their awareness of how educational settings impact students' self-identity. With more and more women and persons of color within the field, this seems to be a necessary step within all psychology programs in the United States. However, the guidelines go a few steps further to indicate that psychologists are supposed to attend to their power and privilege in interactions with students.

One way such power and privilege may be demonstrated within the classroom is by not only attending to the history of individuals who look like the professors teaching the material, but rather attending to the history of our field that represents all students in the classroom as well. In a charge to the profession, the guidelines expect that psychologists explore ways to address privilege once it is identified. Thus, the first logical step is for programs to explore ways they are being inclusive of the actual history of the profession, rather than what has been taught for decades. Once this has been identified, then in line with these guidelines is the inclusion of multicultural curriculum within programs. Psychology programs should explore, at all levels, what they are teaching to undergraduates about the field and infuse multicultural history in every course from General Psychology to upper division electives (e.g., Social Psychology, Health Psychology). Lastly, the guidelines emphasize the need for psychologists to "aspire to recognize and understand historical and contemporary experiences with power, privilege, and oppression" (APA, 2017b, p. 45).

Moreover, Vazire (2017a, 2017b) has claimed that in modern times, a drive for "eminence" itself perpetuates privilege and is at odds with scientific transparency and integrity. "Those with the most prestige will be heard the loudest" (Vazire, 2017a, p. 6). Diverse voices are at risk of being silenced if dominant culture, particularly male, voices are overrepresented, and scientific rigor may be sacrificed (Vazire, 2017a, 2017b). This is concerning especially in light of gendered publication bias. West, Jacquet, King, Correll, and Bergstrom (2013) reported findings from over eight million scientific papers, indicating that men predominate in first and last author positions, and reviewers prefer pieces authored by male-sounding names over female-sounding names. In some ways, it may come as no surprise that our findings indicate that junior and senior psychology majors primarily recognize White men as pioneers of the field.

Still, the rapidly changing demographics of psychology as a whole suggests that role models who do not fit the stereotypical "old, White male" are relevant and timely. The CGC2 (Committee on Women in Psychology, 2017) not only suggests that more women of color are entering doctoral programs, but also that there is a shortage of faculty of color to mentor these students. Students of color, at every level of their education, are hard pressed to find faculty who resemble them. Between the

demographics of the faculty, and the content of the classes, it is no wonder that certain pioneers are more easily recognized than others. Numerous national organizations have taken on the task to bring awareness to psychology's diverse history and galvanize the next generation of psychologists of color including The Drs. Nicholas and Dorothy Cummings Center for the History of Psychology and Psychology's Feminist Voices Oral History and Digital Archive Project, which recognized the need for young women of color to be inspired and see themselves as future psychologists when they partnered with the APA Women's Program Office to create the national tour for the museum exhibit "I Am Psyched!" This need has not only been recognized on a national level through the APA, but also through social media movements.

Twitter trends like #ThisIsWhatAPsychologist LooksLike and Kevin Nadal's #ThisIsWhatAProfessor LooksLike have attempted to bring awareness to the diversity of the profession and the academy. Nadal (2018) notes,

it has become so important for me to ensure that young people of color, particularly those with multiple marginalized intersectional identities, could indeed recognize that they, too, could become professors. Perhaps many of us do not know what is possible because we don't have exposure to professors or others who look like us. (para 11)

Therefore, we challenge psychology faculty and students alike to rise to the calls of international, national, and regional organizations, and their commitments to promoting and honoring diversity. Psychology should attend to whose voice is missing and begin recognizing and valuing diversity in all contexts, starting with the classroom.


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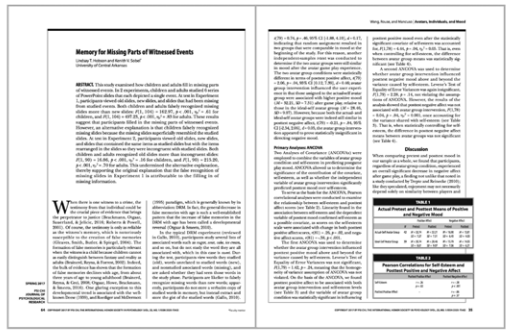
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