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January 2018

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Maurer, Trent W. and Keim, Cassidy (2018) "Teaching about prejudice with a Bogardus Social Distance Scale activity: Replication and extension," *International Journal for the Scholarship of Teaching and Learning*: Vol. 12: No. 1, Article 7.

Available at: <https://doi.org/10.20429/ijstl.2018.120107>

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Abstract

This study presents a three-year replication and extension of Maurer's (2013) evaluation of a classroom activity to reduce prejudice and discrimination. Students in six sections of an introductory family science course were assigned to one of three conditions and one of two target marginalized groups for a 3x2 design. Results differed significantly from those reported by Maurer (2013), and suggested that all three methods tested were equally effective in reducing prejudice and discrimination and that such changes were lasting. Additionally, a student participant served as a co-inquirer on this project, and her reflections on the process are included.

Keywords

Bogardus Social Distance Scale, prejudice, discrimination, homosexual, atheist

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Portions of this manuscript were previously presented at the 2016 ISSOTL Conference, Los Angeles, CA, the 2016 SoTL Commons Conference, Savannah, GA., and the 2016 National Conference on Undergraduate Research, Asheville, NC. The first author would like to thank Sarah Bruns, Caterina De Fazio, and Jasmine Brown for their assistance with this project. Correspondence concerning this article should be addressed to Trent W. Maurer, P.O. Box 8034, School of Human Ecology, Georgia Southern University, Statesboro, GA 30460; 912-478-1522. E-mail: tmaurer@georgiasouthern.edu

Teaching about prejudice with a Bogardus Social Distance Scale activity: Replication and extension

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(Received 8 June 2017; Accepted 28 September 2017)

This study presents a three-year replication and extension of Maurer's (2013) evaluation of a classroom activity to reduce prejudice and discrimination. Students in six sections of an introductory family science course were assigned to one of three conditions and one of two target marginalized groups for a 3x2 design. Results differed significantly from those reported by Maurer (2013), and suggested that all three methods tested were equally effective in reducing prejudice and discrimination and that such changes were lasting. Additionally, a student participant served as a co-inquirer on this project, and her reflections on the process are included.

INTRODUCTION

A significant teaching and learning problem that confronts many college educators is how to most effectively teach about issues of prejudice, stereotyping, and discrimination, particularly with an eye towards reducing them and engaging students in deeper learning about diversity (Hackney, 2005; Kite, 2011). Many different activities and techniques have been proposed, including: the implicit association test (Adams, Devos, Rivera, Smith, & Vega, 2014; Ghoshal, Lippard, Ribas, & Muir, 2012), analysis of popular movies (Melchiori & Mallett, 2015), and providing information to dispel myths and false beliefs (Pedersen & Barlow, 2008).

One approach, recommended by the American Psychological Association Task Force [APA Task Force] on Diversity Issues at the Precollege and Undergraduate Levels of Education in Psychology (1998), suggested an activity designed to actively engage students in their learning about prejudice, stereotyping, discrimination and diversity. Specifically, the APA Task Force recommended a classroom activity using the Bogardus Social Distance Scale [BSDS] (Bogardus, 1925, 1933) to be enacted as follows: The course instructor selects a target group for the BSDS (i.e., any group of people about which there may be prejudice, stereotyping, or discrimination) and administers the scale to the class via a pencil and paper form. Next, the instructor collects the papers, shuffles them, and redistributes them randomly to students to ensure anonymity. After that, the instructor divides the room into seven areas (one for each of the seven levels of the BSDS) and instructs students to move to the area of the room that matches the completed BSDS they received. After viewing the distribution of responses by looking at the different areas of the room, the instructor facilitates a class discussion about how the students feel about their placement on the scale and the issues the activity raises about diversity, stereotyping, prejudice, and discrimination.

To date, there has been only one published evaluation of this activity. Maurer (2013) conducted a modified version of the class activity in which he had students stand as they went through the seven levels of the BSDS instead of relocating to different areas of the classroom. His investigation, which used "homosexuals" as the target group, compared the effectiveness of the activity against a control group of students who received only the course lecture material about prejudice and discrimination (i.e., information to dispel myths and false beliefs). Students completed two sets of measures (the BSDS and several additional questions

about attitudes towards the target group) at two times (before the activity and several days later). The results obtained revealed a larger positive shift in attitudes on the BSDS over time for students who received the activity than those who did not, but equivalent changes in attitudes toward the target group on other measures across the two conditions. These results offered some limited support for the educational effectiveness of the activity.

However, Maurer's (2013) investigation had four significant limitations. First, the time between the pretest and posttest was only a few days. Most "one-shot" interventions at prejudice reduction do not assess if the changes in attitudes are lasting (Devine, Forscher, Austin, & Cox, 2012), so it is unknown if the changes in attitudes Maurer reported were stable or if students would regress back to their original attitudes over time. A second, delayed posttest would be necessary to answer this question.

Second, the additional attitudinal measures toward the target group beyond the BSDS that Maurer (2013) used did not directly quantitatively assess self or peer attitudes, but rather assessed perceptions of the difficulty of being openly homosexual on campus and how safe one would feel on campus if they were openly homosexual. Although these items do tap awareness of issues that affect this marginalized group, and were likely to change as a result of education that provided information to dispel myths and false beliefs about the group, they did not explicitly assess self or peer attitudes. This made it impossible to directly triangulate students' attitudes towards members of the target group on additional measures with their BSDS data. Collecting additional quantitative data about self and peer attitudes towards marginalized groups to compare to the BSDS data could reveal whether individuals' attitudes are actually changing, or if any observed changes on the BSDS are merely a product of using the BSDS for the activity.

