

**DIFFERENCE-EDUCATION INTERVENTION THAT PROMOTES A
SENSE OF BELONGING, MINDSET, AND HOPE IN MINORITIZED
FIRST-GENERATION STUDENTS**

Felipe Mercado

California State University, Fresno

AUTHOR NOTE

Correspondence concerning this article should be addressed to Felipe Mercado, Health and Human Services, California State University, Fresno. Tel: 559.278.2765. Email: felipemercado1@mail.fresnostate.edu.

ABSTRACT

This research aimed to test Difference-Education Intervention (DEI) to determine the impact of this intervention on first-generation students' sense of belonging, mindset, and hope in Hispanic Serving Institutions. Social Learning Theory was used to understand that individuals must internalize what is learned and perceived socially, as learning cannot be separated from its social context. As a result of a careful review of the literature, DEI was replicated to examine its effects on first-generation students in Hispanic Serving Institutions. The study used an experimental design to create a control and intervention group. A convenience sampling technique was utilized to recruit 174 first-generation and continuing-generation first-year students from seven class sections of a college preparation course at Fresno State. A total of 84 students (48.28%) participated in the intervention and completed both the pre and post-survey questions. 28 participants were male, and 56 were female. 71 of them were first-generation students, and 13 identified as continuing-generation students. These findings suggest that social-psychological interventions can increase a student's sense of belonging, mindset, and hope for first-generation students in Hispanic Serving Institutions.

Keywords: difference-education intervention (DEI); social-psychological intervention (SPI), wise intervention, hope, growth mindset sense of belonging, and social learning theory

First-generation students generally have added difficulties in their initial transition to college when compared to continuing-generation students (Jury et al., 2016). These challenges prevent this population of students from fully engaging in the education process (Inkelas, Daver, Vogt, & Leonard, 2007). These challenges stem from understanding how to navigate the system, dealing with stress, practicing solid study skills, sustaining hope and resilience, and communicating/networking. These qualities are critical to a student's success and essential to acquire within the first year of college for students to stay on track to graduate on time while gaining further skills (Yeager & Walton, 2011). Walton's (2014) research showed how cognitive reattribution interventions help students interpret ambiguous stimuli more favorably. Within these interventions, students learned that other students also experience some challenges, that other students have them too, and that these circumstances tend to improve over time. Using Walton's interventions as a replacement for a negative interpretation ("I do not belong here") and subsequent retreat, students interpreted specific challenges as typical initial difficulties. They stayed involved, attended classes, participated in extracurricular activities, and exerted effort, all of which resulted in better integration into the campus community and improved academic performance. Walton and Cohen (2011) offered that a sense of social belonging exists as a mental construct and that "wise" and scientific interventions can reduce disparities in attainment and well-being.

Stephens et al. (2014) conveyed to students that their social upbringings are relevant in college and might result in different experiences. Stephens et al. called their approach the Difference-Education Intervention (DEI). These interventions capture how an incoming student's diverse background can shape their college experience. DEI reinforces academic relevance within the individual, fostering a sense of identity as a college student while at the same time cultivating an experience of adequacy and a better understanding of the impact of differences in their social background (Stephens et al., 2014). DEI participants saw improved GPA, mental health, and engagement.

In the past five years, interventions have been tested that target disenfranchised student populations in higher education settings. These forms of intervention have considered counterbalancing the challenges these students face (Stephens et al., 2014; Walton et al., 2012; Walton & Cohen, 2011). These interventions show real promise for higher education institutions because they do not last more than 1 hour, yet they are responsible for increases in GPA and other positive dynamics with underrepresented students (Walton & Cohen, 2011). For this paper, the interventions known as "wise interventions" are conceptualized as Social-Psychological Intervention (SPI) and (DEI) (Stephens et al., 2014; Walton, 2014). SPI revealed how it could help create recursive effects that have lasting positive effects on marginalized student populations (Yeager & Walton, 2011). Findings from the DEI suggested that one-time interventions begin to reduce the social class achievement gap in participating first-generation students through the support these students received in their new college setting (Stephens et al., 2014).

