

Supplemental Material: Intervention and Control Stories

Participants read five student stories (i.e., one story from each of five students). Across both conditions, the students were intentionally diverse in gender and race/ethnicity, including a Hispanic male, a White female, an Asian female, a Black male, and a White male. In the difference-education condition, there were two first-generation students (Hispanic male and White female) and three continuing-generation students (Asian female, Black male, and White male).

After providing informed consent, participants were presented with all five student stories in a standardized order. In both conditions, students were told: “You will now have the chance to read five stories about students’ [university name] experiences. These students came from very different backgrounds before arriving at [university name]. The stories reveal that these differences are part of what makes [university name] such an amazing place to be.”

Difference-Education Intervention Story Samples

Students’ stories in the difference-education condition provided a contextual theory of difference, i.e., an understanding that differences result from people’s experiences in particular contexts over time. The stories provided this theory by describing how students’ different social class backgrounds and experiences prior to college impacted their college experiences in both positive and negative ways. To illustrate, below we included excerpts of stories from both first-generation and continuing-generation students. The contrast between the examples from first-generation and continuing-generation students provides the contextual theory of difference.

Impact of first-generation students’ social class background. Below we provide examples of how first-generation students’ stories conveyed that their social class backgrounds shaped their college experiences in positive and negative ways (i.e., obstacles they faced, as well as strengths and strategies they can leverage to be successful).

Since my parents didn’t go to college, they didn’t feel that they had room to tell me how to make my decisions, as they had never been in that position. That definitely made things hard because I would have liked a bit of input from my parents. More generally my parents just don’t understand a lot of things that I’m going through. So when I’m stressed, they don’t get it. That changes things. One thing that really helps me deal with some of these challenges is to put them into context. I’ve been through a lot of adversity in my life and am sure that I’m not alone in that experience but that defines everything about me. It gave me a much broader perspective that has made [university name] a lot easier to tackle. Midterms and papers seem hard, and they are, but at the same time they just seem like another drop in the bucket and I love that perspective even if I occasionally forget to look at the world through it.

I remember one instance in particular, we were at a family gathering and I was talking about how expensive [university name] was and how we’d have to take out loans in order to afford going there. I remember my dad got really upset that I was talking about that in front of everybody else because at that point it just seemed like that was something kind of private that you talked about all the loans you had to take out - it was almost embarrassing the amount of loans that we had took out because at that point we didn’t

know that that was what most people do. Once we figured that out and once I got my financial aid, it all worked out and was no longer such a big deal to my dad. [*later in the story*] The fact that [university name] seemed like such an improbable destination for me as a public school student, and the fact that I feel like I overcame the odds to be here, really prompted me to work harder and contribute more to [university name] now that I'm here. I think, for me, because of the tough time I had getting here, I appreciate my experience so much more.

Impact of continuing-generation students' social class background. Below we provide examples of how continuing-generation students' stories conveyed that their social class backgrounds shaped their college experiences in positive and negative ways (i.e., obstacles they faced, as well as strengths and strategies they can leverage to be successful).

My parents went to college and they understand the benefits of me taking that path as well. They gave me lots of advice and talked with me about my interests and some options for future careers from a pretty young age. My family was happy that I decided to choose [university name] because I'm from [a nearby city], so they really liked that I would be close to home and that I would be able to come home to visit regularly – I wouldn't be too far if anything happened to me. But once I got to [university name] there was kind of a pressure to come home too often. They also expected to know every detail of my life as a college student. They meant well, but this caused some problems for me during my first year. It came to the point where my parents and I just had to have a talk and I told them that I needed to stay at school more than come home and focus on my school life. I explained to them the need to make more friends and to build a support network at college. I also explained the importance of being fully engaged in exploring my interests and trying out some new extracurricular activities. Once they realized that their expectations were pulling me away from school, I was able to visit a little less so that I could more fully engage in the experience at [university name].

I went to a small private school where I felt really comfortable and supported. But, it was definitely a big adjustment for me going into classes with 150, 300 people. It was hard to stand up for myself and get the personal attention and help that I needed from my professors and TAs. As a first-year, I learned that if you want to take advantage of the opportunities to get the most out of your classes, you really can. All it takes is a little ingenuity to email a professor whose class is closed and ask, 'Can I get into your class? I really want to take it.' And nine times out of ten they'll say sure; I'm excited that you're so excited about being in this class. You can get some really great opportunities that way.

Control Condition Story Samples

To illustrate that the stories in the control condition did not convey a contextual theory of difference, below we included excerpts from these stories. Specifically, in the control condition, students' stories provided general information about the nature of students' different experiences in college, including both positive and negative experiences (i.e., obstacles they faced, as well as strengths and strategies they can leverage to be successful). Importantly, however, this content was not connected to students' social class backgrounds.

I had always had an interest in history in high school and even before that. To see if history was right for me, I took an intro history class my first semester at [university name]. I thoroughly enjoyed the class, and so I took a couple more history classes throughout my first year. I was even more sure about my decision after taking more history classes and declared my major at the end of second semester freshman year. One thing that I've struggled with is figuring out how to manage my time when I have multiple assignments due at once. The sheer amount of work that builds up at the end of the semester, and is seemingly always due on the same day. When I have more than one thing due on the same day, I always try to have in my head what I have coming up in my classes in the next five days or so. If I have a midterm, I'll try to get all of my other homework done so I can focus for a good two or three days on just studying for the midterm.

One challenge for me in my first years was learning how to study and figuring out how to be fully prepared by the time that exams come at the end of the semester. Sometimes, I get really overwhelmed with so much material to learn and remember from so many weeks back. Over the semester classes cover way more information than what I had been used to. I also found that it can be pretty stressful to go from not having to worry much about grades in high school to college classes that are at a completely different level. Throughout the year, I learned that the most helpful way to study for midterms and final exams was to re-read material, at least two or even three different times. Often times, professors will ask obscure questions from the reading as a check to make sure that you have made the effort to do the assigned reading. I have found that if you re-read the material and get those tricky questions right, you will have a definite advantage over a lot of other students who don't do the reading.

Supplemental Material: Additional Analyses

Pilot Study

Reactions to Stories

To rule out the possibility that our predicted positive effects of the difference-education stories were due to the stories simply being perceived as more positive, we measured participants' evaluations of the student stories and their positive and negative affective responses to them. See Table 1 for a complete list of items from these measures as well as those reported in the manuscript.

Measures

Story evaluations. On a 13-item scale that we created for this purpose, participants reported how generally positive, useful and informative they believed the information in the stories to be (e.g., "Do you think the information presented will be useful to [university name] students?"), $\alpha = .85$, $M = 4.76$, $SD = 0.76$. Participants responded using a scale of 1 (*not at all*) to 7 (*very much*).

Affective responses. We instructed participants to think about how they felt after reading the students' stories and to then rate how much they were feeling 14 positive emotions, $\alpha = .94$, $M = 4.52$, $SD = 1.10$, and six negative emotions, $\alpha = .82$, $M = 2.45$, $SD = 1.01$. We based this measure on the positive and negative affect schedule (Watson, Clark, & Tellegen, 1988), and used affect terms relevant to our study context. Participants responded using a scale of 1 (*not at all*) to 7 (*very much*).

Intergroup understanding - appreciation of difference. On five items, drawn from a measure of diversity endorsement (Plaut, Garnett, Buffardi, & Sanchez-Burks, 2011), participants reported whether they perceived their university to accept and appreciate students with different backgrounds (e.g., "There are different ways to be successful at [university name]"), $\alpha = .76$, $M = 6.03$, $SD = 0.84$. Participants responded using a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Results and Discussion

To examine whether the beneficial effects of the difference-education stories were due to the stories simply being perceived more positively, we first examined whether generation status, intervention condition, or their interaction were significantly associated with participants' reactions to the stories. To do so, we conducted three 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate analysis of covariances (ANCOVAs) with the same set of covariates reported in the main text with evaluations of the stories (e.g., positivity and usefulness) and positive and negative affective responses to the stories as dependent variables. After reporting these results, we then describe our methods for controlling for differences. See Table 2 for full results of all univariate ANCOVAs, including means (and standard deviations) with indication of significant differences between means.