Third, Maurer (2013) compared two groups in evaluating the activity: students who received the lecture material and participated in the BSDS activity, and students who received only the lecture material. However, these groups were actually different in two ways; the BSDS activity group both participated in the BSDS activity, and as a product of the activity, saw their peers' responses on the BSDS. The students in the lecture only control group did not get to see their peers' responses on the BSDS. Without an additional experimental condition in which students saw their peers' responses on the BSDS, but did not participate in the BSDS activity, it is impossible to make conclusive attributions

for the cause of the greater change in students' attitudes in the BSDS activity group.

For example, it may be possible that instead of participation in the activity driving the larger change in students' attitudes, group polarization or conformity to group norms could be the causal agent, as Maurer (2013) acknowledged. Group polarization is described as the tendency to increase the extremity of one's position following a group discussion of a relevant issue (Krizan & Baron, 2007). This explanation would require shifts in attitudes in both directions: students who initially held more positive attitudes towards the target group would shift their attitudes in the positive direction and students who initially held less positive attitudes towards the target group would shift their attitudes in the less positive direction. However, Maurer's (2013) data showed no negative shift in attitudes. Further, group polarization is a phenomenon that specifically applies to deliberating groups, not to individuals making their own judgements separately (Sunstein, 2007). The activity Maurer (2013) tested focused on discussion, not deliberation.

Rather than requiring students to collaborate to all agree on the "best" answer to how they felt about the target group, students each made their own individual judgments. For these reasons, it is unlikely that group polarization was the causal agent.

The other competing explanation for Maurer's (2013) results is that students did not actually change their attitudes towards the target group, but simply conformed to majority opinion: at pretest, two-thirds of the participants already endorsed the highest level of the BSDS, creating a clear majority opinion to which other students may have felt pressured to conform (Cialdini & Goldstein, 2004). Such conformity is even more likely when an individual's opinion is already closer to the majority opinion (e.g., only slight opposition as compared to strong opposition, Erb, Bohner, Rank, & Einwiller, 2002); in Maurer's (2013) study, 24% (out of 32% who did not endorse the highest level of the BSDS at pretest) endorsed the second-highest level of the BSDS at pretest (i.e., the next most positive level). This suggests a strong possibility that Maurer's (2013) observed changes in attitudes in the activity group were a product of conformity to social norms, rather than anything about the activity itself.

Fourth, the target group Maurer (2013) used (i.e., "homosexuals") had a pronounced ceiling effect, with two-thirds of students selecting the highest level on the BSDS at pretest. By selecting a target group for which there was already so much social acceptance among the participants, an artificial constraint on the effectiveness of the activity may have been introduced. It may be possible to observe greater changes in attitudes for target groups that are not as socially accepted.

For the current study, an additional target group, "atheists," was selected. Atheists were chosen as the additional target group for five reasons. First, as Gervais (2011) noted,

there may be strong parallels between attitudes toward atheists and attitudes toward homosexuals. Like anti-atheist prejudice, sexual prejudice is consistently associated with religion (e.g., Herek, 1987; Rowatt et al., 2006). Like atheism, homosexuality is concealable, and people may similarly be uncertain of how numerous atheists and homosexuals actually are. (p. 553).

Second, atheists are consistently rated as one of the least socially accepted groups in the United States, and unlike other minority groups, atheists have not seen a noticeable increase

in acceptance in 40 years (Edgell, Gerteis, & Hartmann, 2006; Pew Research Center, 2017, 2014b; Shafer & Shaw, 2009). This is despite the as much as threefold growth in the percentage of Americans who may be atheists over that same period (Twenge, Sherman, Exline, & Grubbs, 2016). In fact, anti-atheist prejudice appears to be uniquely resistant to change (Edgell et al., 2006), which makes it the ideal choice for an investigation into different educational techniques for changing attitudes.

Third, like homosexuals, atheists are marginalized and persecuted both in the United States and globally (Cragun, Kosmin, Keysar, Hammer, & Nielsen, 2012; Djupe & Calfano, 2013; Franks & Scherr, 2014; Gervais, Shariff, & Norenzayan, 2011; International Humanist and Ethical Union, 2012; Jacoby, 2004; Wallace, Wright, & Hyde, 2014). Fourth, intolerance towards both atheists and homosexuals is especially prevalent in the American South, and remains uniquely strong even after controlling for religious factors like theological conservatism (Ellison, 1993). Additionally, a smaller percentage of Americans who do not identify with any religion (which includes atheists) reside in the American South than in other areas of the United States (Cragun et al., 2012), and the growth in this category over the past 40 years has been smaller in the American South than other areas (Twenge et al., 2016). Given the location of the current research at an institution in the American South, the selection of atheists as a target group seemed especially appropriate. Finally, as many as 30% of those between 18-29 years old in the United States may be atheists (Twenge et al. 2016), which would make them the largest minority group among the college-aged population in the United States.

Current study

The current study seeks to replicate and extend the findings of Maurer's (2013) investigation. It will address the four major shortcomings of Maurer's (2013) investigation by including a second, delayed BSDS posttest, additional measures of self and peer attitudes towards the target groups (Gervais, 2011, Gervais et al., 2011; Pew Research Center 2014, 2017; Wojcieszak, 2011, 2012), an additional experimental condition in which participants view their peers' attitudes on the BSDS but do not participate in the BSDS activity, and two target groups (i.e., homosexuals and atheists).

Further, as Felten (2013) notes, "good practice [in SoTL] requires that inquiry into learning be conducted in partnership with students." (p. 123). Partnering with students, particularly undergraduate students, is becoming an increasingly common and increasingly researched practice in SoTL (e.g., Werder & Otis, 2010). Additionally, Maurer (2017) has called for SoTL scholars to pay explicit attention to undergraduate students' learning from the research process itself when students participate in SoTL projects as co-inquirers, "broadening the definition of 'learning' under investigation to include student collaborators' own learning from the process." (p. 5). The second author on this manuscript was an undergraduate co-inquirer on this project and her explicit reflections on her learning from the co-inquiry process will also be included.

