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Impact of a simulation on educator support of LGBTQ youth

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ABSTRACT

LGBTQ youth frequently experience bullying and harassment in the school setting. Teachers are in an ideal position to prevent student harassment, yet most don't have adequate training. This study evaluated the effectiveness of "Step In Speak Up," an interactive online simulation. In a randomized controlled trial, 1390 participants received "Step In Speak Up" or no intervention. Participants were assessed pre- and post-intervention on the Gatekeeper Behavior Scale and attitudes toward the simulation. Results demonstrated significant differences ($p < 0.001$, multivariate $\eta^2_{partial} = 0.17$) between the training and control groups on learners preparedness, likelihood, and self-confidence in managing bullying behavior.

For students who identify as Lesbian, Gay, Bisexual, Transgendered, or Questioning (LGBTQ), school can be a hostile environment where bullying and harassment occur frequently due to students sexual orientation or gender expression. Roughly 6% of youth identify as LGBTQ and these students are at high risk for bullying (Human Rights Watch, 2001). Many LGBTQ students are fearful in their learning environment, because of high levels of verbal and physical harassment; 63% of LGBTQ youth report feeling unsafe in school because of their sexual orientation (Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012). Roughly 80% of LGBTQ students report being verbally harassed, 38% report being physically harassed, and 18% physically assaulted (punched, kicked, or injured with a weapon) because of their sexual orientation (Kosciw et al., 2012).

Homophobic remarks are frequently used by students and even by teachers or other school staff; roughly 71% of LGBTQ students report hearing homophobic remarks frequently in the school setting and 56% of all students report hearing those remarks made by teachers or other school staff

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(Kosciw et al., 2012; Gay, Lesbian, and Straight Education Network (GSLEN), 2016b). Although homophobic insults are directed at LGBTQ and non-LGBTQ youth alike and the interpretation of homophobic insults is situationally dependent and not always perceived negatively by adolescents, the use of homophobic insults can harm LGBTQ youth in a number of ways nonetheless (Hunt et al., 2016). It is important to recognize that students suffer homophobic bullying irrespective of their actual sexual orientation (Hong & Garbarino, 2012; Stonewall, 2017). Often students suffer instances of homophobic bullying or labeling before they have even defined their own sexuality. Roughly 75% of students who are harassed about sexual orientation do not identify as LGBTQ (D'Augelli & Dark, 1994). Thus, LGBTQ bullying affects more than solely youth who identify as LGBTQ. Bullying through the use of anti-homophic labeling can be harmful when the recipient identifies as straight or cis-gendered if the victim associates homophobic feelings or negative qualities to the label, fears association of such qualities by others, or finds the labeling of their sexual or gender identity offensive (Slaatten, Hetland, & Anderssen, 2015).

In an international context, research on LGTBQ bullying indicates that, despite broad and extensive policy change, students continue to struggle with bullying and much improvement is required as it relates to cultural inclusivity, student safety and teacher training. In the UK, research on LGTBQ student experiences indicates that while anti-LGTBQ bullying and offensive language has decreased across schools from 2012–2017, almost half of all LGTB students still face bullying at school for being LGTB (Stonewall, 2017). Research on LGTBQ students and faculty experiences within Australian schools suggests that the culture that exists within educational systems continue to be dominated by heteronormalcy, marginalizing both LGBTQ students and faculty, despite recent policy change (Jones, Gray, & Harris, 2016). Research on the experiences of LGBTQ students in South African schools indicates that the educational system proliferates heteronormativity, promoting gender and sexuality binaries through curriculum and organizational culture and promotes the ideology that all learners conform to a single standard form of gender expression (Francis, 2017).

Bullying is linked to a host of negative outcomes, including suicide and homicide. Children who are bullied by their peers are at greatest risk for suicidal thoughts and behavior, and in the majority of school shootings, the shooters had a history of being bullied (DHHS, 2013) . LGBTQ youth are five times more likely to report suicidal ideation, three times more likely to engage in self-harm (Almeida, Johnson, Corliss, Molnar, & Azrael, 2009), and four times as likely to commit suicide than their straight peers (National Youth Association, 2010). Students questioning their sexual orientation report the highest levels of bullying, drug use, truancy, feelings

of depression, and suicidality when compared with heterosexual or LGB students (Birkett, Espelage, & Koenig, 2009). Youth who experience bullying based on sexual orientation have lower grade point averages, feel less of a sense of belonging to their school community and have more discipline issues than other students (Murdock & Bolch, 2005).

A safe and supportive learning environment is essential for promoting student achievement. Positive school climate and a lack of LGBTQ bullying make a difference in student outcomes. LGBTQ youth report that supportive school personnel help them cope and remain resilient in the face of bullying (Marshall, Yarber, Sherwood-Laughlin, Gray, & Estell, 2015). Schools have the ability to improve outcomes for LGBTQ students through creating positive climates, reducing bullying and harassment, and impacting the attitudes of heterosexual students (Birkett et al., 2009; Russell, Kosciw, Horn, & Saewyc, 2010). Teachers are in an ideal position to prevent student harassment, as they spend the majority of the school day in direct contact with students (Rutledge, Rimer, & Scott, 2008). However, teachers do not have adequate training to recognize and intervene when LGBTQ bullying occurs (Szalacha, 2003). Seventy-five percent of LGBTQ students report that when bullying and harassment occurs, teachers do nothing to stop it (Equality for Gays and Lesbians Everywhere, 2011). In fact, students report that teachers use anti-LGBTQ language or ignore it when their colleagues use it, thereby perpetuating heteronormative biases (GLSEN, 2016).