Hope

According to Snyder et al. (1991), hope is a cognitive, motivational construct encompassing two interrelated elements: agency and pathways. *Agency* is the motivation to pursue goals and is fostered by meeting prior goals, present goals, and progress toward achieving future goals. A pathway is a perception of being able to successfully generate plans and pursue these plans to achieve goals (Snyder et al., 1991). Hope, then, is defined as reciprocally derived from the presence of a) goal-driven directedness (agency) and b) ways to achieve one's goals (pathways) (Snyder et al., 1991). During the actual goal pursuit, emotions offer the individual feedback about the progress. This feedback from the current situation interacts with the agency and pathway components, which are viewed as relatively stable cognitive appraisals of goal-related capabilities (Snyder, 2000) and shape how the current situation is interpreted. Thus, Snyder found that individuals with high levels of hope were more resilient to negative feedback from goal pursuit because their inherent agency and pathway levels were high. This would be the moderately stable trait of hope, which Snyder et al. (1991) distinguished from state hope, which is more situational.

The role of hope in connection to learning and higher academic achievement has been discussed in great detail (Snyder et al., 2002). Hope is a general belief and corresponding emotion that can positively influence the future. Consequently, in situations where students are faced with something novel, hope will provide them with motivation and the belief that they can find pathways and reach their goals. So, they start in a new situation with a positive bias, with a sense that they can figure it out. This involves understanding the goals, how to get there, and how to motivate oneself. Hopeful people have internal dialogues like "I can," "I'll make it," and "I won't give up." These beliefs regarding goal completion can also affect students' emotions positively (Snyder, 2000). Subsequently, during the goal pursuit, positive emotions emerge when students see the goal as attainable and sense progress, but negative emotions, such as stress, begin to emerge if students feel the goal is not attainable or they lack a sense of progress (Snyder et al., 2002).

Students who permeate high hope do not harbor over their failures but credit their results to a lack of effort or strategy for success (Snyder et al., 2003). High-hope students also tend to choose learning goals over performance goals (Snyder et al., 2003) and tend to select more goals. Longitudinal studies suggest that hope can support emotional well-being in transitional phases during adolescence over time with perceived competency (Ciarrochi, Parker, Kashdan, Heaven, & Barkus, 2015; Wandeler & Bundick, 2011). Throughout a student's academic career, hope plays a significant role in academic achievement. Hope was found to be correlated with improved results on attainment tests for students in grade school (Snyder, Cheavens, & Sympton, 1997), improved GPA for scholars in high school and college (Snyder et al. 1991, 2002), and predicted students' progression in college (Gallagher, Marques, & Lopez, 2016). Furthermore, hope has explained additional variance even after controlling for personality variables, intelligence, and previous grades (Day, Hanson, Maltby, Proctor, & Wood, 2010). Hope is relevant in educational contexts in a variety of cultures across the world: Australia (Ciarrochi et al., 2015), China (Du & King, 2013), Italy (Wilkins et al., 2014), Portugal (Marques, Lopez, & Pais-Ribeiro, 2011), Turkey

(Kemer & Atik, 2012), the United States (Snyder et al., 2002) and Switzerland (Wandeler, Baeriswyl, & Shavelson, 2011).

Mindset

A growth mindset is a belief that a person's intelligence is malleable, and when people effectively exert effort, they can grow their ability and intelligence (Dweck, 2006). A person with a fixed mindset perceives the world as being set; no matter how much effort a person puts into a task, that person cannot improve. As the mindset model has established scholarly recognition, the focus in the literature has shifted from model testing to application (Aronson et al., 2002). In applying the mindset intervention model, a study by Good et al. (2003) reduced gender differences between male and female math scores in junior high students. A further mindset intervention taught college students about a growth mindset, and these students achieved higher grades than those of another group that received no intervention (Aronson et al., 2002). Aronson et al.'s research reported a decrease in the achievement gap, as African American students showed more significant improvement after the intervention. The mindset model represents a stable belief over time and permeates the college experience (Blackwell et al., 2007; Dweck, 2006; Good et al., 2003; Yeager & Walton, 2011).