Hypotheses

Hypotheses 1 and 2 are competing hypotheses.

Hypothesis 1 (conformity):

- a. Scores on the BSDS will become more positive over time in the Display and Activity conditions than the Control condition.
- b. Scores on the attitude and perception questions will change more over time in the Display and Activity conditions than the Control condition.

Hypothesis 2 (activity):

- a. Scores on the BSDS will become more positive over time in the Activity condition than in the Display and Control conditions.
- b. Scores on the attitude and perception questions will change more over time in the Activity condition than in the Display and Control conditions.

Hypothesis 3 (target group):

- a. Scores on the BSDS will be more positive for the target group “homosexuals” than for the target group “atheists.”
- b. Scores on the attitude and perceptions questions will be more positive for the target group “homosexuals” than for the target group “atheists.”

METHOD

Participants and Recruitment

Participants were undergraduate students enrolled in one of nine sections of an introductory Family Science course at a rural southeastern U.S. public university with an enrollment of approximately 20,000. All selected sections of the course were taught by the first author. There were no prerequisites for the course, but the course was a required prerequisite for upper division courses in the Child & Family Development curriculum. Typically, half of the students enrolled were taking the course to satisfy the prerequisite requirement and half were taking it as a free elective.

Data collection for this project took three years, with three sections of the course offered each year (fall, spring, and summer), beginning in 2013. From fall 2013 through spring 2015, the target group assigned was “homosexuals.” The fall 2013 class was assigned the Control condition, the spring 2014 class was assigned the Display condition, and the summer 2014 class was assigned the Activity condition. Because enrollment in the summer sections was typically one-third of the enrollment of the fall and spring sections, and additional fall or spring section was used to collect data for all conditions assigned to summer. In this case, the fall 2014 class was also assigned to the Activity condition. However, due to an inadvertent deviation from the activity protocol, data from this section had to be dropped and are not reported in the participant numbers or analyses below. Instead, the spring 2015 class was also assigned to the Activity condition for the “homosexual” target group. The remaining sections (summer 2015 through fall 2016) were assigned to the target group “atheists.” The summer and fall 2015 classes were assigned to the Control condition, the spring 2016 class was assigned to the Display condition, and the summer and fall 2016 classes were assigned to the Activity condition.

Students in all selected sections were invited to participate in a research study about different methods for teaching content material in the course. The study was approved by the Institutional Review Board and students were informed that participation would include completing a pre/post questionnaire and one other pre/post measure (the BSDS). In order to link participants’ answers on the questionnaires from pre to post as well as with their responses on the BSDS, participants were instructed to write their university-assigned identification number on the questionnaires. Participants were assured that participation was entirely voluntary and that they did not need to complete the questionnaires if they didn’t want to, that they would receive no credit or incentive for filling out the forms, and that there was no penalty for not participating. Participants were informed that all questionnaire data would be entered by undergraduate research assistants who did not have a list matching names to university identification numbers. Participants were also given the option to complete the questionnaires, but decline to give the researchers permission to use their data by checking a box on the front of the questionnaire. No students declined participation.

Average daily attendance in the course was 75%, so some students enrolled in the course missed the pretest day, the posttest day, the second posttest day, or some combination thereof. A total of 240 students completed all project measures across all three time points, out of 407 students enrolled in the nine sections of the course, representing a response rate of 58.97%. The final sample was 15 men (6.3%) and 225 women (93.8%). The ethnic breakdown of the sample was 143 White (59.6%), 83 African-American (34.6%), four Hispanic (1.7%), five Asian (2.1%), four “other” (1.7%), and 1 participant did not report ethnicity. The age range was 18-46, $M = 20.36$, $SD = 2.61$. In terms of class standing, six (2.5%) students were first year, 88 (36.7%) were sophomores, 117 (48.8%) were juniors, 28 (11.7%) were seniors, and one was “other.” See Table 1 for sample size by condition and target.

Table 1: Sample Size by Condition and Target (N = 240)

Target	Condition			Total
	Control	Display	Activity	
Homosexuals	36	50	50	136
Atheists	34	30	40	104
Total	70	80	90	240

MEASURES

Pre/Post Questionnaire

The pretest questionnaire contained eight questions. The first four questions were demographic questions reported above. Two questions were “feeling thermometer” questions adapted from Wojcieszak (2011, 2012). Participants were instructed, “Only three points on this scale are labeled for simplicity of presentation, but people can select any number between 0-100 to indicate their attitudes. Using this scale, answer the following two questions by placing the number that reflects each attitude (any number between 0-100) in the blank.” For the “atheist” target group, participants were additionally instructed, “An atheist is a person who does not believe in any god(s) or goddess(es).” The scale points labeled were, “0 = Very Unfavorable,” “50 = Neu-

tral,” and “100 = Very Favorable.” Participants were then asked, “What is your general attitude toward individuals who are [target group]?” and, “What is the general attitude that most [university] students have toward individuals who are [target group]?” Numeric scores on these questions were the Own and University dependent variables. The two remaining questions were Likert-type questions used by Maurer (2013). The first read, “I think it would be _____ for a(n) [target group] student to be openly [homosexual/atheist] at [university].” with options from “1 = Very easy” to “5 = Very difficult”. The second read, “If I were a(n) [target group] student at [university], I would feel _____.” with options from “1 = Completely safe and completely free from discrimination and harassment” to “5 = Completely unsafe and completely likely to experience discrimination and harassment”. Responses to these questions were the Open and Feel dependent variables.