The majority of teachers are not fully prepared during teacher education programs to address LGBTQ bullying: only 33% of teachers reported receiving training in LGBTQ issues and 24% in transgender issues (GSLEN, 2016). Pre-service teachers report a willingness to serve as an ally to LGBTQ students and address related bullying and harassment; however, they lack an understanding of the issues surrounding LGBTQ bullying and therefore the knowledge needed to be effective allies (Millburn and Palladino, 2012). In addition, teachers acknowledge the importance of supporting LGBTQ youth; unfortunately, this positive attitude does not consistently translate to action or intervention on LGBTQ students behalves in the face of bullying behavior (Swanson & Gettinger, 2016).

The growing national awareness of both school bullying and the specific targeting of LGBTQ individuals has placed an increased level of accountability on school systems to ensure that they are not developing or promoting a hostile learning environment (Kimmel, 2016). As a result, school systems are increasingly implementing policy changes and teacher training programs to promote a more inclusive learning climate. Despite changes in policy, teacher training, and Title IX protections there continues to be room for improvement (Kimmel, 2016). Pennell (2017) recommends that rather than focus on inclusion, teacher training should encourage the identification of systematic

heterosexism within educational institutions and address underlying issues that create homophobic and transphobic environments. Finally, teacher training should not be done solely as a reaction to anti-homophobic bullying, but rather as a means to supply teachers with actionable ways to improve classroom and school environments (Pennell, 2017).

Among the recommendations for promoting the safety and wellbeing of LGBTQ youth in schools are anti-bullying policies, teacher training on effective bullying intervention strategies, and school-based support groups (Russell et al., 2010). However, less than half of teachers reported that their school district conducted anti-bullying trainings (Perez, Schanding, & Dao, 2013; Swanson & Gettinger, 2016). Inclusion of bullying prevention strategies and LGBTQ student needs in teacher preparation programs would help teachers to be better trained to intervene when classroom bullying and harassment occurs (Perez et al., 2013; Cook & Eby, 2014).

In addition, teacher preparation programs should provide professional development related to creating safe learning environments and supporting LGBTQ youth (GLSEN, 2016). Kitchen and Bellini (2012) investigated how teacher preparation programs can more effectively implement LGBTQ bullying prevention training into the curricula. They conducted a workshop entitled "Sexual Diversity in Secondary Schools" and as a result, many teachers identified ways that they could create safe and positive spaces for LGBTQ youth in their own classrooms . Faculty at St. Francis Xavier University conducted a similar training program entitled "Positive Space," which included two 3h workshops integrated into two undergraduate teacher preparation courses. The focus of the training program was on becoming an ally to LGBTQ youth, and participants reported an increased understanding of the issues that LGBTQ youth face (Kearns, Kukner, & Tompkins, 2014).

Most LGBTQ teacher professional development is provided by school districts during in-service trainings or workshops (Szalacha, 2004). The "Respect for All" training program for secondary school educators comprised a two-day professional development seminar that included group discussions, presentations, videos, role-playing, and provision of training materials and resources, including activities to use with students and posters to be displayed in the school setting (Greytak & Kosciw, 2010). Participants demonstrated an increase in knowledge related to LGBTQ terms, resources, and issues, improved communication with students and staff regarding LGBTQ issues, and increased engagement in efforts to create safe schools for LGBTQ students (Greytak & Kosciw, 2010).

The Massachusetts Department of Education conducted over 700 workshops across the state (Szalacha, 2004). Attendees reported increased awareness of LGBTQ-related community resources and students in schools that received the "Safe Schools Program" training reported feeling supported by teachers.

However, the format and duration of the trainings varied considerably across schools, with some trainings lasting a couple of hours and others lasting multiple days (Szalacha, 2004). This lack of consistency across the trainings makes it difficult to effectively analyze the impact of the training and to determine which components should be replicated in other states and school districts.

Current efforts to train teachers on LGBTQ bullying prevention can be very time consuming and long-term and widespread effectiveness has not been demonstrated. The GLSEN recommends that each school have a "Safe Space Kit," which includes practical advice on supporting LGBTQ students and making teachers classrooms a safe space for students in the publication a "Guide to Being an Ally" (GLSEN, 2016). However, providing reading material for teachers does not ensure that they will read and absorb it, nor does it provide discussion or role-playing on how specifically to intervene when bullying and harassment of LGBTQ students occurs. A training that is briefer and involves active learning would be ideal.

In active learning, students work together in cooperative groups to engage in experiential, analytical, critical thinking, and problem solving tasks as opposed to simply reading, taking notes, or listening to course lectures (Zapalska, Brozik, & Rudd, 2012). Simulations provide the opportunity for active and higher order learning through role-playing with students, as users are presented with realistic scenarios, engage in conversations with students, encounter a variety of student responses depending on their actions, and receive feedback for remediation. Computer simulations can help pre-service and new teachers experience active and deeper learning through role-playing without the high-stakes risk of working with real students and potentially causing (or experiencing) harm (Matsuda, 2005). Computer simulations that focus on bullying prevention and intervention are a promising way to train teachers on LGBTQ bullying prevention.