Dweck (2006) stated that the importance of a growth mindset in schools is that it can create a desire in individuals to concentrate on learning to be an expert on a specific task. Currently, schools place more emphasis on positive evaluations and sustaining a good image from an academic standpoint, which promotes a fixed mindset (Dweck & Leggett, 1988). Thus, a fixed mindset is associated with the belief that abilities are fixed and hard to change, whereas a growth mindset reflects the belief that change is possible and abilities are malleable through effort and willingness to learn, which substantially influences achievement and resilience (Dweck, 1999, 2006; Gunderson et al., 2013; Rattan, Good, & Dweck, 2012). A growth mindset is essential because it can help students deal with the challenges of daily life and become more stimulated and connected to school, which can help offset many of the adverse conditions that hinder an individual's willingness to connect to school in the first place.

Sense of Belonging

Most students aim to view themselves positively. However, daily stressors of school, exams, grades, academics in general, and unpredictable human dynamics compromise a student's sense of connection to school and their peers. School can become a shameful and perilous place for students who are members of historically disenfranchised groups such as Latinos and African Americans (Steele, 2010). These students may have to deal with the added fear of negative stereotypes rather than attending school for respect and being judged on their academic performance. Some of this behavior is fathomable when one reflects on the adaptive nature that some races have had to go through while living in America (Steele, 2010; Walton & Cohen, 2011). Race, gender, and any labeling identifying social construct can foster a recurring threat for specific groups within a social context. We now understand that these negative experiences can threaten

an individual's social identity, making a person feel marginalized due to their association with a specific group (Steele, 2010). Moreover, these conditions can trigger traumatic events within the individual, making them feel isolated or like an imposter, which challenges their educational learning and functioning (Inzlicht, Tullett, Legault, & Kang, 2011; Steele, 2010; Steele, Spencer, & Aronson, 2002).

Despite the research on stereotype threats, there is a lack of information and understanding of interventions to help students reduce this threat. Consequently, stereotype threat lingers and amplifies the gap in academic performance, rates of degree attainment, and poor grades among first-generation students of color compared to their White peers (Steele & Aronson, 1995). In the academic realm, this population is academically, socially, and emotionally distressed. These students are inclined to experience more stress and financial burden and drop out at twice the rate of their peers (Engle & Tinto, 2008). Given these drawbacks, even with equal opportunities at colleges and universities, first-generation students of color were found to achieve significantly lower on exams, graduate at lower rates, and earn lower grades (Owens & Massey, 2011). Owens and Massey suggested that these experiences and results could have been derived from harmful stereotype threats perceived by the individual about their group, which causes anxiety to perform.

Hurtado et al. (1996) examined the transitional social experiences of Latino students and found that perceptions of racial/ethnic conflict were directly related to lower social and academic adjustment levels. The researchers highlighted that even high-achieving Latino students could have difficulty socially assimilating to campus if they internally believe that most students or adults perceive them as special admits. As a result, students might internalize these climate observations and struggle to fit in with other social groups on campus. These studies on the transitional experiences of students are essential to consider. Implications are helpful for both scholars and practitioners as they work to develop solutions to better assist students of color in experiencing a smooth social transition to college.

Strayhorn (2012) studied the association between Latino and Caucasian learners' college engagements and their sense of belonging at 4-year colleges and universities. Strayhorn's findings suggested positive relationships between Latino college students' sense of belonging and interaction with diverse peers. Caucasian students shared positive outcomes with interacting with diverse students, but the analyses found that it was not as strong as it was for Latinos. These results compare to Johnson et al. (2007), in which diverse student interaction was a critical indicator of Latina/o/x students' sense of belonging compared to their different racial and ethnic peers.

In addition to the studies mentioned above examining the connection amid diverse exchanges with peers and a sense of belonging amongst Latino students (Strayhorn, 2012), additional research reveals further insights amongst other ethnic groups, particularly African American and Caucasian students. Hausman et al. (2007) revealed that first-year African American learners who engaged in more student relations became more connected while increasing a sense of belonging over time (i.e., from the beginning of the fall semester to the end of the spring semester). However, amongst Caucasian learners, student interaction was correlated with a more

rapid drop in the sense of belonging. The authors suggested that peer support is essential in supporting African American students enrolled at predominantly White institutions.