Story evaluations. Examining how generally positive, useful, and informative participants believed the information in the stories to be, we found a main effect of condition, $F(1, 116) = 6.56$, $p = .012$, $\eta_p^2 = .054$ [.007, .131]. Specifically, participants in the difference-education condition had a more favorable overall evaluation of the student stories than participants in the control condition. The main effect of generation status and the generation status \times condition interaction were not significant, $F_s < 1.17$, $ps > .282$, η_p^2 s $< .011$.

Affective responses. Examining participants' affective responses to the stories, we found significant main effects of condition for both positive and negative emotions. Specifically, participants in the difference-education condition reported greater positive affect and less negative affect than participants in the control condition, $F_{positive}(1, 116) = 5.79, p = .018, \eta_p^2 = .048$ [.004, .123], and $F_{negative}(1, 116) = 14.00, p < .001, \eta_p^2 = .108$ [.034, .200]. We also found a marginal generation status \times condition interaction for negative affect, $F(1, 116) = 3.81, p = .053, \eta_p^2 = .032$ [0, .099]. First-generation and continuing-generation students did not differ in negative affect in the control condition, $F(1, 116) = 1.48, p = .227, \eta_p^2 = .013$ [0, .065], or in the difference-education condition, $F(1, 116) = 2.21, p = .140, \eta_p^2 = .019$ [0, .077]. In addition, there was no significant difference between continuing-generation students in the difference-education and control conditions, $F(1, 116) = 1.82, p = .180, \eta_p^2 = .015$ [0, .071]. However, first-generation students in the difference-education condition reported less negative affect than those in the control condition, $F(1, 116) = 14.12, p < .001, \eta_p^2 = .109$ [.035, .201]. The main effects of generation status on positive and negative affect and the generation status \times condition interaction on positive affect were not marginal or significant, $F_s < 1.62, p_s > .205, \eta_p^2_s < .015$.

Intergroup understanding – appreciation of difference. To examine whether the difference-education materials affected participants' perceptions of their university's intergroup understanding, we conducted a 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) ANCOVA with the same set of covariates reported in the main text with appreciation of difference as the dependent variable. There were no significant or marginal main or interactive effects, $F_s < 0.45, p_s > .504, \eta_p^2_s < .005$.

Use of responses as covariates. Given the significant main effects of intervention condition, we then reran our primary analyses, reported in the main text, controlling for participants' reactions to the stories. Specifically, we ran four univariate ANCOVAs on participants' perceptions of the college experience, including participants' evaluations of the stories and their positive and negative affect as covariates. Doing so did not change the significance or direction of our results, suggesting that the positive effects of the difference-education stories were not due to the stories simply being perceived as more positive.

Intervention Study

Reactions to Stories and Perception of College Experiences – Time 1

Consistent with the pilot study, immediately after participants read the student stories, we measured their evaluation of the stories and their affective responses to them. At this time (i.e., Time 1), we also measured 11 additional psychological outcomes as indicators of students' perceptions of their college experiences, which we do not report in detail in the main text. One measure was related to stress and anxiety (i.e., social identity threat), one was related to psychological adjustment (i.e., comfort during various campus interactions), and one was related to social engagement (i.e., maintaining relationships with family and friends from home). Five of these measures were related to academic engagement: (a) interest in student services, (b) academic identification, (c) perceptions that working with others is valuable, (d) likelihood of seeking help, and (e) intentions to spend time on classwork. Three of these measures were related to intergroup understanding: (a) perceptions that students' university appreciates difference, (b) perceptions of low status and underrepresented groups' comfort on campus, and (c) perspective-taking. See Table 3 for a complete list of all items from these measures as well as those reported in the main text.

Measures

Unless otherwise noted, we created composites by taking the average across the items included in each measure.

Reactions to Stories. We measured participants' reactions to reading the student stories.

Story evaluations. Participants reported how positive and useful they believed the information in the stories to be on six items we created for this purpose, $\alpha = .84$, $M = 5.08$, $SD = 0.96$. Participants responded using a scale of 1 (*not at all*) to 7 (*very much*).

Affective responses. Participants reported how much they were feeling the same 14 positive, $\alpha = .92$, $M = 3.22$, $SD = 0.72$, and six negative, $\alpha = .90$, $M = 1.92$, $SD = 0.85$, emotions used in the pilot study. Participants responded on a scale from 1 (*very slightly*) to 5 (*extremely*).

Stress and anxiety - social identity threat. We included one measure related to stress and anxiety. On four items (adapted from Walton & Cohen, 2011), participants reported how much they felt that their background was threatened at their university (e.g., "I expect that other students at [university name] will make unfair assumptions about me based on my background and previous experiences"), $\alpha = .65$, $M = 2.92$, $SD = 1.17$. Participants responded on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Reliability for this scale was low and not driven by a single item.

Psychological adjustment - comfort in interactions. We included one measure related to psychological adjustment. On the same seven items used in the pilot study, participants reported their comfort engaging in a variety of campus interactions (e.g., "I feel comfortable sharing my opinions with other [university] students"), $\alpha = .84$, $M = 5.17$, $SD = 1.11$. Participants responded on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Social engagement – maintaining relationships. On two items adapted from Stephens, Hamedani, and Destin (2014), participants reported the number of hours they believed they would spend talking on the phone with their family or their friends from home during their first term, $M = 5.59$, $SD = 4.86$, range: 0-26. We also included one filler item about completing community service. Participants responded on a scale from 0 to 25 hours. To create our composite, we summed across the two activities.

Academic engagement. We included five measures related to academic engagement.

Interest in student services. From a list of 28 student services that we compiled based on university websites that list services available to students, participants selected the services about which they were interested in obtaining more information (e.g., writing center, career center). Our measure of interest was the total number of services each participant selected, $M = 2.68$, $SD = 2.36$, range: 0-10.

Academic identification. On two items (Walton & Cohen, 2011), participants reported their academic identification (e.g., "How important is being a college student to you?"), $r = .62$, $M = 6.49$, $SD = 0.81$. Participants responded on a scale from 1 (*not at all important*) to 7 (*extremely important*).

Value of working with others. On three items we created for this purpose, participants reported whether they believed that working with others is part of being a good student (e.g., "Getting extra help outside of class is part of being a good student"), $\alpha = .71$, $M = 5.69$, $SD = 0.92$. We also included two filler items assessing the value participants placed on other academic behaviors (e.g., "Being a good student means figuring things out on your own").

Help-seeking intentions. On eight items we created for this purpose, participants reported how frequently they intended to seek out help from a variety of sources at the university

in a typical month (e.g., “email a professor to ask a question”), $\alpha = .79$, $M = 1.95$, $SD = 0.95$. Participants responded on a scale from 0 to 5 (or more) times.

Intentions to spend time on classwork. On two items adapted from Stephens and colleagues (2014), participants reported the number of hours they believed they would spend completing classwork with their peers or on their own during their first term at school, $M = 7.62$, $SD = 7.82$, range: 0-37. Participants responded on a scale from 0 to 25 hours. To create our composite, we summed across the two activities.

Intergroup understanding. We included three measures related to intergroup understanding.

Appreciation of difference. On two items (Plaut et al., 2011), participants reported whether they believed that their university is accepting of students with different backgrounds (e.g., “Students with different backgrounds and experiences can find their own way of being successful at [university name]”), $r = .50$, $M = 6.08$, $SD = 0.97$. Participants responded on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Comfort of low status and underrepresented groups. On seven items we created for this purpose, participants reported their perceptions that members of various low status and underrepresented groups would feel comfortable at their university (e.g., “Racial or ethnic minority students”), $\alpha = .83$, $M = 5.01$, $SD = 1.07$. Participants responded on a scale from 1 (*not at all comfortable*) to 7 (*very comfortable*).

Perspective-taking. On six items (Davis, 1983), participants reported their perspective-taking (e.g., “I believe that there are two sides to every question and try to look at them both”), $\alpha = .59$, $M = 4.41$, $SD = 0.58$. Participants responded on a scale from 1 (*does not describe me well*) to 5 (*describes me very well*). Reliability for this scale was low and not driven by a single item.