Background

Step in Speak Up

"Step In, Speak Up!" is an online interactive role-play simulation that helps middle and high school educators and staff, as well as youth-serving adults, to understand the challenges that LGBTQ youth face and gives them a chance to practice techniques for creating a safer and more supportive environment, including (1) curtailing instances of harassment and use of homophobic language and (2) connecting with a student who has been the target of harassment. This is accomplished by providing learners with a chance to practice evidenced-based conversation strategies for creating a safer and more supportive environment. The simulation is based on a conversation platform that integrates usage of motivational interviewing (MI)

skills where participants learn how to employ a set of MI conversation strategies originally designed by clinical psychologists for use in counseling sessions with problem drinkers (Miller, 1983). Content for the simulation was based in part from information drawn from critical human rights theory on homophobic bullying (Cornu, 2016; Rivers, 2011; Taylor, 2007). This had an impact on the language used in the simulation as well as communicating the importance of cultural competency and providing an awareness of the barriers experienced by LGBTQ youth.

Motivational interviewing

MI is a goal oriented, client-centered counseling approach initially designed to actively engage clients in identifying their problems and to increase their intrinsic motivation to change their behavior (Miller & Rollnick, 2012). The "Step In Speak Up" simulation integrates the four core MI skills, which include: (1) asking open-ended questions, (2) providing affirmation, (3) reflective listening (listening closely and periodically confirming comprehension), and (4) summarizing client self-assessments. These techniques are associated with effective therapy and are thought to encourage strong rapport and to support behavioral change.

Hypotheses and measures

The overall hypothesis is that participants who completed the simulation will increase their participation in bullying prevention activities, including staff education and student referrals, and increase their likelihood to intervene with bullying in the classroom. Below, specific sub-hypotheses and examples are listed.

Participants who completed the simulation will report:

a. High means efficacy and satisfaction that includes measures of the simulation's usefulness, construction, ease of use, likelihood in helping to support LGBTQ students, based on scenarios that are relevant to the participant and their students, helpful in getting timely help for LGBTQ students who has been teased, harassed or bullied, and helpful in creating a safer learning environment for LGBTQ students.

b. Higher learner preparedness to: (1) manage a student in their classroom who has used derogatory language, such as "fag," "gay," "'mo," or other, (2) discuss with a student their concern about their being teased, harassed, or bullied, (3) connect a student who is being teased, harassed, or bullied to support services (such as a counselor or school psychologist), and (4) use gender-neutral language in class.

c. Higher likelihood or behavioral intent to: (1) stop a class every time a student uses discriminatory language, such as "fag," "gay," "'mo," and others, to address the issue, (2) discuss their concerns with a LGBTQ student who has been teased, harassed or bullied, (3) connect a student who is being teased, harassed, or bullied to support services (such as a counselor or school psychologist), (4) after class, check to see if a teased, harassed, or bullied student is OK, (5) after class, talk with a student who has used discriminatory language, (6) intervene if a LGBTQ student tells you that they are being teased, harassed, or bullied, and (7) communicate to their class(es) that discriminatory language is not allowed.

d. Higher self-efficacy or confidence in their ability to talk to a LGBTQ that is being teased, harassed, or bullied to: (1) discuss their concerns with this student, (2) help this student seek help if they are having thoughts of suicide, and (3) connect this student to support services or a supportive staff member.

e. More awareness of the need to use gender-based language to the classroom and display higher confidence in their ability to manage discriminatory remarks in the classroom.

f. Increased perception that part of the role of faculty, staff, and administrators is to: (a) help create a safe and supportive learning environment for LGBTQ students and (b) connect LGBTQ students experiencing teasing, harassment, and bullying to support services or supportive staff.

g. Increased knowledge about the common challenges facing LGBTQ student population and being helped to actively work to create or maintain a safe environment for LGBTQ students.

h. Increases in the number of conversations they had with other adults in their school community regarding: (1) students they were concerned about because they are being teased, harassed, or bullied, (2) the use of discriminatory language in their classrooms, and (3) how to better support LGBTQ students.

i. Increases in the number of students teased, harassed, or bullied that they have: (1) been concerned about, (2) connected to support services, (3) talked with after class to see if they are OK, and (4) intervened to help. There will also be an increase in the number of students talked to after class because they used discriminatory language.

Method

Participants and design

Participants were recruited by contacting school district administrators in urban, suburban, and rural locations throughout the United States. In turn, participants were contacted via email from district superintendent offices,

principals, and word of mouth. The Baruch College (City University of New York) Human Protections Program Office determined that "Step In Speak Up" is a professional development program and did not meet the definition of human subjects research as defined by the federal regulations 45 CFR 46.102. Participants were provided informed consent and agreed to use of their anonymous responses for scientific publication. The final sample consisted of 2904 participants from 809 schools located throughout the United States, including two states in the West, two states from the Northeast, two states from the Mid-Atlantic region, and two states from the Midwest. Participants were largely middle or high school teachers, in line with the primary audience for whom this simulation is designed. Teachers taught a full range of grade levels, from 6–12th. Demographic information for participants can be seen in Table 1.