The posttest questionnaire contained five questions, the Own, University, Open, and Feel questions again, plus one additional question not used in this investigation.

Bogardus Social Distance Scale

The Bogardus Social Distance Scale [BSDS] was replicated from Maurer’s (2013) adaptation using “homosexuals” and “atheists” as the target groups. Participants were instructed:

Social distance means the degree that individuals desire to associate with others. This scale relates to a special form of social distance known as person to group distance. Place an “x” in each of the blanks that indicate the degree of association you would desire to have with [target group]. Give your first reaction. “I would be willing to have [target group]:

Beneath the instructions were the seven levels of the BSDS, from “1 = As close kin by marriage” to “7 = I’d exclude them from my country.” Participants were given verbal instructions that Level 1 (“As close kin by marriage”) meant that they would be willing to have a member of the target group marry into their family, such as marrying a sibling, a parent, or a child. At pretest, participants in the Activity condition received these instructions on a half sheet of paper with the seven BSDS levels printed below them and spaces to indicate an “x”. Participants were also instructed to indicate their university-assigned identification number on this sheet of paper. Participants in the Control and Display conditions instead read these instructions on a PowerPoint, but the third sentence instead read, “Key the number that indicates the highest degree of association you would desire to have with [target group].” Participants in these two conditions were instructed to enter their numbers via clickers, which all students used for in-class activities. For both Posttest 1 and Posttest 2, BSDS scores were collected with the clickers following those instructions for all conditions.

Procedure

At the beginning of a three-day topic on diversity, the course instructor explained the study and invited students to participate. The instructor stressed that participation was optional and that there was no incentive for participating or penalty for not participating, as noted in Participants and Recruitment, above. The instructor passed out the pretest questionnaire and gave students 10 minutes to complete it. The instructor then collected

the questionnaire, placed the responses in a sealed envelope, and proceeded to the BSDS pretest. Students in the Activity condition received a paper copy of the measure; students in the other conditions viewed the measure via PowerPoint and indicated their responses with clickers. Participants had up to five minutes to complete the BSDS. In the Activity condition, at the end of this time the instructor collected the paper copy forms and set them aside.

Next, the instructor began the lesson for the day, including lecture material on the BSDS, prejudice and discrimination generally, and prejudice and discrimination against homosexuals and atheists specifically. In all conditions, class content was held constant (e.g., lecture material, verbal examples, etc.) to ensure reliable comparisons across groups. In the Control condition, the instructor lectured for the remainder of the class period. In the Display condition, after approximately 30 minutes of lecture, the instructor displayed the distribution of responses to the BSDS and noted that these responses reflected the attitudes of the students in the room to the target group. In the Activity condition, after approximately 30 minutes of lecture, the instructor began the BSDS activity by shuffling the completed BSDS forms and passing them out to students. The instructor explained that by shuffling the forms, no one would receive their own BSDS form back, so during the activity, students should not make assumptions about specific peers’ attitudes towards members of the target group.

The experimental protocol was identical to Maurer (2013). The instructor asked students who had the highest level on the BSDS, “As close kin by marriage,” to stand. All students were asked to look around the classroom to see how many people were standing up, how many were still seated, and note that those standing represented the only people in the room who would be willing to let them marry into their families if they belonged to the target group. The instructor then asked those who had the next highest level on the BSDS checked to join those already standing to represent those who would be friends with members of the target group, and repeated the comments.

This procedure continued through all seven levels of the BSDS.

Upon completion, the instructor facilitated a class discussion about attitudes towards the target group, how those attitudes illustrated course concepts like prejudice and discrimination, and what it would feel like to be a member of the target group in that classroom at that moment. The instructor also asked students to reflect on what it might feel like to be a student who had selected one of the lower levels on the BSDS in that classroom during that discussion. The next two class periods were identical for all conditions, with the instructor finishing the remaining material on the topic of diversity and administering the posttest questionnaire and Posttest 1 of the BSDS at the end. On the antepenultimate date of the course, the instructor administered Posttest 2 of the BSDS.

RESULTS

Correlations between dependent variables

A correlation matrix was computed for all five dependent variables at all time points. Significant correlations emerged between most of the variables. See Table 2.

Table 2: Correlations between Dependent Variables

Variable	BSDS Pretest	BSDS Posttest 1	BSDS Posttest 2	Own Pretest	Own Posttest	University Pretest	University Posttest	Open Pretest	Open Posttest	Feel Pretest
BSDS Pretest	—									
BSDS Posttest 1	.774***	—								
BSDS Posttest 2	.731***	.826***	—							
Own Pretest	-.511***	-.519***	-.426***	—						
Own Posttest	-.480***	-.528***	-.457***	.702***	—					
University Pretest	-.080	.024	.020	.183**	.099	—				
University Posttest	-.134*	-.102	-.087	.229***	.146*	.286***	—			
Open Pretest	.133*	.140*	.142*	-.069	-.025	-.351***	-.144*	—		
Open Posttest	.099	.050	.010	-.125	-.045	-.256***	-.567***	.427***	—	
Feel Pretest	.129*	.126	.086	-.123	-.065	-.365***	-.240***	.658***	.484***	—
Feel Posttest	.153*	.108	.094	-.143*	-.052	-.206**	-.433***	.418***	.793***	.520***

Note. *N* varied from 238 to 240 because of missing data. * $p < .05$, ** $p < .01$, *** $p < .001$