Results and Discussion

Reactions to stories. To examine whether the beneficial effects of the difference-education stories were due to the stories simply being perceived more positively, we first examined whether generation status, condition, or their interaction were significantly associated with participants’ reactions to the stories. We conducted three 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate ANCOVAs with evaluations of the stories (e.g., positivity and usefulness) and positive and negative affective responses to the stories as dependent variables and our standard set of covariates. For all three measures, we found no significant effects of generation status, condition, or their interaction, $F_s < 2.04$, $p_s > .155$, η_p^2 s $< .017$, see Table 4. Given there were no significant main or interactive effects, we did not rerun our primary analyses controlling for participants’ responses.

Perceptions of college experiences. Next, we conducted three 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate ANCOVAs: one for our single measure related to stress and anxiety (i.e., social identity threat), one for our single measure related to psychological adjustment (i.e., comfort during various campus interactions), and one for our single measure related to social engagement (i.e., maintaining relationships). We conducted two 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) multivariate ANCOVAs: one for our five measures related to academic engagement and one for our three measures related to intergroup understanding. To be thorough and allow for comparison of our results with those of the initial in-person panel intervention, we also report the results of univariate ANCOVAs for these eight measures. For all univariate ANCOVAs, we report significant or marginal results in the text below and include full results in Tables 5, 6, and

7 with means and standard deviations, as well as indication of significant differences between means. We included our standard set of covariates in all analyses.

Stress and anxiety - social identity threat. For participants' stress and anxiety, there were no significant or marginal main or interactive effects, $F_s < 0.37$, $p_s > .546$, η_p^2 s $< .004$.

Psychological adjustment - comfort in interactions. For participants' expectations of feeling comfort in various interactions on campus, there was not a main effect of generation status, $F(1, 125) = 0.28$, $p = .598$, $\eta_p^2 = .002$ [0, .035], but there was a marginal main effect of condition, $F(1, 125) = 2.96$, $p = .088$, $\eta_p^2 = .023$ [0, .082]. Specifically, participants in the difference-education condition reported greater expectations of feeling comfort in campus interactions than participants in the control condition, regardless of generation status. We also found a significant generation status \times condition interaction on expected comfort in interactions, $F(1, 125) = 6.51$, $p = .012$, $\eta_p^2 = .050$ [.006, .123]. Although continuing-generation students reported greater expected comfort than first-generation students in the control condition, $F(1, 125) = 3.95$, $p = .049$, $\eta_p^2 = .031$ [0, .094], the two groups did not differ in the difference-education condition, $F(1, 125) = 1.36$, $p = .246$, $\eta_p^2 = .011$ [0, .059]. The difference-education intervention increased first-generation students' expected comfort compared to the control condition, $F(1, 125) = 7.68$, $p = .006$, $\eta_p^2 = .058$ [.009, .134]. There was no difference between conditions among continuing-generation students, $F(1, 125) = 0.42$, $p = .516$, $\eta_p^2 = .003$ [0, .039].

Social engagement – maintaining relationships. The univariate ANCOVA examining social engagement revealed no significant or marginal main or interactive effects, $F_s < 0.23$, $p_s > .636$, η_p^2 s $< .003$.

Academic engagement. In one multivariate ANCOVA, we included the five measures related to academic engagement (i.e., interest in student services, academic identification, value of working with others, help-seeking intentions, and intentions to spend time on classwork). The multivariate ANCOVA for academic engagement revealed neither a main effect of condition, $F(5, 121) = 0.61$, $p = .692$, $\eta_p^2 = .025$ [0, .043], nor a main effect of generation status, $F(5, 121) = 0.60$, $p = .700$, $\eta_p^2 = .024$ [0, .042]. In addition, the multivariate ANCOVA for academic engagement revealed a non-significant generation status \times condition interaction, $F(5, 121) = 1.75$, $p = .128$, $\eta_p^2 = .068$ [0, .114]. Follow-up univariate ANCOVAs revealed no significant or marginal main effects for these five measures, $F_s < 1.80$, $p_s > .181$, η_p^2 s $< .015$. In addition, we did not find significant or marginal generation status \times condition interactions for likelihood of seeking help and intentions to spend time on classwork, $F_s < 1.80$, $p_s > .182$, η_p^2 s $< .015$. However, we found marginal interactions for interest in student services, $F(1, 125) = 3.52$, $p = .063$, $\eta_p^2 = .027$ [0, .089], and academic identification, $F(1, 125) = 2.94$, $p = .089$, $\eta_p^2 = .023$ [0, .082], and a significant interaction for the value of working with others, $F(1, 125) = 4.65$, $p = .033$, $\eta_p^2 = .036$ [.002, .103]. Overall, the difference-education intervention increased first-generation students' scores on these measures compared to the control condition. See Table 6. We present the results of subsequent simple effects tests below.

Interest in student services. There were no significant differences by generation status in either the control condition, $F(1, 125) = 1.76$, $p = .187$, $\eta_p^2 = .014$ [0, .065], or the difference-education condition, $F(1, 125) = 0.99$, $p = .323$, $\eta_p^2 = .008$ [0, .052]. Nonetheless, the difference-education intervention marginally increased first-generation students' interest in student services compared to the control condition, $F(1, 125) = 2.80$, $p = .097$, $\eta_p^2 = .022$ [0, .080]. There was no

difference between conditions among continuing-generation students, $F(1, 125) = 0.85, p = .358, \eta_p^2 = .007 [0, .049]$.

Academic identification. There were no significant differences between continuing-generation and first-generation students in either the control condition, $F(1, 125) = 2.27, p = .135, \eta_p^2 = .018 [0, .073]$, or the difference-education condition, $F(1, 125) = 0.37, p = .542, \eta_p^2 = .003 [0, .038]$. In addition, there were no significant differences by condition among first-generation students, $F(1, 125) = 1.95, p = .165, \eta_p^2 = .015 [0, .068]$, or among continuing-generation students, $F(1, 125) = 1.00, p = .319, \eta_p^2 = .008 [0, .052]$.

Value of working with others. There were no significant differences by generation status in either the control condition, $F(1, 125) = 1.15, p = .285, \eta_p^2 = .009 [0, .055]$, or the difference-education condition, $F(1, 125) = 2.54, p = .114, \eta_p^2 = .020 [0, .076]$. Nonetheless, the difference-education intervention increased first-generation students' belief that getting help is part of being a good student compared to the control condition, $F(1, 125) = 4.70, p = .032, \eta_p^2 = .036 [.002, .103]$. There was no difference between conditions among continuing-generation students, $F(1, 125) = 0.58, p = .450, \eta_p^2 = .005 [0, .043]$.

Intergroup understanding. In the second multivariate ANCOVA, we included the three measures related to intergroup understanding (i.e., appreciation of difference, comfort of low status and underrepresented groups, and perspective-taking). The multivariate ANCOVA for intergroup understanding revealed neither a main effect of condition, $F(3, 123) = 0.24, p = .865, \eta_p^2 = .006 [0, .018]$, nor a main effect of generation status, $F(3, 123) = 0.41, p = .747, \eta_p^2 = .010 [0, .032]$. In addition, the multivariate intergroup ANCOVA revealed a non-significant generation status \times condition interaction, $F(3, 123) = 1.69, p = .173, \eta_p^2 = .040 [0, .090]$. Follow-up univariate ANCOVAs on these three measures revealed no significant or marginal main effects, $F_s < 0.39, p_s > .537, \eta_p^2_s < .004$. In addition, we did not find significant or marginal generation status \times condition interactions for perceptions of the comfort felt by members of low status and underrepresented groups and perspective-taking, $F_s < 0.06, p_s > .821, \eta_p^2_s < .001$. However, we found a significant generation status \times condition interaction for appreciation of difference, $F(1, 125) = 4.41, p = .038, \eta_p^2 = .034 [.001, .100]$. See Table 7. We present the results of subsequent simple effects tests below.

Appreciation of difference. There was no significant difference by generation status in the control condition, $F(1, 125) = 0.66, p = .420, \eta_p^2 = .005 [0, .045]$, but first-generation students reported perceiving that their university appreciates differences marginally more than continuing-generation students in the difference-education condition, $F(1, 125) = 3.20, p = .076, \eta_p^2 = .025 [0, .085]$. In addition, there were no significant differences by condition among first-generation students, $F(1, 125) = 2.13, p = .147, \eta_p^2 = .017 [0, .071]$, or among continuing-generation students, $F(1, 125) = 2.33, p = .129, \eta_p^2 = .018 [0, .074]$.