As would be expected from the random assignment design, the treatment-and control group did not differ significantly on professional role, previous training on anti-bullying, grade level taught, or initial levels of preparedness to assist a student in psychological distress, likelihood of engaging in helping behaviors, or self-efficacy to engage in such behaviors (all χ^2 and t-test significance values were greater than $p = 0.05$). For a subset of participants located in the Northeastern region of the United States, additional demographic information was collected and demonstrated that the participants were primarily White, female, and in mid-career. The control group and treatment group were not significantly different within this subsample with regard to gender, age, ethnicity, or years spent teaching (all χ^2 significance values were greater than $p = 0.05$).

Measures

Measures used in this study include: (1) demographics, (2) means efficacy, (3) modified Gatekeeper Behavior Scale, and (4) gatekeeper and supportive behaviors.

Demographic data can be seen in Table 1.

Means efficacy

Mean efficacy is a measure of an individual's belief in the utility of the tools available to perform a job and has been correlated with changes in behavior (Eden, Ganzach, Flumin-Granat & Zigman, 2010). It was measured by seven items that were rated on a 5-point Likert response scale that ranged from "not at all to a very little extent" to "to a very great extent" and were administered in the post test (see Table 2).

Gatekeeper Behavior Scale (GBS)

Table 1. Participant demographic information.

	N	%
Gender[a]		
Male	102	25.2
Female	303	74.8
Age[a]		
25 or under	18	4.8
26–35	120	32.0
36–45	115	30.7
46–55	73	19.5
Over 55	49	13.1
Race/ethnicity[a]		
Hispanic or Latino[b]	82	22.5
White	227	75.7
Black/African American	55	18.3
Native Hawaiian/Pacific Islander	1	0.3
Asian	16	5.3
American Indian/Alaska Native	1	0.3
Years working in education[a]		
0–2	57	14.5
3–5	48	12.2
6–10	110	28.0
11+	178	45.3
My professional role is:		
Middle/high school teacher	656	47.2
Staff	160	11.5
Administrator	86	6.2
Psychologist/social worker	24	1.7
University faculty	3	0.2
Other[c]	405	29.1
Missing	56	4.0
Previously received LGBTQ anti-bullying training?		
Yes	566	40.7
No	800	57.6
Missing	24	1.7
Grade level taught (select all that apply; teachers only)		
6th	125	19.1
7th	137	20.9
8th	130	19.8
9th	291	44.4
10th	307	46.8
11th	304	46.3
12th	298	45.4

[a]Limited subset of sample.
[b]Hispanic/Latino was not exclusive of other racial categories, resulting in percentage higher than 100%.
[c]Other was comprised mostly of school counselors, paraprofessionals, teacher aids, school nurses, behavioral intervention specialists, and elementary school educators.

The GBS, originally developed by Albright, Davidson, Goldman, Shockley and Timmons-Mitchell (2016) is an 11-item tool used to determine the impact of online virtual-human gatekeeper simulations and has previously shown good psychometric properties, including a three-factor structure consisting of preparedness, likelihood, and self-efficacy to intervene; a moderately strong relationship with general self-efficacy; and a moderately strong relationship with future intervention behaviors. For the purposes of the present study, the GBS was modified and expanded to address attitudes specifically surrounding LGBTQ students who are being teased, harassed, or bullied. This resulted in three scales of Preparedness

Table 2. Means efficacy items - percentage of participants who endorsed each option.

	Not at all/very little	A little	Some	Great	Very great
Please indicate to what extent you think that the course is:					
A useful tool	0.4%	1.1%	14.2%	39.7%	44.7%
Well constructed	0.6%	0.7%	8.6%	41.5%	48.6%
Easy to use	0.4%	0.6%	6.5%	35.2%	57.4%
Likely to help you in supporting LGBTQ students	0.7%	1.1%	11.9%	38.6%	47.6%
Based on scenarios that are relevant to you and your students	1.5%	2.8%	14.4%	36.6%	44.8%
Helpful in getting timely help for a LGBTQ student who has been teased, harassed or bullied	0.6%	1.1%	13.1%	39.4%	45.9%
Helpful in creating a safer learning environment for LGBTQ students	0.6%	1.3%	10.8%	38.8%	48.5%

(four items; Cronbach's $\alpha = 0.90$), Likelihood (i.e., behavioral intent; seven items; Cronbach's $\alpha = 0.93$), and self-efficacy (three items; Cronbach's $\alpha = 0.88$). An additional single item was created specifically to address self-efficacy to manage discriminatory remarks made by students in the classroom.

Behavioral data

Behavioral data in the treatment group participants were obtained at three-month follow-up where users responded to Likert sale items addressing perceived increases in the number of students they have been concerned about, talked to, and connected to support services because they were being teased, harassed, or bullied. Users also reported the number of conversations they have had with other adults in their community regarding LGBTQ students (see Tables 4 and 5).

Step in Speak Up

"Step In Speak Up" was developed by Kognito (www.kognito.com) in partnership with the Trevor Project, a leading national organization providing crisis intervention and suicide prevention services to LGBTQ youth ages 13–24. The simulation was developed with input from nationally recognized scholars and professionals in LGBTQ school mental health and education and numerous end users. The simulation is listed in Section III of the SPRC/AFSP Best Practices Registry for Suicide Prevention and approved by various state boards of education for teacher continuing education credits. It takes between 45–90 min to complete and is self-paced (users can complete the simulation in multiple sittings) and available to each user online 24/7. The simulation is built around a series of mini-conversation role-plays where learners interact with intelligent, fully animated, and emotionally responsive virtual students who will react like real students. For example, in the first conversation learners assume the role of a science teacher who observes two separate incidents where students insult

Table 3. Individual scale item significance testing.