Social-Psychological Interventions (SPI)

Recently there have been attempts to develop evidence-based approaches to create best practices in the education field, specifically to address the needs of disenfranchised populations. Interventions like Social Psychological Interventions (SPI) and DEI are suggested to help students in their academic journey because these interventions encompass succinct training that aims at a student's thinking, emotional state, and dogmas within the school's social setting to help them feel more connected (Stephens et al., 2014; Walton, 2014). Initiating recursive or self-reinforcing processes that change how students make sense of and respond to situations over time leads to the long-term effects of these interventions (Cohen, & Sherman, 2014; Stephens, Townsend, et al., 2015; Walton, 2014; Yeager & Walton, 2011). SPI and DEI interrelate with the individual, which fosters an understanding of how individual characteristics operate simultaneously through the organizational framework, steering clear of selective stress on either individual characteristics or fundamental contexts (Anderson et al., 2016). Methodologies such as these can provide higher education administrators with innovative perspectives when examining a student's academic performance. However, these interventions target the cognitive constructs in students and often ignore the emotional construct where feelings of shame can exist. A student's sense of belonging can be undermined if they do not understand how to deal with the dynamics associated with shame (Anderson et al., 2016).

SPI and DEI were reported to create recursive social and psychological mind shifts within an individual, which can explain the lasting effects these interventions have on the students who participated (Stephens et al., 2014; Yeager & Walton, 2011). These interventions also guide students in understanding exactly who they are and what strengths they bring to their new educational setting, increasing their desire to pursue a college degree (Stephens, Brannon, Markus, & Nelson, 2015). There are two significant differences between SPI and DEI: SPI targets the cognitive or psychological process of the students' mindset, which can manifest into a social problem or hinder the individual from thriving (Walton, 2014). SPI also focuses on a sense of belonging and suggests to students that the feelings of being challenged are normal. This information helps students develop a sense of belonging. This is how the recursive positive spiral begins for that individual in SPI.

DEI aims to educate students that social differences in upbringing and background, group membership, and identity can shape our life outcomes negatively or positively (Stephens, Hamedani, & Townsend, under review). DEI helped students become aware of differences and helped them become more resilient. Research needs to examine the differences between DEI and SPI. When comparing both interventions, SPI appears more cognitive, while DEI includes an emotional component in its approach. Generally, colleges provide first-generation students with programs that target academic or financial skills (Stephens et al., 2014). Although this knowledge can benefit first-generation students, it can only be capitalized upon if students feel connected and

capable enough in school to take advantage of these resources. DEI and SPI provide newly admitted college students with psychological resources that can be instantly taken advantage of in the college setting. These psychological benefits include the internal belief that people with backgrounds like theirs are worthy of college and can be successful (Steele, 2010; Stephens et al., 2014; Stephens, Markus, & Fryberg, 2012). These interventions are critical because they acknowledge that students of the 21st century graduating from high school face different challenges than those who have graduated over the past three decades, especially after the COVID-19 pandemic.

With many colleges only focusing on academics, marginalized students are left with the impression that schools provide no guidance or psychological resources to safeguard their college experience (Stephens et al., 2014). Students who face adversity in college can experience shame or withdrawal, which is known to create fear, blame, and disconnection (Brown, 2012; Hauser, 2016). In the first weeks and months of college, socially disadvantaged students encounter shared difficulties such as seclusion or receiving unwarranted criticism. Difficulties like this validate a student's mental construct and degrade their sense of belonging and belief that they can succeed (Walton, 2014). When these students try to navigate college for the first time and develop these mental constructs, it can become a self-fulfilling prophecy that may lead to low motivation. Stories of students unsure of whether they belong are apparent in explanations from numerous first-generation and ethnic minority individuals (Walton et al., 2013; Walton & Cohen, 2011; Walton & Cohen, 2007). For example, Aries and Berman (2012) captured insights into what students feel and face during their college transition; students reported that they felt as though they were on a different planet and could not connect to others, which can lead to poor academic transitions. Interventions that target first-generation students must also target social and psychological processes, as such interventions could play an essential part in improving graduation rates for the California State University (CSU) system (Complete College America, 2011). It is vital to our educational system that such interventions be further explored (Walton, 2014).