Improved College Experiences – Time 2

At Time 2, we included 17 additional measures, which we do not report in the main text, as indicators of students' improved college experiences. These measures were related to stress and anxiety, psychological adjustment, social engagement, academic engagement, and intergroup understanding. In addition, we also measured participants' positive and negative affective reactions to encountering various college scenarios. Finally, we included one additional measure of how frequently participants encountered various college scenarios as a possible covariate. See Table 3 for a complete list of all items from these 18 measures.

Measures

Unless otherwise noted, we created composites by taking the average across the items included in each measure.

Stress and anxiety. We included four measures related to stress and anxiety.

Social identity threat. On the same four items from Time 1, participants reported how much they experienced threat at their university based on their social identity, $\alpha = .66$, $M = 2.98$, $SD = 1.06$.

Psychological vulnerability. On two items developed by Cohen, Kamarck, and Mermelstein (1983) and used by Wickrama and colleagues (2013), participants reported their overall psychological vulnerability (e.g., “How often have you found that you could not cope with all the things that you had to do?”) on a scale from 0 (*never*) to 4 (*very often*), $r = .86$, $M = 0.91$, $SD = 1.00$.

College stress. On nine items from the College Student Stress Scale (Feldt, 2008), participants reported their experiences of stress while at college (e.g., “How often have you questioned your ability to handle difficulties in your life?”) on a scale from 0 (*never*) to 4 (*very often*), $\alpha = .85$, $M = 2.10$, $SD = 0.85$.

Psychological distress. On nine items adapted from the Psychological Distress Scale (Kessler et al., 2002) and the in-person difference-education intervention (Stephens et al., 2014), participants reported how much they experienced anxiety and depressive symptoms over the past 30 days (e.g., “anxious,” “worthless”) on a scale from 1 (*very slightly*) to 5 (*extremely*), $\alpha = .88$, $M = 2.97$, $SD = 0.84$.

Psychological adjustment. We included four measures related to psychological adjustment to college.

Well-being. On two items (Brim et al., 1996), participants reported their overall well-being (e.g., “Overall, how satisfied are you with yourself?”) on a scale from 1 (*not at all*) to 4 (*a lot*), $r = .57$, $M = 3.08$, $SD = 0.68$.

Comfort during interactions. On the same seven items from the pilot study and Time 1, participants reported how comfortable they are in engaging in a variety of campus interactions, $\alpha = .88$, $M = 5.34$, $SD = 1.13$.

Perception of college transition. On three items we created for this purpose, participants reported the difficulty of their college transition: “How difficult was your transition to [university name]?” “How hard was it to make friends?” and “How challenging how your coursework been?” Due to low reliability across these three items, we analyzed the first two items together, $r = .49$, $M = 4.22$, $SD = 1.57$, and excluded the third item from our analyses. Participants responded on a scale from 1 (*very difficult*) to 7 (*very easy*).

Perceived overlap between self and others. On two items adapted from Aron, Aron, and Smollan (1992), participants reported how much overlap they feel with others at their university (e.g., “Please select the picture below that best describes your current relationship with your friends at [university name]”), $r = .56$, $M = 3.58$, $SD = 1.27$. We also included two filler items about overlap with oneself and others outside of the university context. Participants selected one of seven Venn diagrams with various levels of overlap between two circles indicating their perceived overlap between themselves and each different group of others.

Social engagement – maintaining relationships. On four items adapted from Stephens and colleagues (2014), participants reported how many hours per week they spent interacting with close others (e.g., “socializing with friends at [university name]”), $M = 24.72$, $SD = 16.00$, range: 4-90. We also included four filler items about activities that occur in the presence of

others (e.g., “working at a job for pay”). Participants responded on a scale from 0 to 25 hours. To create our composite, we summed across the four activities.

Academic engagement. We included five measures related to academic engagement.

Use of student services. Participants selected the student services they used since arriving at their university from a list of 28 different services. We summed the number of services each participant selected, $M = 2.50$, $SD = 1.65$, range: 0-7.

Academic identification. Using the same two items from Time 1, participants reported their academic identification, $r = .69$, $M = 5.68$, $SD = 1.25$.

Value of working with others. Using the same three items from Time 1, participants reported the degree to which they perceived that working with others is valuable, $\alpha = .70$, $M = 5.46$, $SD = 0.97$.

Help-seeking frequency. Participants reported how often they sought help from a variety of sources at the university in a typical month (e.g., “email a professor to ask a question”), $M = 1.54$, $SD = 0.87$, range: 0-4.33. Items were same as Time 1, but asked participants about their actual behavior instead of their intended behavior. Participants responded on a scale from 0 to 5 times.

Time spent on classwork. On two items adapted from Stephens and colleagues (2014), participants reported how many hours per week they spent completing classwork with their peers or on their own, $M = 20.13$, $SD = 10.27$, range: 3-50. Participants responded on a scale from 0 to 25 hours. To create our composite, we summed across the two activities.

Intergroup understanding - appreciation of difference. On the same two items from Time 1, participants reported their perception that their university accepts and appreciates students with different backgrounds, $r = .55$, $M = 5.84$, $SD = 1.07$.

College scenarios. To measure how students handle various stressful situations, participants reported their anticipated emotional reactions to six author-generated scenarios. Scenarios described potentially stressful situations that are commonly faced by university students. An example scenario is, “Imagine that you have two midterms on the same day. You know that both midterms will be very difficult and are extremely important to your final grade in each class. How would you feel?” Another example scenario is, “Imagine that you are in class having a discussion about what it’s like to live in different types of neighborhoods. Your neighborhood comes up and people are making generalizations about the type of people that live there, but no one knows you live there. How would you feel?”

Participants rated how much they would feel each of six different emotions, three positive and three negative, during each scenario. Participants responded on a scale from 1 (*not at all*) to 7 (*very much*). We created two composites by averaging the three positive emotions together (positive reactions: $\alpha = .90$, $M = 3.86$, $SD = 1.13$) and the three negative emotions together (negative reactions: $\alpha = .85$, $M = 3.56$, $SD = 0.99$). As a potential covariate, we also measured participants’ experience of these (or similar) situations. Specifically, participants reported whether they encountered a similar situation to each scenario in college or not (0 = *no*, 1 = *yes*), which we then summed across scenarios to create a composite frequency of encountering scenarios item, $M = 2.78$, $SD = 1.59$, range: 0-6.

Results and Discussion

To examine participants’ responses on these 17 measures, we conducted the following analyses. We conducted multivariate ANCOVAs for the 15 measures that we organized into groups and univariate ANCOVAs for the two measures that did not fit into a group. Specifically, we conducted four 2 (generation status: first vs. continuing) \times 2 (condition: difference-education

vs. control) multivariate ANCOVAs: one each for measures related to stress and anxiety, psychological adjustment, academic engagement, and responses to college scenarios. As with our Time 1 analyses, to be thorough and allow for comparison of our results with those of the initial in-person panel intervention, we ran follow-up univariate ANCOVAs for these 15 measures. In addition, we report significant or marginal effects in the text below. For the remaining two measures, we conducted two 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate ANCOVAs: one for our measure of social engagement (i.e., maintaining relationships) and one for our measure of intergroup understanding (i.e., appreciation of difference). Finally, to examine the potential covariate of frequency of encountering college scenarios, we ran an additional univariate ANCOVA. For all univariate ANCOVAs, we report significant or marginal main and interactive effects in the text below and present the full results, including cell means and standard deviations with indication of significant differences between cells, in Tables 8, 9, 10, 11, and 12. We included our standard set of covariates in these analyses.

Stress and anxiety. In one multivariate ANCOVA, we included the four measures related to stress and anxiety (i.e., social identity threat, psychological vulnerability, college stress, and psychological distress). The multivariate ANCOVA for stress and anxiety revealed neither a main effect of condition, $F(4, 92) = 0.77, p = .546, \eta_p^2 = .032 [0, .070]$, nor a main effect of generation status, $F(4, 92) = 1.74, p = .147, \eta_p^2 = .071 [0, .132]$. In addition, the multivariate ANCOVA for stress and anxiety revealed a non-significant generation status \times condition interaction, $F(4, 92) = 1.17, p = .328, \eta_p^2 = .049 [0, .098]$. Follow-up univariate ANCOVAs on these four measures also revealed no significant or marginal main effects, $F_s < 1.94, p_s > .167, \eta_p^2_s < .021$, nor any significant or marginal generation status \times condition interactions, $F_s < 1.17, p_s > .282, \eta_p^2_s < .013$. See Table 8.