BSDS

A repeated-measures Multivariate Analysis of Variance [MANOVA] was computed with experimental condition (Control, Display, or Activity) and target group (homosexuals, atheists) as the independent variables and highest level on the BSDS as the dependent variable at three time points. A significant multivariate main effect emerged for Time, Wilks' Lambda = 0.77, $F(2, 233) = 34.85$, $p < .001$, partial eta-squared = 0.23, and the Time x Condition interaction, Wilks' Lambda = 0.96, $F(4, 466) = 2.71$, $p < .05$, partial eta-squared = 0.02. The Time x Target, Wilks' Lambda = 0.99, $F(2, 233) = 0.81$, *ns*, and Time x Target x Condition, Wilks' Lambda = 0.97, $F(4, 466) = 1.92$, *ns*, interactions were not significant. However, Mauchly's test indicated that the assumption of sphericity had been violated, Chi-squared (2) = 37.26, $p < .001$, so the Huynh-Feldt correction was used in subsequent tests. With the Huynh-Feldt correction, a within-subjects effect for Time remained significant, $F(1.79, 419.32) = 46.344$, $p < .001$, partial eta-squared = 0.17, but a within-subjects effect for the Time x Condition interaction did not, $F(3.58, 419.32) = 2.48$, $p = .05$. The nonsignificant Time x Condition interaction failed to support either Hypothesis 1a (conformity) or 2a (activity).

The within-subjects effect for Time revealed both linear, $F(1, 234) = 51.33$, $p < .001$, partial eta-squared = 0.18, and quadratic, $F(1, 234) = 37.47$, $p < .001$, partial eta-squared = 0.14, significant effects. These results demonstrated a decline in BSDS scores over time, with a large change between pretest and Posttest 1, and virtually no change between Posttest 1 and Posttest 2.

Significant between-subjects effects emerged for Condition, $F(2, 234) = 11.29$, $p < .001$, partial eta-squared = 0.09, and Target, $F(1, 234) = 19.29$, $p < .001$, partial eta-squared = 0.08, but not the Condition x Target interaction, $F(2, 234) = 1.62$, *ns*. Bonfer-

roni-corrected post hoc tests for Condition indicated that BSDS scores averaged across all three time points were significantly higher in the Control condition than the Display (mean difference = 0.69, $SE = 0.17$, $p < .001$) or Activity (mean difference = 0.75, $SE = 0.17$, $p < .001$) conditions, which were not significantly different from one another. BSDS scores for homosexuals were lower than scores for atheists, supporting Hypothesis 3a. See Table 3.

Change in attitudes and perceptions

A repeated-measures MANOVA was computed with experimental condition (Control, Display, or Activity) and target group (homosexuals, atheists) as the independent variables and responses to the four attitude/perception questions at two time points as the dependent variables. Significant multivariate between-subjects effects emerged for Condition, Wilks' Lambda = 0.93, $F(8, 458) = 2.12$, $p < .05$, partial eta-squared = 0.04, and Target, Wilks' Lambda = 0.83, $F(4, 229) = 11.58$, $p < .001$, partial eta-squared = 0.17, but not the Condition x Target interaction, Wilks' Lambda = 0.96, $F(8, 458) = 1.14$, *ns*. Significant multivariate within-subjects effects emerged for Time, Wilks' Lambda = 0.65, $F(4, 229) = 31.45$, $p < .001$, partial eta-squared = 0.36, and the Time x Condition x Target interaction, Wilks' Lambda = 0.92, $F(8, 458) = 2.58$, $p < .01$, partial eta-squared = 0.04, but not the Time x Condition interaction, Wilks' Lambda = 0.95, $F(8, 458) = 1.38$, *ns*, or the Time x Target interaction, Wilks' Lambda = 0.99, $F(4, 229) = 0.82$, *ns*.

Follow-up univariate ANOVAs revealed significant effects for Condition for only Feel, $F(2, 232) = 3.17$, $p < .05$, partial eta-squared = 0.03, but not Own, $F(2, 232) = 2.73$, *ns*, University, $F(2, 232) = 1.99$, *ns*, or Open, $F(2, 232) = 1.74$, *ns*. Bonferroni post hoc tests for Feel did not yield significant differences between

Table 3: BSDS Means and Standard Deviations by Condition, Target, Group, and Time (N = 240)

Condition	Time								
	Pretest			Posttest 1			Posttest 2		
	Target Group			Target Group			Target Group		
	Homosexual	Atheist	Total	Homosexual	Atheist	Total	Homosexual	Atheist	Total
Control	2.14 (1.20)	3.18 (1.60)	2.64 (1.49)	1.81 (0.92)	2.56 (1.33)	2.17 (1.19)	1.83 (1.06)	2.91 (1.66)	2.36 (1.48)
Display	1.94 (1.45)	2.37 (1.56)	2.10 (1.50)	1.34 (0.98)	1.90 (1.42)	1.55 (1.19)	1.30 (0.95)	1.67 (1.06)	1.44 (1.00)
Activity	1.62 (0.92)	2.23 (1.17)	1.89 (1.08)	1.36 (0.69)	1.68 (1.00)	1.50 (0.85)	1.40 (0.70)	1.68 (0.97)	1.52 (0.84)
Total	1.88 (1.22)	2.58 (1.49)	2.18 (1.38)	1.47 (0.89)	2.03 (1.29)	1.71 (1.11)	1.48 (0.92)	2.08 (1.38)	1.74 (1.18)

the three Conditions.

Follow-up univariate ANOVAs revealed significant effects for Target for Own, $F(1, 232) = 38.64, p < .001$, partial eta-squared = 0.14, and University, $F(1, 232) = 6.72, p < .05$, partial eta-squared = 0.03, but not Open, $F(1, 232) = 0.09, ns$, or Feel, $F(1, 232) = 0.25, ns$. For both Own and University, students reported colder attitudes towards atheists than homosexuals, supporting Hypothesis 3b.