Theoretical Framework

Social learning theory is the umbrella framework that will guide this research. Social learning theory postulates that individuals must internalize what is learned and perceived socially, and learning cannot be separated from its social context (Bandura, 1977, 1986; Kozulin, Gindis, Ageyev, & Miller, 2003; Tudge & Winterhoff, 1993; Vygotsky, 1978, 1987). Bandura (1962) is credited with developing the central tenets of social learning theory. He described that this theory effectively clarifies individual actions as being neither driven by inner forces nor buffeted by environmental stimuli. Rather, psychological functioning is explained in terms of a continuous reciprocal interaction among cognitive, behavioral, and environmental factors (Bandura, 1962).

Fundamental principles of the social learning ideology are not new to education and the idea that social interaction and exchange of personal experience within groups has long been a component of teaching and learning in academia (Bandura, 1986). Social learning theory has been recommended to serve as a basic foundation for pedagogical practices in various school settings

(Latham & Saari, 1979; Schroeder, Minocha & Schneider, 2010; Trudge & Winterhoff, 1993). Current trends towards the use of social learning theory that is likely compatible with a students' responsibility for their own formation and development of knowledge have been examined to determine if introducing new stimuli into their social interactions can elicit positive effects in students' academic performance (Bandura, 1977, 1986; Hausfather, 1996; Palincsar, 1998). For this study, social learning theory suggests that participating in a Difference in Education Intervention (Stephens et al., 2014) can help first-generation students who attend the same university and who may reflect similar backgrounds as the graduate students participating in the intervention.

Methods

The researcher utilized a convenience sampling technique to recruit participants for the intervention. A total of 174 first-generation first-year students and continuing-generation students have been recruited from seven class sections of the University 1 (college preparation) classes at Fresno State. Professors of these sections were also invited through email by the researcher and the coordinator of these classes. 84 students (48.28%) participated in the intervention and completed both the pre and post-survey questions. Two students opted not to take part in the intervention. The demographics are reported in Table 1, indicating that the sample was representative of the Fresno State student population. Twenty-eight participants were male, and 56 were female. 71 participants were first-generation students, and 13 identified as continuing-generation students.

The study also included 12 junior and senior year panelists attending Fresno State. The study aimed to develop a mixed panel group, similar to DEI (Stephens et al., 2014). The panel members were selected by emailing former University 1 students from a populated mailing list held by the University 1 coordinator. This was achieved by emailing students in various statistics classes in the field of education, social work, and health and by networking with professors affiliated with students from diverse backgrounds who fit the study's criteria. This study explores if DEI can increase a sense of belonging, growth mindset, and hope for first-generation college students.

Table 1
Demographic Representation of Participants

Ethnicity	Frequency	Percentage in the sample	Percentage at Fresno State
Hispanic/Mexican-American/Latino/Chicano	59	70.2	44.7
White/Caucasian	12	14.3	23.3
Southeast Asian (Hmong, Laotian, Vietnamese)	5	6.0	15.3**
Other/Mixed Race	3	3.6	3
Asian (other than Southeast Asian)	2	2.4	**
African American or Black	2	2.4	3.5
Pacific Islander	1	1.2	0.2
Total	84	100.00	90

Note. ** Asian and Southeast Asian are categories in the same demographic. Research could not get an exact estimation for this population.

Research Questions

This experiment attempted to answer these research questions using quantitative analysis: The quantitative research hypotheses are as follows:

1. Does the DEI intervention increase students' sense of belonging?
H1: There is a positive correlation between the DEI interventions to a student's sense of belonging as measured by the sense of belonging scale.
2. Does the DEI intervention increase students' levels of hope?
H2: There is a positive relationship between those who completed DEI intervention and high levels of hope.
3. Does the DEI intervention increase student's levels of a growth mindset?
H3: There is a positive relationship between those who completed DEI intervention and high levels of a growth mindset.