Psychological adjustment. In the second multivariate ANCOVA, we included the four measures related to psychological adjustment to college (i.e., well-being, comfort during interactions, perceptions of the college transition, and perceived overlap between self and others). The multivariate ANCOVA for psychological adjustment revealed neither a significant main effect of condition, $F(4, 92) = 0.22, p = .925, \eta_p^2 = .010 [0, .010]$, nor a main effect of generation status, $F(4, 92) = 0.24, p = .913, \eta_p^2 = .011 [0, .014]$. In addition, the multivariate ANCOVA for psychological adjustment revealed a non-significant generation status \times condition interaction, $F(4, 92) = 0.81, p = .524, \eta_p^2 = .034 [0, .073]$. Follow-up univariate ANCOVAs on these four measures revealed no significant or marginal main effects, $F_s < 0.76, p_s > .387, \eta_p^2_s < .009$, nor any significant or marginal generation status \times condition interactions, $F_s < 2.17, p_s > .143, \eta_p^2_s < .023$. See Table 9.

Academic engagement. Next, we included the five measures related to academic engagement in the third multivariate ANCOVA (i.e., use of student services, academic identification, perceptions that working with others is valuable, help-seeking frequency, and time spent on classwork). The multivariate ANCOVA for academic engagement revealed neither a main effect of generation status, $F(5, 91) = 0.52, p = .763, \eta_p^2 = .028 [0, .045]$, nor a main effect of condition, $F(5, 91) = 0.56, p = .734, \eta_p^2 = .030 [0, .050]$. The multivariate ANCOVA for academic engagement revealed a significant generation status \times condition interaction, $F(5, 91) = 2.49, p = .037, \eta_p^2 = .120 [.004, .188]$. Follow-up univariate ANCOVAs on these five measures revealed no significant or marginal main effects, $F_s < 2.04, p_s > .156, \eta_p^2_s < .022$, or significant or marginal generation status \times condition interactions for frequency of seeking help or time spent

on classwork, $F_s < 0.58$, $p_s > .448$, η_p^2 's $< .007$. However, we did find a significant generation status \times condition interaction for use of student services, $F(1, 95) = 4.13$, $p = .045$, $\eta_p^2 = .042$ [0, .123], and marginal interactions for academic identification, $F(1, 95) = 3.56$, $p = .062$, $\eta_p^2 = .036$ [0, .114], and the value of working with others, $F(1, 95) = 3.02$, $p = .085$, $\eta_p^2 = .031$ [0, .106]. Below we report the results of simple effects tests for these three measures. See Table 10.

Use of student services. We found no significant differences by generation status in either the control condition, $F(1, 95) = 2.32$, $p = .131$, $\eta_p^2 = .024$ [0, .094], or in the difference-education condition, $F(1, 95) = 0.89$, $p = .348$, $\eta_p^2 = .009$ [0, .064]. Importantly, however, the difference-education compared to control condition marginally increased first-generation students' use of student services, $F(1, 95) = 3.71$, $p = .057$, $\eta_p^2 = .038$ [0, .117]. Continuing-generation students did not differ across conditions, $F(1, 95) = 0.77$, $p = .383$, $\eta_p^2 = .008$ [0, .062].

Academic identification. Although the pattern matched our predictions, none of the simple effects approached significance. There were no differences by generation status in either the control condition, $F(1, 95) = 1.50$, $p = .224$, $\eta_p^2 = .016$ [0, .078], or in the difference-education condition, $F(1, 95) = 1.19$, $p = .279$, $\eta_p^2 = .012$ [0, .072]. In addition, there were no differences by condition among first-generation students, $F(1, 95) = 2.49$, $p = .118$, $\eta_p^2 = .026$ [0, .097], or among continuing-generation students, $F(1, 95) = 1.13$, $p = .290$, $\eta_p^2 = .012$ [0, .070].

Value of working with others. Although the pattern matched our predictions, none of the simple effects approached significance. There were no differences by generation status in either the control condition, $F(1, 95) = 1.40$, $p = .240$, $\eta_p^2 = .014$ [0, .076], or in the difference-education condition, $F(1, 95) = 0.89$, $p = .348$, $\eta_p^2 = .009$ [0, .065]. In addition, there were no differences by condition among first-generation students, $F(1, 95) = 0.79$, $p = .375$, $\eta_p^2 = .008$ [0, .062], or among continuing-generation students, $F(1, 95) = 2.76$, $p = .100$, $\eta_p^2 = .028$ [0, .102].

Social engagement – maintaining relationships. The univariate ANCOVA examining social engagement revealed no marginal or significant main or interactive effects, $F_s < 2.02$, $p_s > .158$, η_p^2 's $< .022$.

Intergroup understanding - appreciation of difference. The univariate ANCOVA examining appreciation of difference revealed neither a main effect of generation status, $F(1, 95) = 0.03$, $p = .867$, $\eta_p^2 < .001$ [0, .123], nor a main effect of intervention condition, $F(1, 95) = 1.02$, $p = .314$, $\eta_p^2 = .011$ [0, .068]. However, we found a marginal generation status \times condition interaction for appreciation of difference, $F(1, 95) = 3.41$, $p = .068$, $\eta_p^2 = .035$ [0, .112]. We found no significant differences by generation status in either the control condition, $F(1, 95) = 1.43$, $p = .235$, $\eta_p^2 = .015$ [0, .077], or in the difference-education condition, $F(1, 95) = 1.15$, $p = .287$, $\eta_p^2 = .012$ [0, .071]. Importantly, however, the difference-education compared to control condition marginally increased first-generation students' perception that their university accepts and appreciates difference, $F(1, 95) = 3.47$, $p = .066$, $\eta_p^2 = .035$ [0, .113]. Continuing-generation students did not differ across conditions, $F(1, 95) = 0.44$, $p = .509$, $\eta_p^2 = .005$ [0, .051].

Responses to common scenarios. Finally, we examined participants' affective responses to common college scenarios. Prior to examining these responses, we investigated whether participants differed systematically in their experience of these scenarios. To do so, we conducted a 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate ANCOVA with frequency of encountering the scenarios as the dependent measure. We found no significant main or interactive effects: main effect of condition, $F(1, 95) = 0.29$, $p = .594$, $\eta_p^2 = .003$ [0, .045], main effect of generation status, $F(1, 95) = 0.01$, $p = .911$,

$\eta_p^2 < .001$ [0, .005], and generation status \times condition interaction, $F(1, 95) = 0.46, p = .497, \eta_p^2 = .005$ [0, .052].

Next, we conducted the fourth multivariate ANCOVA with participants' positive and negative affective reactions to the scenarios as the dependent variables. Given there were no systematic differences by generation status, condition, or their interaction, we did not use the frequency of encountering the scenarios measure as a covariate in this analysis. The multivariate ANCOVA for responses to common scenarios revealed no significant or marginal main or interactive effects: main effect of condition, $F(2, 94) = 1.08, p = .342, \eta_p^2 = .023$ [0, .078], main effect of generation status, $F(2, 94) = 0.29, p = .752, \eta_p^2 = .006$ [0, .037], and generation status \times condition interaction, $F(2, 94) = 1.04, p = .356, \eta_p^2 = .022$ [0, .077]. Univariate ANCOVAs on these two measures revealed no significant or marginal main effects or generation status \times condition interactions, $F_s < 2.07, p_s > .153, \eta_p^2_s < .022$. See Table 12.

Exploratory Moderated Mediation Analyses – Time 2

Theoretically, our primary mediators were empowerment and social fit. However, curious readers may wonder whether the additional indicators of college experience for which we found marginal or significant generation status \times condition interaction effects also mediated the direct effect on students' GPAs. Therefore, we conducted a series of moderated mediation analyses with these additional psychological benefits: psychological thriving, resilience, psychological competence, use of student services, academic identification, value of working with others, and appreciation of difference (i.e., those measures on which there were significant or marginal generation status \times condition interactions). Using Hayes's (2013) PROCESS macro for SPSS 23 (Model 8), we conducted moderated mediation analysis with 10,000 bootstrap resamples. In all the following analyses, we included our standard set of covariates. Generation status served as the moderator of both the indirect paths from intervention condition through our mediators, and the direct path from intervention condition to academic performance. See Table 13 for results.