Follow-up univariate ANOVAs revealed significant effects for Time for all four dependent variables: Own, $F(1, 232) = 46.67, p < .001$, partial eta-squared = 0.17, University, $F(1, 232) = 4.96, p < .05$, partial eta-squared = 0.02, Open, $F(1, 232) = 65.40, p < .001$, partial eta-squared = 0.22, and Feel, $F(1, 232) = 56.96, p < .001$, partial eta-squared = 0.20. For Own, students' attitudes became warmer from Pretest to Posttest 1. For University, students perceived the average university student's attitude to be colder at Posttest 1 than Pretest. See Table 4. For both Open and Feel, students' scores increased from Pretest to Posttest 1, indicating that students perceived it to be more difficult and more unsafe on campus for members of their Target group.

Follow-up univariate ANOVAs revealed significant effects for the Time x Condition x Target interaction for Open, $F(2, 232)$

= 6.95, $p < .01$, partial eta-squared = 0.06, and Feel, $F(2, 232) = 4.46, p < .05$, partial eta-squared = 0.04, but not Own, $F(2, 232) = 2.71, ns$, or University, $F(2, 232) = 1.03, ns$. Follow-up univariate ANOVAs for Open revealed a significant Time x Condition interaction for the atheist Target group, $F(2, 233) = 5.57, p < .01$, partial eta squared = 0.05, but not the homosexual Target group, $F(2, 233) = 2.91, ns$. Specifically, within the atheist Target group significant differences in scores on Open occurred from Pretest to Posttest 1 in the Control, $F(2, 233) = 10.43, p < .001$, partial eta squared = 0.04, and Activity, $F(2, 233) = 35.46, p < .001$, partial eta squared = 0.13, Conditions, but not in the Display Condition, $F(2, 233) = 0.49, ns$. For both the Control and Activity Conditions, scores increased over time, indicating that students perceived it to be more difficult to be openly atheist on campus than they had originally believed. These results failed to support either Hypothesis 1b (conformity) or 2b (activity).

Follow-up univariate ANOVAs for Feel did not yield significant effects for either the atheist Target group, $F(2, 233) = 2.52, ns$, or the homosexual Target group, $F(2, 233) = 2.02, ns$.

Table 4: Feeling Thermometer Means and Standard Deviations by Condition, Target Group, and Time (N = 238)

Condition	Variable											
	Own						University					
	Pretest			Posttest			Pretest			Posttest		
	Target Group			Target Group			Target Group			Target Group		
	H	A	Total	H	A	Total	H	A	Total	H	A	Total
Control	62.72 (23.07)	41.91 (23.74)	52.61 (25.48)	69.94 (19.76)	50.44 (19.55)	60.47 (21.85)	47.53 (19.57)	40.74 (21.17)	44.23 (20.50)	39.17 (17.90)	33.65 (20.42)	36.49 (19.22)
Display	68.29 (24.48)	53.79 (24.48)	62.90 (25.33)	77.87 (20.98)	57.76 (24.48)	70.40 (24.25)	45.98 (19.59)	45.34 (23.22)	45.74 (20.86)	47.08 (21.08)	43.52 (22.19)	45.76 (21.42)
Activity	64.04 (25.50)	45.85 (22.52)	55.96 (25.75)	70.98 (24.58)	61.13 (20.52)	66.60 (23.27)	45.54 (17.97)	42.43 (14.23)	44.16 (16.40)	47.92 (17.02)	35.50 (20.96)	42.40 (19.76)
Total	65.23 (24.44)	46.79 (23.73)	57.25 (25.77)	73.21 (22.21)	56.65 (21.69)	66.04 (23.43)	46.23 (18.88)	42.69 (19.33)	44.70 (19.11)	45.28 (19.04)	37.15 (21.33)	41.76 (20.42)

Note. H = Homosexual, A = Atheist

DISCUSSION

This study sought to explore how to most effectively teach about issues of prejudice, stereotyping, and discrimination, particularly with an eye towards reducing them and engaging students in deeper learning about diversity. Specifically, we attempted to replicate and extend the findings of Maurer's (2013) investigation, addressing the four major shortcomings of that investigation. This study included a second, delayed BSDS posttest to assess the stability of any changes in student attitudes from pretest. Second, this study included additional measures of self and peer attitudes towards the target groups (i.e., feeling thermometers) to triangulate with BSDS scores and compare across the experimental conditions. Third, this study included an additional experimental condition in which students viewed their peers' attitudes towards the target group on the BSDS, but did not participate in the BSDS activity, so that a competing theoretical explanation for the change in students' attitudes (i.e., conformity to group norms, Cialdini & Goldstein, 2004) could be tested. Fourth, this study compared data for two marginalized target groups (i.e., homosexuals and atheists) to explore differential effects from the experimental conditions depending on the target. Additionally, this study sought to include explicit undergraduate student co-inquirer reflection on learning from the co-inquiry process.

It was hypothesized that changes over time in BSDS scores, as well as changes in other attitude and perception measures, would be larger for both the Display and Activity conditions (Hypothesis 1: Conformity) or just the Activity condition (Hypothesis 2: Activity), than the Control condition. Additionally, it was hypothesized scores on the BSDS and the other attitude and perception measures would be more positive for the target group "homosexuals" than the target group "atheists." Only limited support was obtained for the project hypotheses.

As seen in Tables 3 and 4, significant positive shifts in students' attitudes occurred over time, both on the BSDS and the Own feeling thermometer, and for both target groups. Further, the shifts on the BSDS from pretest to Posttest 1 appeared to be stable, with no statistically significant change in students' attitudes from Posttest 1 to Posttest 2. Both these positive shifts in students' attitudes, and the apparent stability of such shifts, are extremely encouraging findings for educators who teach about issues of prejudice and discrimination. Unfortunately, there appeared to be no differences between the three conditions in the effectiveness of the teaching methods in promoting these attitude shifts, failing to support Hypothesis 1a and 1b and Hypothesis 2a and 2b. The sole significant finding of differences by Condition was the lack of a significant change from pretest to posttest in the Open variable for participants in the Display condition with the atheist target (vs. a significant change from pretest to posttest in both of the other conditions). This finding did not support either Hypothesis 1b or 2b and no obvious interpretation of this aberration is apparent.