Procedure-DEI Intervention At Hispanic Institution

Participants submitted their responses to the intervention questions via email and followed instructions for the next part of the research phase. This confirmed their consent and commitment to contribute to this research experiment. The researcher emailed all panelists who agreed to participate in the five questions' next steps to participate in the panel held on October 28, 2016. The researcher provided a \$25 gift card and breakfast for the panelists who participated in the study as an incentive.

On October 28, 2016, the panel members arrived at an arranged location at 7:30 am to prepare for the panel, ask final questions, network, and eat breakfast. The first panel began at 8:00

am. Randomized samples were accomplished for the University 1 students by placing 200 tickets in a bucket with random numbers that ended with digits that ranged from zero to nine. As University 1 students entered the building, they hand-selected a ticket from the bucket, and if their ticket number ended with 0,2,3,5,6, or 8, they were to be placed in classroom A (the SRWI). If they selected a ticket ending with 1,4,7, or 9, they would be in classroom B (control group). Students then placed their tickets back into the bucket and were escorted to their selected classroom by a research assistant to optimize randomization. Panel members were selected from a bucket of red and green ping pong balls. There were six red balls and six green balls; the panelists with red balls were placed in classroom A, and those with green balls were placed in classroom B. As for the panel members taking part in the intervention in classroom B, they were to answer certain, and were instructed not to speak too much about their background or resilience.

The questions were projected on a PowerPoint presentation around the classroom for the University 1 students to read and to prompt the panel members in each classroom as to when to begin, move on, and end. The PowerPoint began by asking the University 1 students to take a pre-test. A link was then provided to the students, and a time limit was set for the pre-test. The PowerPoint was operated using a wireless device that switched from slide to slide after each panelist's response to each question. At the end of the panel, the University 1 students completed the post-test.

Classroom A observed 6 of the 12-panel members, as well as the selected University 1 students participating in the SRWI intervention. Classroom B was the control group setting. In the control group, the second group of participants also listened to another half of the 6 remaining panel members, but this panel did not utilize the questions from the DEI study.

Panelists commenced by independently responding to the following questions:

1. People come to college for many different reasons. What did coming to college mean for you?
2. Students can have a wide variety of experiences when they transition to college and come from many different backgrounds. Thinking back, what was the transition to Fresno State like for you? What did you feel or think when you first entered Fresno State?
3. Can you share some specific challenges about coming to college? Can you provide an example of an obstacle that you faced when you came to Fresno State and how you resolved it? Why or how did you keep going?
4. Did your decision to attend Fresno State affect your relationship with your friends and family at home? If yes, how so?
5. Would you advise other students to do with backgrounds similar to our own?

Results

Each of the three constructs: belonging, hope, and mindset were measured independently utilizing the participant's survey responses from time one (t1) to time two (t2). The quantitative analysis is shown in Table 2. The primary methods of analysis are independent t-tests and repeated

measures analysis of variance (ANOVA), and Two-Way ANOVAs. These methods were used to determine what relationships existed between the intervention and related outcomes.

Table 2

Analysis of the 4 Dependent Variables for SRWI

#	Construct	N	M	SD	1	2	3	4	5
1	Belonging t1	82	4.61	0.75					
2	Belonging t2	70	4.94	0.70	.740**				
3	Hope t1	82	6.95	0.85	.491**	.311**			
4	Hope t2	73	7.22	0.81	.506**	.491**	.671**		
5	Mindset t1	83	4.36	0.78	.337**	0.217	.457**	.421**	
6	Mindset t2	71	4.52	0.83	0.142	0.198	0.234	.446**	.610**

Note. *** = $p < .001$, ** = $p < .01$

The effects of the intervention were tested with repeated measures ANOVA with the main factors condition (intervention condition vs. control condition), time (pre- and post-test), and the interaction between condition and time (difference between the two conditions over time). Results are described below, which are shown in Table 3.