	Mean-control (SD)	Mean-treatment post-training (SD)	p Value[a]
Preparedness: How would you rate your preparedness to …			
Manage a student in your classroom who has used derogatory language, such as "fag," "gay," "'mo," or other.	3.76 (0.91)	4.47 (0.65)	16.54
Discuss with a student your concern about their being teased, harassed, or bullied.	3.91 (0.86)	4.50 (0.65)	14.12
Connect a student who is being teased, harassed, or bullied to support services (such as a counselor or school psychologist).	4.11 (0.85)	4.56 (0.61)	11.13
Use gender-neutral language in class.	3.78 (0.95)	4.44 (0.68)	14.78
Likelihood: How likely are you to …			
Stop a class every time a student uses discriminatory language, such as "fag," "gay," "'mo," and others, to address the issue.	3.33 (0.70)	3.68 (0.50)	10.78
Discuss your concerns with a LGBTQ student who has been teased, harassed or bullied.	3.34 (0.67)	3.66 (0.51)	9.88
Connect a student who is being teased, harassed, or bullied to support services (such as a counselor or school psychologist).	3.56 (0.58)	3.75 (0.45)	7.05
After class, check to see if a teased, harassed, or bullied student is OK.	3.56 (0.58)	3.74 (0.46)	6.12
After class, talk with a student who has used discriminatory language.	3.62 (0.55)	3.77 (0.43)	6.42
Intervene if a LGBTQ student tells you that they are being teased, harassed, or bullied.	3.59 (0.57)	3.73 (0.46)	5.29
Communicate to your class(es) that discriminatory language is not allowed.	3.62 (0.55)	3.77 (0.43)	5.51
Self-efficacy: In talking to a student you are concerned about …			
I feel confident in my ability to discuss my concerns with this student.	3.29 (0.62)	3.61 (0.51)	10.23
I feel confident in my ability to help this student seek help if they are having thoughts of suicide.	3.40 (0.63)	3.62 (0.53)	6.90
I feel confident in my ability to connect this student to support services or a supportive staff member.	3.51 (0.57)	3.70 (0.47)	6.52
Additional items			
I feel confident in my ability to manage discriminatory remarks in the classroom.	3.33 (0.60)	3.63 (0.50)	10.04
Part of the role of faculty, staff, and administrators is to help create a safe and supportive learning environment for LGBTQ students.	3.66 (0.51)	3.73 (0.46)	2.81**
Part of the role of faculty, staff, and administrators is to connect LGBTQ students experiencing teasing, harassment, and bullying to support services or supportive staff	3.64 (0.50)	3.73 (0.46)	3.24**
This course will help me actively work to create or maintain a safe environment for our LGBTQ students.	3.30 (0.63)	3.62 (0.52)	10.06
I am aware of the need to use gender-neutral language in the classroom.	3.31 (0.61)	3.65 (0.49)	11.27
I am knowledgeable about the common challenges facing the LGBTQ student population.	3.14 (0.68)	3.55 (0.54)	12.14

[a]All items significant at $p < .001$, unless otherwise indicated.
**$p < 0.01$.

each other using the terms "fag" and "gay." The goal is for the learner to apply best practices in classroom management techniques to handle the situation. This is accomplished by selecting from a set of dialog options that represent a variety of effective, neutral, and ineffective tactics. In some cases, a tactic that is ineffective at one point in the conversation may be

Table 4. Participant behaviors at follow-up: students.

	Strongly disagree	Disagree	Agree	Strongly agree
As a result of taking this course there has been an increase in the number of students I have:				
Been concerned about their being teased, harassed, or bullied.	3.9%	44.1%	42.2%	9.8%
Connected to support services because they were being teased, harassed, or bullied.	4.0%	44.6%	35.6%	15.8%
Talked with after class to check to see if a teased, harassed, or bullied student is OK	3.9%	42.2%	37.3%	16.7%
Talked with after class because they have used discriminatory language.	4.0%	36.6%	40.6%	18.8%
Intervened for the student who revealed they were LGBTQ and being teased, harassed, or bullied.	4.0%	43.4%	36.4%	16.2%

Table 5. Participant behaviors at follow-up: other adults.