Additionally, the significant between-subjects effect for Condition for BSDS scores revealed higher average scores (i.e., less positive) in the Control condition than either the Display or Activity conditions. Coupled with the significant within-subjects effect for Time and the lack of a significant Time x Condition interaction, these results suggest a pre-existing difference between the students in the Control condition and those in the Display and Activity conditions such that their attitudes towards

both target groups were initially less positive, yet equally open to change.

At first glance, the failure to support either Hypothesis 1 or Hypothesis 2 might suggest that these null findings contribute little to the literature on teaching about issues of prejudice and discrimination. However, it is important to remember that this investigation is an example of a "What works?" SoTL question (Hutchings, 2000) and such questions focus on how student learning from multiple methods compare (Maurer & Law, 2016). In this case, the answer to the question of "What works?" appears to be, "everything." All three methods--lecture only, lecture plus seeing peer attitudes, and lecture plus the BSDS activity--appear to be equally effective at positively shifting student attitudes towards marginalized groups, and those changes appear to be lasting. In some respects, this is not surprising. As Hattie (2009) has argued, "everything works" in education (p. 15); the larger question is how *well* something works. The threshold Hattie (2009) established for the "zone of desired effects" is anything in excess of the average effect size for all influences in education: Cohen's $d = 0.40$. According to Cohen (1988), an eta-squared of 0.039 is equivalent to $d = 0.40$, so any eta-squared values greater than 0.039 would fall in the zone of desired effects. In this investigation, the partial etasquared effect sizes for change in BSDS scores over time were 0.18 and 0.14 for the linear and quadratic effects, respectively. Similar effect sizes were observed for changes over time in Own (0.17), Open (0.22), and Feel (0.20). All of these changes are significantly in excess of the minimum threshold for the zone of desired effects and represent pedagogical success.

Alternatively, a more parsimonious explanation for these findings would be that it was the course lecture--the only constant across all three conditions--that was the causal agent of the changes in student attitudes and that neither seeing their peers' attitudes nor participating in the BSDS activity further influenced those attitudes. As both explanations differ from Maurer's (2013) findings, there is insufficient evidence to conclude which is more likely responsible for the observed change in student attitudes. Future research is necessary to drill deeper into what is driving these changes and better understand "what works" in teaching about issues of prejudice and discrimination. Such research could incorporate different experimental approaches, including conducting the two experimental groups in courses without the lecture content or selecting target groups that are not discussed in the lecture material.

The strongest support for the project hypotheses was obtained for Hypothesis 3 concerning differences between the two target groups. Hypothesis 3a was fully supported: scores on the BSDS were more positive for the target group "homosexuals" than the target group "atheists" across all three conditions and all three time points. These findings are wholly consistent with the existing literature that atheists are consistently rated as one of the least socially accepted groups in the United States (Edgell et al., 2006; Pew Research Center, 2017, 2014b; Shafer & Shaw, 2009). However, prior research has established that antiatheist prejudice appears to be uniquely resistant to change (Edgell et al., 2006), yet that was not the case in this investigation. To the contrary, there were no interactions with the Target variable for the BSDS. This means that BSDS scores for atheists were no more difficult to change than BSDS scores for homosexuals. In fact, the difference across conditions from pretest to Posttest 2 in BSDS

scores was extremely similar for homosexual targets (-0.40) and atheist targets (-0.50).

Similar results were obtained for Hypothesis 3b, which was partially supported: Scores on the feeling thermometer questions--both Own and University--were more positive for the target group "homosexuals" than for the target group "atheists," but no significant differences emerged for the Open and Feel variables. With the exception of the sole Time x Condition x Target uninterpretable interaction for the Open variable noted above, there were no interactions with the Target variable. The change in the Own feeling thermometer from pretest to Posttest 1 for homosexual targets (+7.98) and atheist targets (+9.86) was extremely similar, as was the case for the BSDS. In both cases, the objective magnitude of the change appears to be quite similar for both target groups; it is just that participants have less positive initial attitudes towards atheists. Again, these findings are extremely encouraging for educators who teach about issues of prejudice and discrimination.

However, it bears noting that although there was a Target difference in student perceptions of the average university student's attitude towards members of the target group, and attitudes towards atheists were colder than attitudes towards homosexuals, there was very little change from pretest to Posttest 1 in any of the conditions for either target, and the effect size for the change over time was miniscule. Additionally, for both the Open and Feel variables, students perceived it to be more difficult and more unsafe on campus for members of their target group, regardless of which Target they received. In some respects, these results are encouraging because they suggest that students are beginning to realize the difficulty of belonging to a marginalized group, whatever that group may be. However, despite the similarities between the target groups (Gervais, 2011), it is unlikely that members of the two groups face equal difficulty in being "out" or are at equal risk for their physical safety. Future qualitative research that could ask more specific and tailored questions about students' perceptions about each target group could further illuminate the differences in the ways that students understand the difficulty of belonging to different marginalized groups.