We found initial support for the mediating role of resilience, $b = -0.103, SE_{boot} = 0.060, 95\% \text{ CI } [-0.259, -0.016]$, and psychological competence, $b = -0.094, SE_{boot} = 0.059, 95\% \text{ CI } [-0.260, -0.013]$. However, given our a priori predicted mediator was empowerment, we then ran a parallel moderated mediation analysis with empowerment, resilience, and psychological competence as simultaneous mediators. In this analysis, the only significant mediator was empowerment, $b = -0.120, SE_{boot} = 0.078, 95\% \text{ CI } [-0.328, -0.018]$, other $|b_s| < .031$, suggesting that the other indicators of college experience did not mediate changes in students' grades when holding empowerment constant.

Comparison with Stephens, Hamedani, and Destin's (2014) Results

In an effort to further facilitate the comparison of our findings with those of the in-person panel difference-education intervention, we discuss points of overlap and difference below. We focus on measures of psychological benefits from Time 2 (i.e., end of year 1) because this is the time period when participants were asked these measures in the in-person panel intervention. After discussing areas in which results of the present research diverge from results of the in-person panel intervention, we offer suggestions for why these differences could have occurred. We speculate that divergent results could be due to differences in (a) the college contexts (e.g., their cultures, norms, etc.) in which we conducted these interventions, (b) the participants in these two universities, or (c) the format in which the interventions were administered (i.e., online vs. in-person).

Behavioral empowerment. One point of divergence between our findings and those of the in-person panel study is the mechanism through which the intervention improved first-generation students' grades. Although both studies found support for a form of empowerment, there are important differences. Stephens and colleagues' (2014) study improved grades via a measure of behavioral empowerment (i.e., tendency to take advantage of college resources). This measure asked students to report their frequency of (a) emailing professors to ask questions, (b) meeting with professors outside of class, and (c) going to the writing center. We expanded on the measurement of behavioral empowerment in the present online intervention study in two ways. First, we used an expanded version of the college resources measure in our intervention study, including additional places students might seek help (e.g., meeting with other students or mentors and advisors; see our measure of help-seeking intentions). Second, we also included a new measure of behavioral empowerment (i.e., use of student services such as the math center or the academic support center). Although the online difference-education intervention did not improve first-generation students' empowerment on the measure of behavioral empowerment that was included in the in-person study (i.e., help-seeking intentions), the predicted pattern of results emerged on the new measure of behavioral empowerment (i.e., use of student services). That is, first-generation students in the difference-education condition reported greater use of student services than first-generation students in the control condition (see above and Table 10 for detailed results). However, this was not a significant mediator of first-generation students' increased grades.

We speculate that these divergent results on different measures of behavioral empowerment could be due to differences in the two college contexts in which we conducted these interventions. In particular, the two universities may have different norms around help-seeking. For example, as mentioned in the main text, the university context where the online intervention was conducted, compared to the one in which the in-person panel intervention was run, could have stronger norms discouraging help-seeking in the form of reaching out to professors. However, norms in this university context may not discourage seeking help from student services (e.g., the math center, the center for academic support, etc.). For example, students may understand these services' explicit purpose to be providing students with additional help. As a result, norms may encourage the use of student services. The conceptual replication across these two measures of behavioral empowerment, coupled with the divergent results, suggests the value of using various measures to tap the same construct across contexts.

Psychological empowerment. As mentioned in the main text, we find evidence that the online intervention improved first-generation students' grades through an increase in psychological empowerment. To measure psychological empowerment, we created a composite of perceived preparation, academic efficacy, and learner empowerment. In the in-person panel study, only perceived preparation and academic efficacy were measured, and they were analyzed separately. Although the high reliability of our empowerment composite (i.e., Time 1: $\alpha = .84$ and Time 2: $\alpha = .90$), suggests a similar pattern of results across perceived preparation, academic efficacy, and learner empowerment, some readers may be interested in separate analyses for each. Therefore, we report below three 2 (generation status: first vs. continuing) \times 2 (condition: difference-education vs. control) univariate ANCOVAs with perceived preparation, academic efficacy, and learner empowerment at Time 2 as dependent variables and our standard set of covariates. After presenting the results for each measure, we speculate on the potential causes of any divergence in results between the online intervention and the in-person, panel intervention.

Perceived preparation. The measure of perceived preparation from the in-person panel study consisted of the following two items: “I am well prepared to be academically successful as a student at [university name]” and “I expect that the academic experience at [university name] will be difficult for me” (reverse-coded), $r = .38$, $M = 4.55$, $SD = 1.25$. These were the first and second items in the online study’s empowerment composite. Results of the in-person panel intervention showed a marginal main effect of condition such that both first- and continuing-generation students reported greater perceived preparation in the difference-education condition compared to the control condition. In contrast, in the current online study, we did not find a significant effect of condition on perceived preparation, $F(1, 95) = 0.95$, $p = .333$, $\eta_p^2 = .010$ [0, .066]. We also did not find a significant effect of generation status, $F(1, 95) = 1.16$, $p = .283$, $\eta_p^2 = .012$ [0, .071], or a significant generation status \times condition interaction, $F(1, 95) = 1.73$, $p = .191$, $\eta_p^2 = .018$ [0, .083]. Given the lack of effects in the present study and the marginal main effect in the in-person panel intervention, we speculate that difference-education interventions may not have a robust effect on students’ perceived preparation, at least in the two university contexts examined.

Academic efficacy. The measure of academic efficacy used in the in-person panel study consisted of the following three items: “I can do all of the work in class if I don’t give up,” “I’m certain I can master the skills taught at [university name] this upcoming year,” and “I’m certain I can figure out how to do the most difficult classwork,” $\alpha = .91$, $M = 5.63$, $SD = 1.38$. These were the third, fourth, and fifth items in our empowerment composite. Results of the in-person panel intervention showed no significant or marginal main or interactive effects on participants’ academic efficacy. We found neither a significant main effect of generation status, $F(1, 95) = 2.09$, $p = .152$, $\eta_p^2 = .021$ [0, .090], nor a significant main effect of condition, $F(1, 95) = 1.08$, $p = .302$, $\eta_p^2 = .011$ [0, .069]. We did, however, find a significant generation status \times condition interaction, $F(1, 95) = 8.54$, $p = .004$, $\eta_p^2 = .082$ [.015, .179]. Specifically, among those in the control condition, continuing-generation students felt significantly more academic efficacy than first-generation students, $F(1, 95) = 7.66$, $p = .007$, $\eta_p^2 = .075$ [.012, .169]. However, this difference between first-generation and continuing-generation students was eliminated in the difference-education condition, $F(1, 95) = 0.49$, $p = .486$, $\eta_p^2 = .005$ [0, .053]. In addition, the difference-education condition increased first-generation students’ academic efficacy compared to the control condition, $F(1, 95) = 6.66$, $p = .011$, $\eta_p^2 = .066$ [.008, .157]. There was no difference between conditions among continuing-generation students, $F(1, 95) = 2.21$, $p = .140$, $\eta_p^2 = .023$ [0, .092]. We speculate that these divergent results may be due to differences in the first-generation students in the two university contexts. Specifically, first-generation students at the university in which the online intervention was run may have lower average levels of academic efficacy, feeling less able to complete the classwork and master the skills taught, relative to first-generation students at the university in which the in-person panel intervention was conducted. As a result of their lower initial levels of academic efficacy, first-generation students at the university in which the online intervention was conducted may have had more room to improve.

Learner empowerment. As mentioned above, learner empowerment was not measured in the in-person panel study. Our composite consists of the sixth, seventh, and eight items from our empowerment composite (i.e., “I can do things at [university name] in a way that is right for me,” “I have a choice about what I am doing and learning at [university name],” “I have the power to influence my [university name] experience”), $\alpha = .84$, $M = 5.80$, $SD = 1.16$. We found neither a significant main effect of generation status, $F(1, 95) = 0.26$, $p = .615$, $\eta_p^2 = .003$ [0,

.044], nor a significant main effect of condition, $F(1, 95) = 0.34, p = .561, \eta_p^2 = .004 [0, .048]$. We did, however, find a significant generation status \times condition interaction, $F(1, 95) = 4.50, p = .036, \eta_p^2 = .045 [.002, .128]$. There were no significant differences by generation status in either the control condition, $F(1, 95) = 2.58, p = .112, \eta_p^2 = .026 [0, .099]$, or the difference-education condition, $F(1, 95) = 0.93, p = .336, \eta_p^2 = .010 [0, .066]$. Importantly, the difference-education condition marginally increased first-generation students' learner empowerment compared to the control condition, $F(1, 95) = 3.11, p = .081, \eta_p^2 = .032 [0, .108]$. There was no difference by condition among continuing-generation students, $F(1, 95) = 1.47, p = .229, \eta_p^2 = .015 [0, .078]$.