	Strongly disagree	Disagree	Agree	Strongly agree
As a result of taking this course there has been an increase in the number of conversations I have had with other adults in my school community regarding:				
Students I am concerned about because they are being teased, harassed, or bullied.	4.0%	37.6%	42.6%	15.8%
The use of discriminatory language in our classrooms.	4.0%	31.7%	44.6%	19.8%
How to better support our LGBTQ students.	2.0%	20.0%	53.0%	25.0%

effective elsewhere. Once learners choose a dialog option, they see their virtual character "perform" the dialog and then observe the verbal and non-verbal response of the virtual student. A new set of dialog options then appear, based on which tactic was selected (see Figure 1). Throughout the simulation, learners are able to occasionally view students private thoughts, which is designed to provide the learner with greater insight, understanding, and empathic communication skills. This role-play is completed once the learner successfully manages the classroom situation. In the second conversation, learners role-play with a student being harassed by another student. The learner has to gain the student's trust; thus, a "Trust Meter" provides continual feedback based on the choices made by the learner as he or she progresses through the simulation. If the learner selects choices that include being critical, judgmental, or labeling, the "Trust Meter" will decrease and learners will find it harder to complete the simulation. The learner also has numerous opportunities to build on their use of MI strategies as they navigate the conversation. To facilitate this, a virtual coach provides real-time positive feedback for correct tactics and suggestions for incorrect tactics or pitfalls. The role-play is complete when the learner has successfully developed a supportive relationship and the student agrees to meet with the school's counselor.

The simulated role-plays described above allow learners to engage in sustained and deliberate practice opportunities in an environment that is

Figure 1. Screenshot of a virtual role play conversation with Miss Yazzi in "Step in Speak Up."

visually and mechanically congruous with the setting in which learners will apply their skills (situated learning). Deliberate practice is intended to improve real-world performance (Ericsson, Prietula & Cokely, 2007) by offering: a challenge to learners existing skills; a simulated environment that allows users to experiment with various techniques with no fear of the consequences real humans might experience; a protected environment with no fear of judgment or social evaluative threat from observers or students (as opposed to live role-play with peers or standardized students); time for users to reflect on their skills and adjust their strategies; continuous analysis of performance through simulation features (e.g., "Trust Meter"); and through individualized and immediate feedback from a virtual coach throughout the simulation. Evidence shows that communication skills improve and endure when learning experiences incorporate deliberate practice, ongoing tailored feedback, role-plays, and establish a connection between new skills learned such as those used in motivational interviewing and their application in live settings (van De Wiel, Van den Bossche, & Jossberger, 2011).

Procedure

Upon giving informed consent, participants were randomly assigned to the treatment or control group. Participants in the treatment group completed a pre-simulation survey (baseline), then completed the simulation, and
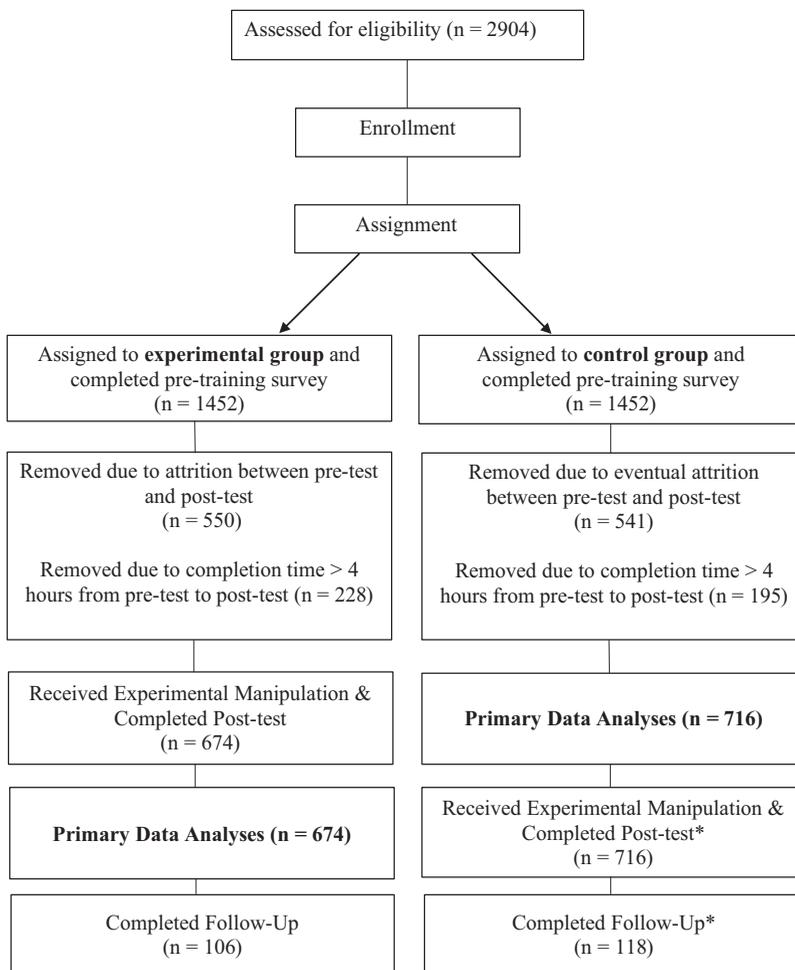
Figure 2. Flow of participants through each stage of the experiment. *Not included in the present analysis.

lastly completed a post-simulation survey. Those in the control group completed the pre-simulation survey for comparison purposes (see Figure 2 for flow chart of progress through the phases of the trial). Participants who did not complete the post simulation survey or took more than 4 h were removed ($N = 1514$), thus reducing the sample size to 1390 (716 in the control group, 674 in the treatment group; see Figure 2). There were no significant differences between those who completed both surveys and those who did not on initial levels of preparedness to assist a student in psychological distress ($p = 0.51$), likelihood of engaging in helping behaviors ($p = 0.17$), or self-efficacy to engage in such behaviors ($p = 0.21$). Thus, based on the available data, there is tentative support that attrition does not threaten validity. Note that sample size varies slightly for each analysis due to individual missing data.