Table 3

ANOVA Interaction between Time and Intervention

Pre & Post Test	Dependent Variables		
DEI vs Control	Sense of belonging	Hope	Mindset
Time	17.30***	11.34***	1.57
Time*Intervention	0.75	0.09	3.50+

Note. *** = $p < .001$, + = $p = 0.066$

Research Question 1: Sense of Belonging

For sense of belonging only the main effect of time was statistically significant at the .05 significance level, with $F(1, 66) = 17.3$, $p < .001$. Since the interaction of time with the condition was not significant, this indicates that there was no difference in change across the groups and that the sense of belonging was significantly higher at time 2 ($M = 4.93$, $SD = 0.70$) than at time 1 ($M = 4.62$, $SD = 0.76$) with an η^2 of 21%.

Research Question 2: Hope

For hope only the main effect of time was statistically significant at the .05 significance level, with $F(1, 66) = 11.34, p < .001$. Since the interaction of time with the condition was not significant, this indicates that there was no difference in change across the groups and that hope was significantly higher at time 2 ($M = 7.19, SD = 0.81$) than at time 1 ($M = 6.90, SD = 0.82$) with an η^2 of 14%.

Research Question 3: Growth Mindset

For the growth mindset, the interaction of time with the condition was not statistically significant ($p = 0.066$). Although the result was not statistically significant, it is important to note because the mindset mean increased for the intervention group and decreased for the control group. The η^2 of 23% indicates that there is a substantial portion of the variance that is explained by the intervention. When inspecting figure XYZ one can see that the intervention group increases from time 1 ($M = 4.28, SD = 0.85$) to time 2 ($M = 4.57, SD = 0.85$), while the control group decreases slightly. Figure 1 illustrates the indications that an interaction occurred for the growth mindset between the control and the intervention group. And the effect of time was not significant, a further indicator that the increase did not occur in both groups.

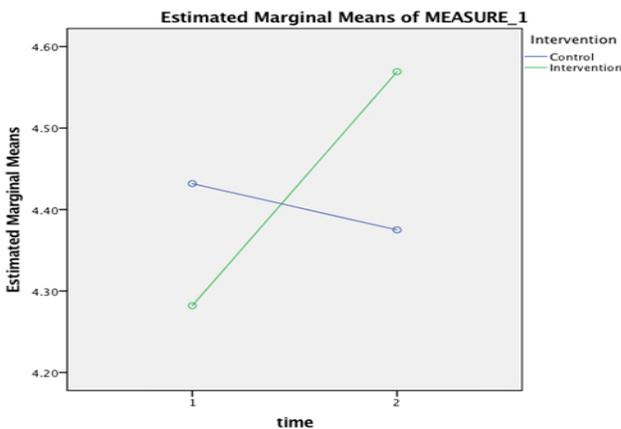


Figure 1. Growth mindset interaction

Using a quantitative approach with repeated measures ANOVA's the participants' pre and post-scores three non-cognitive skills were compared across the two groups to determine if the intervention had an effect on these non-cognitive factors for participants of the study. This study determined that both panels did have a positive impact on participants' sense of belonging, and hope, but only DEI had a positive effect on growth mindset. Inversely, in the control group growth mindset went down. This study found that first-generation students who participated in a DEI can have an increase in their sense of belonging, hope, and mindset.

H1: There is a positive correlation between the SRT interventions to a student's sense of belonging as measured by the sense of belonging scale.

H2: There is a positive relationship between those who completed SRT intervention and high levels of hope.

H3: There is a positive relationship between those who completed SRT intervention and high levels of a growth mindset.

The results from this study revealed that DEI could be an essential intervention to be further explored in colleges when working with marginalized populations as it shows promise to promote a sense of belonging, growth mindset, and hope. These data from panelists' responses also give university administrators a better understanding of some of the issues first-generation students face, specifically at Fresno State. This study also provides the opportunity for DEI to be further explored in the field of education in efforts to eliminate the social-class achievement gap and address the holistic (mental, emotional, and social) aspects of the first-generation and continuing first-generation student experience.