Limitations and future directions

This project replicated and extended Maurer's (2013) investigation into the effectiveness of the APA Task Force (1998) recommended BSDS activity. Although it addressed four significant shortcomings of that investigation, it was not without limitations of its own. First, it was an investigation into a single course, taught multiple times by a single instructor, at a single institution. Replication in other courses with other instructors and at other institutions is needed. Second, the sample in this investigation was almost 94% women, and it is well-documented that women are both more tolerant of homosexuals (Pew Research Center, 2014a) and less tolerant of atheists (Edgell et al., 2006) than men. This gender imbalance could have artificially inflated the difference in perceptions by target group. Replication with a more gender-balanced sample could address this possibility. Third, the participation rate in this investigation was 59% (i.e., only 59% of students completed all three points of data collection). It is possible that students who missed one or more points of data collection may have responded differently from students who were in attendance for all three. However, it is important to remember

that students who missed either the pretest or Posttest 1 also missed part of the relevant lecture material and potentially one of the experimental methods, so their exclusion would still have been required. Additionally, the participation rate was similar to that reported by Maurer (2013) of 67% for just a two time point investigation. This similarity facilitates comparison between the two studies, which is especially important given their divergent findings. In fact, the first two limitations were also reported by Maurer (2013) in that investigation, again facilitating comparisons.

Fourth, although BSDS scores were collected in a second posttest, the four additional dependent variables were not. Although this investigation established some long-term stability in changes in BSDS scores, it remains unknown if the other observed changes in dependent variables were equally as stable. Future research, preferably with multiple long-term posttests, is needed.

Fifth, the measures used in this investigation were purely quantitative. Qualitative methods may be required to gain a deeper understanding of why the pattern of results that emerged did emerge. Additionally, the relatively small correlation between BSDS scores and Own feeling thermometer scores (roughly 25% of the variance) suggests the two quantitative measures may be tapping into different concepts. Indeed, the BSDS, as a measure of social distance, may be more akin to the notion of "tolerance" whereas the feeling thermometer may be more similar to "acceptance." Future qualitative research could explore this possibility. Further, one interesting difference between the two target groups as it applies to the BSDS is that the closest level on the BSDS, level 1 ("as close kin by marriage"), has different meaning for the two target groups. With the atheist target group, selecting level 1 means that a person is willing to allow an atheist to marry into their family, but it does not necessarily mean that an existing family member is *also* an atheist (i.e., atheists and theists could potentially marry). With the homosexual target group, selecting level 1 means that a person is willing to allow a homosexual to marry into their family, but this only makes logical sense if the family member who they are marrying is *also* homosexual (or bisexual). This is a critical difference between the two target groups and one that was beyond the scope of the current investigation to explore. Future research, especially qualitative research that could probe how this difference might affect participants' perceptions and why, could be of particular value.

Student reflection on co-inquiry

Having the opportunity to both be a part of data collection and analysis as well as a participant in this study was a really eye-opening experience. I started my involvement with the project by learning data entry and eventually moved into learning the beginning steps of how to statistically analyze data. As I continued to work with this project, I became more interested in the project questions about how education can help change attitudes and promote diversity. Eventually this newly discovered interest offered some amazing opportunities to present this work at conferences such as NCUR 2016 and ISSOTL 2016. It also gave me the opportunity to have a student's perspective when analyzing the data. I enrolled in one of the BSDS activity sections of the course used in this project, which allowed me to see first-hand what the students in the project were experiencing.

As a student in the course, my strongest reactions came from participating in the BSDS activity. It seemed to me that

for many of my peers, participating in the BSDS activity was an eye-opening experience. The class discussion of the results of the BSDS activity gave the students in my class the opportunity to think through how their own opinions on the target group, which for that course was “atheists,” could affect the people around them. Many students voiced during the discussion that they didn’t know just how much more common atheism is than people assume, and that they now realized that their negative attitudes towards atheists could be hurting people around them. In one memorable instance, a classmate who had recorded a higher score (a more prejudiced score) on their BSDS pretest openly discussed how before this activity they had never taken the time to think about why they may be prejudiced against this target group, and how after the class discussion, they realized their prejudice and had become more open minded to be more inclusive with atheists and identify the other prejudices in their life. The richness of the impact of the activity on this student may not be apparent from the quantitative results. One reviewer asked us to address the power issues in faculty members conducting inquiry in their own classes and suggested that using a third party to administer the surveys throughout the course may form stronger ethical practice. As part of my role as a co-inquirer on this project, I had to complete a research ethics training course, so I understand the reviewer’s concern. However, I think that removing the faculty member from this part of the research process could have unintended negative consequences that could actually undermine efforts to improve the teaching and learning environment.

As a student, I have participated in multiple third party surveys conducted during class time and I have noticed that often times these activities are not taken seriously by other students in the course and are seen as opportunities to delay the resumption of class time. Although some students take these opportunities seriously, many others rush through the surveys to give themselves more free time before class resumes. Speaking from my own experience as a student in the classroom during this research, I can report no feelings of coercion or even any awareness of a power dynamic. Instead, I saw a teacher who was sincerely concerned about improving his own teaching and his students’ learning and was trying to work with his students to better understand their learning. I have never gotten that impression when I have participated in a third party survey in a course, and I think that approach—though well intended—loses something special about the nature of inquiry into one’s own teaching and misses the opportunity to really engage in meaningful partnership with students on SoTL research (Felten, 2013, Werder & Otis, 2010).

The idea of student partnership is especially important to me, because having the opportunity to be not just a research assistant but a co-inquirer on this project gave me a unique experience. Many undergraduate research opportunities give students the chance to learn about the process of research, education, and scholarship through a hands on experience, but few give students the chance to meaningfully influence the final product. My faculty co-author and I frequently discussed the results of the project, not just the data analysis, but also what elements of the student experience of the BSDS activity might not be reflected in the data analysis—elements that I was uniquely situated to see. These discussions shaped not only this paper, and our revisions to it as a result of the review process, but also multiple joint presentations

we have made and multiple presentations I have delivered solo. I hope to continue to put what I learned through this project into my future scholarly endeavors.

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