Fidelity of simulation and data analysis

To better ensure uniformity and fidelity, we only included those participants who took four or less hours to complete the simulation (median completion time was 47.18 min). "Step In Speak Up" also addresses fidelity by being computer-delivered; thus, it is not possible to modify content and its delivery. The decision trees incorporated into the conversation platform allow the learning experience to be customized and standardized to each user pending what conversation tactic they select to discuss with how the virtual student responds.

Planned analysis

Because the outcomes are all expected to be closely associated, a multivariate analysis, Hotelling's T^2, was utilized to assess the impact of the simulation on these outcomes as a whole, thus reducing the likelihood of Type I error when evaluating each individual variable in more detail. Independent samples t-tests were then calculated to compare groups on each scale individually and, finally, to compare groups on each individual item, thus allowing for fine-grained analyses.

Results

Means efficacy

Generally, participants in the treatment group were highly satisfied with the simulation, with an average rating of 3.34 on a four-point scale (49% of participants rated the simulation "excellent," the top point on the scale). In addition, 98.6% of participants agreed or strongly agreed that all staff in their facility should take the course, and 95% indicated that they would recommend the simulation to a colleague. Concerning difficulty of the simulation, about 78% indicated the simulation was at their skill level, 14% below their skill level, and 6% above their skill level. Means efficacy data about treatment group attitudes toward the simulation can be seen in Table 2. Results suggest overall that a very large proportion of participants found the simulation to be helpful and effective; thus, Hypothesis 1 is supported.

Evaluation of "Step in Speak up!"

Results of the Hotelling's T^2 test indicated that the treatment-and control group differed significantly on the three outcome variables of preparedness, likelihood, and self-efficacy, $F(3,1352) = 91.27$, $p < 0.001$, and $\eta^2_{partial} = 0.17$.

The next statistical analysis consisted of evaluating each of the three primary outcomes individually. Preparedness of the treatment group on the post-simulation survey (M = 4.49and SD = 0.60) differed significantly from preparedness of the control group in the pre-simulation survey (M = 3.89, and SD = 0.75, $t(1362) = 16.26$, and $p < 0.001$). Likelihood of the treatment group (M = 3.72 and SD = 0.42) differed significantly from likelihood of the control group (M = 3.50, SD = 0.49, $t(1363) = 8.78$, and $p < 0.001$). Lastly, self-efficacy of the treatment group (M = 3.64 and SD = 0.47) differed significantly from self-efficacy of the control group (M = 3.40, SD = 0.54, $t(1358) = 8.81$, and $p < 0.001$). However, the two groups did not differ when comparing the pre-simulation surveys on any of the outcomes, highlighting the efficacy of the simulation. Specifically, preparedness of the treatment group at pre-simulation (M = 3.90 and SD = 0.73) was not significantly different from the control group, $t(1363) = 0.33$ and $p = 0.74$. Likelihood of the treatment group at pre- simulation (M = 3.51 and SD = 0.48) was not significantly different from the control group, $t(1358) = 0.44$ and $p = 0.66$. Lastly, self-efficacy of the treatment group at pre- simulation (M = 3.41 and SD = 0.52) was not significantly different from the control group, $t(1347) = 0.13$ and $p = 0.90$. Thus, Hypothesis 2, 3, and 4 were supported. Further analysis for each individual item from the preparedness, likelihood, and self-efficacy scales can be seen in Table 3.

Several additional individual items showed statistically significant increases (see Table 3) in comparing the treatment to the control group that included increased: (1) awareness of the need to use gender-based language in the classroom, (2) confidence to manage discriminatory remarks in the classroom, (3) positive perceptions about the role of school staff in supporting LGBTQ students by creating a safer more supportive environment as well as connecting students experiencing teasing, harassment. and bullying to support services or staff, (4) knowledge about the common challenges facing LGBTQ students, and (5) perception in being helped to actively work or create/maintain a safe environment for LGBTQ students (see Table 3). Thus Hypotheses 5, 6, and 7 were supported.

Behavior changes

For 106 participants in the treatment group, one final follow-up survey was completed three months after completion of the post-test. The purpose of this data collection was to analyze (1) changes in behavior with regard to discussing LGBTQ issues with other educators and (2) changes in behaviors with regard to assisting LGBTQ students. The data show that roughly half of participants reported increases in their behaviors interacting with students (see Table 4) and a higher percentage reported increases in

interactions with other adults (see Table 5); thus, Hypotheses 8 and 9 were supported.

Discussion

Regarding the effectiveness of "Step In Speak Up," support was evidenced by significant differences between the treatment and control groups on all dependent measures including learners preparedness, likelihood, or behavioral intent, and self-confidence to: (1) manage a student in a classroom who has used derogatory language, (2) discuss with a student concern about their being teased, harassed, or bullied and, if necessary, (3) connect that student to support services (counselor or school psychologist). In addition, learners reported being more likely to stop a class every time a student uses discriminatory language to address the issue and check to see if a teased, harassed, or bullied student is okay after class. They also reported that they were more confident in their ability to help a student seek support if they seem at risk for suicide and to be more aware and prepared to use gender-neutral language in the classroom.