Limitations

Being involved as the researcher and the facilitator of the intervention could have skewed the results due to researcher or participation bias. Being so closely involved with the participants made them feel like they needed to respond in a certain way, exaggerate, or even have selective memory and not be responsive to the prompts. Another limitation that should be noted was obtaining consent from students to proceed with the study. The lack of belonging and feelings of shame are sensitive subjects for some, and it can be challenging to get access or student buy-in. This could have reduced the generalizability of the study by decreasing the number of participants willing to participate due to the sensitivity of the research topic. It is unpredictable to estimate the return rate on surveys, and surveys might have yet to be completed truthfully. If the return rate dropped or responses were skewed, then results could have been threatened as well as the generalizability of the study—additionally, the study aimed for a sample of 180 students representative of the university's student demographics. When conducting an experiment with a control and experimental group there is always the risk of attrition.

Discussion

Interventions such as DEI and SPI show promise in higher education settings because they use scientific methods to systematically develop brief interventions that can have long-lasting positive effects. The present study showed that panels of continuing students sharing experiences and advice with first-year, first-generation students can increase a sense of belonging and hope. Interventions like these are critical as Latina/o/x students have steadily increased in this last decade, and this cohort continues to face significant barriers to academic achievement, including minimal information about college and limited access to the kind of preparation and advising that will help them get there (Conchas & Acevedo, 2020). DEI, where students are systematically guided to talk about their background, is particularly helpful for first-generation students to increase resilience and how to navigate these cultural barriers. DEI is a new concept in the field of education and needs to be further explored to determine the holistic dynamics associated with this

framework when working with first-generation students in regards to gender, race, class, and ethnicity.

When conducting research in a higher education setting, it is critical to observe if DEI has an effect on academic attainment for first-generation students and if these interventions can support the student during and post-COVID with challenges that can manifest social isolation, anxiety, and depression without proper attention (Gopalan, Linden-Carmichael, Lanza, 2022). DEI is an unconventional approach to traditional education that seeks to provide leaders with a tool to help their college students have the best possible opportunities available to them in our 21st century with interventions rooted in proven scientific approaches. Furthermore, longitudinal studies need to be created to track how long the effects of DEI last on the participant's non-cognitive skills and academic attainment.

Conclusion

The LAO noted in its report that the California State University system currently enrolls students who do not meet proficiency in college-level coursework (California Legislative Analyst's Office, 2013). Additionally, Tierney and Rodriguez (2014) observed the University of California (UC system) and found that of every 100 freshmen who enrolled, about 60 graduated in the fourth year, whereas 84 graduated in the sixth year. In addition to the UC system, this study found that for every 100 newly admitted college freshmen who entered the California State University (CSU) system, only 17 graduated within the fourth year. In the community college setting, merely 52 of 100 entering first-year college students continue into their sophomore year, while only 31 graduate by the third year (Tierney & Rodriguez, 2014). These data make it clear that a higher proportion of students who are enrolling in higher education remain excessively ill-equipped for the challenges that higher education demands of them and, as a result, function below par, fall short with coursework and further obligations, and subsequently discontinue their goal of attaining a college degree. Rather than normalizing student experiences, interventions like DEI conveyed to students that their social upbringings are relevant in college and might result in very different experiences. The interventions reinforced academic relevance within the individual, fostering a sense of identity as a college student while cultivating an experience of adequacy and liberation (Stephens et al., 2014).

Students who suffer from low socioeconomic factors or first-generation students are less likely to graduate on time than those who do not fit into these categories (Jury et al., 2016). In the past five years, interventions like DEI and SPI have been scientifically tested to support disenfranchised student populations in higher education settings. These forms of intervention have been considered to counterbalance the challenges these students face (Stephens et al., 2014; Walton & Cohen, 2011). These interventions show real promise for higher education institutions because they do not last more than 1 hour, yet they are responsible for increases in GPA and other positive dynamics with underrepresented students (Walton & Cohen, 2011; Stephens et al., 2014). I would also add that creating community spaces that build on these interventions where students can check in with each other and find ways to build community can also enhance the sustainability

of these interventions for first-generations students. In light of COVID-19 and new policy emphases on disenfranchised students graduating on time, scholars must develop a solid theoretical understanding of how these interventions work to support universities in creating the environments and conditions that will help all their students thrive; especially those populations (such as first-generations students) who have historically and continue to have challenges in their transition to college.

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