Additional psychological outcomes. Finally, the current study finds few psychological benefits, and those that emerge only do so among first-generation students (e.g., academic identification, value of working with others, appreciation of difference). In contrast, the in-person panel difference-education intervention improved a wide range of psychological outcomes, and did so for *both* continuing-generation and first-generation students. That is, compared to participants in the control condition, those in the difference-education condition experienced less stress and anxiety (i.e., psychological distress, social identity threat), greater psychological adjustment (i.e., psychological well-being), greater academic engagement (i.e., academic identification), and greater social engagement (i.e., time spent maintaining relationships from home), as well as better intergroup understanding (i.e., appreciation of difference). We speculate that these divergent results may be due to the different formats in which the two interventions were delivered. Specifically, the experience of learning a contextual theory of difference among a group of other first

-year students (i.e., other study participants) and listening to senior students tell their stories in-person may have rendered the intervention more helpful in general or for continuing-generation students in particular, compared to reading the information online and individually.

Exploratory Measures

We also included two short, exploratory measures in the Time 2 survey to inform our understanding of what students retain from difference-education interventions and for potential use in future research. Specifically, these measures were intended to assess the degree to which participants retained explicit knowledge and conscious awareness of how social differences matter for college experiences over time. As we fine-tune our intervention message in future research, we plan to examine the results of these measures to gain additional insight into (1) whether students retain an explicit understanding of the difference-education message and (2) how general (vs. specific) that understanding of difference is.

One measure, consisting of three open-ended questions, assessed participants' explicit knowledge of the features of their backgrounds that influenced their transition to and experiences in college. These items asked participants to identify and discuss how aspects of their lives and experiences before college affected their transition to and experiences in college. The second measure consisted of three closed-ended items, which assessed the generality of participants' understanding of how difference matters. Two items assessed the relative degree to which participants believed that social differences influence all students' and their own transition to and experiences in college; one item assessed which aspects of their background they believed had an impact on their college transition and experiences (e.g., social class, sexual orientation, local community, etc.). In addition, we asked also participants, in one open-ended item, to report their memory for the initial (Time 1) survey, which included the intervention (or control) student

stories. Instructions for these items and their exact wording are included in the Stimulus Materials document.

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Table 1
Complete List of all Items Included in Measures Used in the Pilot Study

Dependent Variable	Items
Story Evaluations	<ol style="list-style-type: none"> 1. Do you think the information presented will be useful to [university name] students? 2. Did you enjoy hearing other [university name] students' stories? 3. Did the student stories reinforce what you think [university name] is like? 4. Did you learn from the student stories? 5. Did the student stories change your understanding of what it means to be a [university name] student? 6. Did you like the students who shared their stories? 7. Did you think that the information conveyed by the student stories was positive? 8. Did you feel like you could relate to the students who shared their stories? 9. Did the student stories challenge your assumptions about [university name]? 10. Did you pay attention to the content of the student stories? 11. Did you think the student stories were interesting? 12. Did you think that the information conveyed by the student stories was negative? 13. Did the student stories change your perception of the culture at [university name]?
Positive Affect	Empowered, Engaged, Reassured, Positive, Optimistic, Interested, Relieved, Good, Calm, Connected, Stimulated, Motivated, Comfortable, In control
Negative Affect	Overwhelmed, Stressed out, Anxious, Confused, Uncertain, Negative
Appreciation of Difference	<ol style="list-style-type: none"> 1. Students with different backgrounds and experiences can find their own way of being successful at [university name]. 2. There are different ways to be successful at [university name]. 3. It is important to have multiple perspectives on campus (e.g., cultures, races, ethnicities, genders, socioeconomic backgrounds, and sexualities). 4. [University name] makes an effort to include ideas and practices that represent a wide variety of backgrounds. 5. I think that my background will help me succeed at [university name].

Social Fit

1. I feel like I belong as a student at [university name].
2. I feel like I fit in with the academic community at [university name].
3. In the future, I could see myself having a lot of friends at [university name].
4. I expect that the social experience at [university name] will be difficult for me. (reverse-coded)
5. If my parents visit me at [university name], I feel comfortable introducing them to my friends.
6. I feel part of the [university name] community.

Comfort in Interactions

1. Speaking, sharing my thoughts, or asking questions in my classes.
2. Sharing my opinions with other [university name] students.
3. Emailing my professors with thoughts or questions after class.
4. Asking my professors for help outside of class.
5. Asking my peers for advice about academic topics like studying or picking a major.
6. Talking about my background with other [university name] students.
7. Talking about my background with my professors.

Value of Working with Others

1. I think that it is normal for students to ask for help outside of class.
2. Getting extra help outside of class is part of being a good student.
3. Getting advice from mentors and advisors will help me succeed academically.
4. Getting advice from mentors and advisors will help me succeed outside of the classroom, through activities, internships, or awards and fellowships.
5. Getting advice from mentors and advisors is important to help me plan for my future.

Table 2
Univariate Analysis of Covariances Results in the Pilot Study

	<i>Dependent Variable</i>			
	Story Evaluation	Positive Affect	Negative Affect	Appreciation of Difference
	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>				
High School GPA	1.07	3.13 ⁺	1.05	0.28
Race and Ethnicity	0.06	0.08	5.29*	0.02
Gender	3.80 ⁺	6.37*	1.49	0.66
Low-income Status	0.91	2.93 ⁺	0.12	0.65
<i>Main and Interactive Effect</i>				
Condition	6.56*	5.79*	14.00***	0.45
Generation	0.67	0.06	0.01	0.001
Condition × Generation	1.16	1.62	3.81 ⁺	0.14
<i>Raw Means and Standard Deviations</i>				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	4.88 _a (0.80)	4.59 _{a,b} (1.07)	1.92 _a (0.75)	6.10 _a (0.87)
FGs, Control	4.79 _{a,b,c} (0.70)	4.60 _{a,b} (1.15)	2.89 _b (1.10)	6.00 _a (0.80)
CGs, Difference-education	4.90 _{a,c} (0.72)	4.74 _a (0.88)	2.40 _{a,c} (0.85)	6.03 _a (0.75)
CGs, Control	4.39 _b (0.76)	4.03 _b (1.27)	2.65 _{b,c} (1.17)	5.98 _a (1.02)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 116. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$, *** $p < .001$.

Table 3
Complete List of all Items in Measures Used in the Intervention Study at Time 1 and Time 2

Dependent Variable	Time of Measurement	Items
Perceptions of the Stories	Time 1 Only	<ol style="list-style-type: none"> 1. Do you think the information presented will be useful to incoming university name students? 2. Did you enjoy reading the student stories? 3. Did you learn from the student stories? 4. Did you think that the information conveyed by the student stories was positive? 5. Did you like the students who shared their stories? 6. Did you feel like you could relate to the students who shared their stories?
Current Positive Affect	Time 1 Only	See Table 1 for items.
Current Negative Affect	Time 1 Only	See Table 1 for items.
Potential Mediators		
Social Fit	Time 1 & Time 2	<ol style="list-style-type: none"> 1. I expect that I will have to become a different person to fit in at [university name]. (reverse-coded) 2. I feel like I belong as a student at [university name]. 3. I feel a part of the [university name] community.
Empowerment	Time 1 & Time 2	<ol style="list-style-type: none"> 1. I expect that the academic experience at [university name] will be difficult for me. (reverse-coded) 2. I am well prepared to be academically successful as a student at [university name]. 3. I can do all of the work in class if I don't give up. 4. I'm certain I can master the skills taught at [university name] this upcoming year. 5. I'm certain I can figure out how to do the most difficult classwork. 6. I can do things at [university name] in a way that is right for me. 7. I have a choice about what I am doing and learning at [university name]. 8. I have the power to influence my [university name] experience.