In terms of the impact on self-reported behaviors, at the three-month follow-up, 52% of participants reported an increase in the number of students teased, harassed, or bullied that they have been concerned about; 51.4% reported an increase in number connected to support services; 54% reported an increase in number talked to after class to see if they were okay; and 52.6% reported an increase in the number of times they intervened for students who being teased, harassed, or bullied by students labeling them as LGBTQ (regardless of whether they self-identified as LGBTQ or not). Lastly, 59.4% of participants reported an increase in the number of students talked to after class because they used discriminatory language.

At the three-month follow-up, 58.4% of participants also reported an increase in the number of conversations they had with other adults in their school community regarding students they were concerned about because they are being teased, harassed or bullied; 64.4% reported an increase in conversations about the use of discriminatory language in their classrooms; and 78% reported an increase in conversations about how to better support LGBTQ students. In total, these self-reported, perceived increases in behavior are modestly promising.

Participants also found the simulation to be useful, realistic, and helpful and highly recommend it to all educators in their school. Finally, participants reported that "Step In Speak Up" will help them actively work to create or maintain a safe environment for LGBTQ students and that part of their role as educators is to connect LGBTQ students experiencing teasing, harassment, and bullying to support services or supportive staff. This is

encouraging and suggests that, if enough educators and staff complete the simulation, there is the possibility of a shift to a safer and more supportive school culture and climate for LGBTQ students.

Beyond the outcome data from this study, there are important advantages that support utilizing online role-play simulations. First, online virtual role-play simulations offer the user an opportunity to safely explore situations in a risk-free environment in the privacy of one's home or office. Also, role-playing with virtual humans can reduce situational factors that compromise the effectiveness of face-to-face role-plays, such as performing in front of peers, instructors, and other role-players, which can cause embarrassment or social evaluative threat (Nestel & Tierney, 2007). Also, in "Step In Speak Up," users are not depending on the skill and experience of the trainers and their knowledge of the population they are training. Users can have an entirely different experience depending on their choice of conversation tactic as they navigate through the role-plays, thus ensuring high fidelity.

Another advantage is that, once a virtual simulation is developed, it is sustainable. There are no costs for training, hiring, and maintaining professional instructors, which can be especially onerous if one is scaling up to implement training on a state or national level. Additionally, this online simulation eliminates the need for travel expenses and the cost of participants being pulled away from their work, especially in rural areas. Lastly, "Step In Speak Up" provides participants with an information page with the locations of campus, institutional, and local resources to link students to needed support services.

There are a few limitations of the current study. The first is that the three-month behavioral data collected regarding the perceived impact of the simulation on behaviors was self-reported and there was not a control group comparison. Having access to the schools support service (counseling) records showing data linking "Step In Speak Up" participants to referrals would have been valuable indices of behavioral change. Additionally, those who self-selected to complete the follow-up survey could be more motivated to support LGBTQ students, thus potentially impacting the results. In addition, as this research was conducted in the United States, results may not be generalizable to international populations. Finally, the results of the present study are subject to the general issue of pretest sensitization, in which a pre-/post-test design sensitizes participants to the content of both the simulation and the outcome measures, resulting in the possibility of artificially inflated gains between the two time points.

Regarding future research, it would beneficial to more closely examine the individual differences of participants that may theoretically have an impact on the efficacy of the training. In particular for "Step In Speak Up,"

the sexual orientation of teachers and administrators may have an impact on the degree to which they are receptive to and benefit from training. On the other hand, it may be that individuals belonging to a sexual minority already possess a large repertoire of skills related to dealing with issues pertinent to the training due to previous life experiences and thus would exhibit minimal gains from training. Future examination of these possibilities would be potentially fruitful.

Conclusion

This study supports the use of "Step In Speak Up," as evidenced by significant increases in participants preparedness, likelihood, and self-efficacy to, (1) manage a student in a classroom who has used derogatory language, (2) discuss with a student concern about their being teased, harassed, or bullied and, if necessary, (3) connect that student to support services. Participants also reported being more likely to stop a class every time a student uses discriminatory language to address the issue and check to see if the student who was harassed is okay after class. Lastly, participants reported changes in their behavior that included increases in the number of students they identified as having been teased, harassed, or bullied, as well as those they connected to support services and followed up with after class with students to see if they were okay. These results, coupled with reported increases in the number of conversations about how to support LGBTQ students, suggest that, if enough educators and staff within the community complete the simulation, a school culture shift might ensue, hopefully leading to a safer and more supportive learning environment for LGBTQ students.

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Dr. Glenn Albright's passion for learning and its application in the fields of health and behavioral health fuels his research in evaluating the efficacy of immersive virtual human role-play simulations that are designed to bring about sustained behavior changes in the areas of social, emotional, and physical health. He is a clinical psychologist who received his Ph.D. from City College of the City University of New York in the area of experimental cognition with concentrations in neuropsychology and applied psychophysiology. Dr. Albright is the former Chair of the Department of Psychology at Baruch College of the City University of New York and has received distinguished teaching awards at both Baruch and New York University. He is actively involved in publishing and presents at numerous conferences where he addresses how game-based role-play simulations can cost-effectively support positive changes in health and mental health. He is particularly interested in those interventions focused on bringing about positive changes in behavior in the large number of geographically dispersed individuals that comprise vulnerable populations.

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