Stress and Anxiety

Social Identity Threat	Time 1 & Time 2	<ol style="list-style-type: none"> 1. I expect that other students at [university name] will make unfair assumptions about me based on my background and previous experiences. 2. I expect that my professors at [university name] will make unfair assumptions about me based on my background and previous experiences. 3. People who have backgrounds like my own are included at [university name]. (reverse-coded) 4. I expect that students at [university name] are accepting of people who have had diverse backgrounds and experiences.
Psychological Vulnerability	Time 2 Only	<ol style="list-style-type: none"> 1. Found that you could not cope with all the things that you had to do. 2. Felt difficulties piling up so high that you could not overcome them.
College Stress	Time 2 Only	<p>Felt anxious or distressed...</p> <ol style="list-style-type: none"> 1. About personal relationships. 2. About family matters. 3. About financial matters. 4. About academic matters. 5. About being away from home. 6. Because events were not going as planned. <p>Questioned your ability to...</p> <ol style="list-style-type: none"> 7. Handle difficulties in your life. 8. Attain your personal goals. 9. Felt overwhelmed by difficulties in your life.
Psychological Distress	Time 2 Only	Stressed out, Uncertain, Confused, Worthless, Frustrated, Anxious, Lonely, Negative, Overwhelmed
Psychological Adjustment		
Well-Being	Time 2 Only	<ol style="list-style-type: none"> 1. Overall, how satisfied are you with yourself? 2. At present, how satisfied are you with your life?
Comfort in Interactions	Time 1 & Time 2	See Table 1 for items.

College Transition	Time 2 Only	<p>Items analyzed together:</p> <ol style="list-style-type: none"> 1. How difficult was your transition to [university name]? 2. How hard was it to make friends?
		<p>Excluded item:</p> <ol style="list-style-type: none"> 1. How challenging has your coursework been?
Inclusion of Others in the Self	Time 2 Only	<ol style="list-style-type: none"> 1. Current relationship with your friends at [university name]. 2. Current relationship with your [university name] community.
		<p>Filler Items:</p> <p>Current relationship with your family.</p> <p>Current relationship with your friends from home.</p>
Academic Engagement		
Interest in/Use of Student Services	Time 1 & Time 2	<ol style="list-style-type: none"> 1. General Academic Support Counseling through the Center for Academic Support 2. Office Hours of TAs/Professors 3. School for Communication and Journalism Resource Center 4. Disability Services and Programs 5. Undergraduate Research Fellowships 6. School of Business Peer Tutoring Program 7. Learning Enrichment Workshops 8. Writing Center 9. School of Engineering Student-Alumni Mentoring Program 10. School of Engineering Career Services 11. Center for Learning and Creativity 12. Music Industry Connection 13. Student-Athlete Academic Services 14. The Math Center 15. Chemistry Club 16. Career Center 17. Counseling Services 18. Academic Advising for [the School of Arts and Sciences] 19. Center for Entrepreneurial Studies 20. MediaComm Lab 21. The Language Center 22. Language Table 23. [The School of Arts and Sciences] Advisement: Orientation for Freshman 24. School of Law Peer Mentor Program 25. Center for Academic Support 26. School for Communication and Journalism Career Development Office 27. Peer Tutoring 28. School of Engineering First Year Advising

Academic Identification	Time 1 & Time 2	<ol style="list-style-type: none"> 1. How important is academic success to you? 2. How important is being a college student to you?
Value of Working with Others	Time 1 & Time 2	<ol style="list-style-type: none"> 1. Getting extra help outside of class is part of being a good student. 2. Working well with others is part of being a good student. 3. Getting advice from mentors and advisors helps students to succeed academically. <p>Filler Items: Being a good student means figuring things out on your own. Being a good student means being able to pave your own path to success.</p>
Help-seeking Intentions	Time 1 & 2	<ol style="list-style-type: none"> 1. Email a professor to ask a question? 2. Meet with a professor outside of class? 3. Go to the writing center? 4. Meet with other students to work on homework outside of class? 5. Meet with other students to study for tests or exams outside of class? 6. Meet with a mentor or advisor to seek feedback or advice on course assignments? 7. Meet with a mentor or advisor to seek feedback or advice on choosing classes or picking a major? 8. Meet with a mentor or advisor to seek feedback or advice on future aspirations or career goals?
Time Spent on Classwork	Time 1 & Time 2	<p>Time 1 & Time 2:</p> <ol style="list-style-type: none"> 1. Classwork (working together with peers). 2. Classwork (working on your own).
Psychological Toughness		
Psychological Thriving	Time 2 Only	Empowered, Optimistic, In control, Engaged, Interested, Motivated, Stimulated
Resilience	Time 2 Only	<ol style="list-style-type: none"> 1. When my performance doesn't meet my expectations, I start to question my abilities. (reverse-coded) 2. I am a hard worker. 3. I am able to adapt to change. 4. I think that coping with stress can strengthen me. 5. I can achieve goals despite obstacles. 6. I think of myself as a strong person.

Psychological Competence	Time 2 Only	<ol style="list-style-type: none"> 1. Felt confident about your ability to handle your personal problems. 2. Felt things were going your way.
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Intergroup Understanding

Appreciation of Difference	Time 1 & Time 2	<ol style="list-style-type: none"> 1. Students with different backgrounds and experiences can find their own way of being successful at [university name]. 2. There are different ways to be a successful [university name] student.
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Perceptions of Comfort of Low Status Groups	Time 1 Only	<ol style="list-style-type: none"> 1. The LGBT community 2. First-generation students (first in family to go to college) 3. Racial or ethnic minority students 4. Female students 5. Religious students 6. International students 7. Low-income students
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Perspective Taking	Time 1 Only	<ol style="list-style-type: none"> 1. I believe that there are two sides to every question and try to look at them both. 2. I try to look at everybody's side of a disagreement before I make a decision. 3. I sometimes find it difficult to see things from the "other person's" point of view. (reverse-coded) 4. Before criticizing somebody, I try to imagine how I would feel if I were in their place. 5. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments. (reverse-coded) 6. I sometimes try to understand my friends better by imagining how things look from their perspective.
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Social Engagement

Maintaining Relationships	Time 1 & Time 2	Time 1
		<ol style="list-style-type: none"> 1. Talking on the phone with your family. 2. Talking on the phone with friends from home.
		Time 2
		<ol style="list-style-type: none"> 1. Talking/texting with your family. 2. Talking/texting with friends from home. 3. Socializing with friends at [university name]. 4. Participating in other campus organizations.
		Time 1 & Time 2 Fillers:
		Community service (e.g., volunteering in a homeless shelter).
		Additional Time 2 Fillers:
		Working at a job for pay.
		Religious worship or related activities.
		Training for a sports team, working out.

College Scenarios

Positive Reactions to Scenarios	Time 2 Only	Capable, Empowered, Calm
Negative Reactions to Scenarios	Time 2 Only	Anxious, Frustrated, Overwhelmed
Frequency of Encountering Scenarios	Time 2 Only	Have you encountered a situation similar to this during your time at [university name]?

Table 4

Univariate Analysis of Covariances Results for Responses to Students' Stories in the Intervention Study Time 1

	<i>Dependent Variable</i>		
	Story Evaluation	Positive Affect	Negative Affect
	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>			
High School GPA	1.03	1.86	0.20
Race and Ethnicity	2.18	2.24	0.05
Gender	0.16	0.18	4.11*
Low-income Status	1.29	1.52	0.04
<i>Main and Interactive Effect</i>			
Condition	0.003	1.14	0.01
Generation	0.09	0.19	0.07
Condition × Generation	1.75	1.32	2.03
<i>Raw Means and Standard Deviations</i>			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	5.13 _a (0.85)	3.32 _a (0.76)	1.78 _a (0.87)
FGs, Control	4.92 _a (1.04)	3.07 _a (0.81)	2.04 _a (0.79)
CGs, Difference-education	5.00 _a (0.95)	3.24 _a (0.68)	2.01 _a (0.96)
CGs, Control	5.25 _a (0.97)	3.26 _a (0.67)	1.81 _a (0.75)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 125. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

* $p < .05$.

Table 5
Univariate Analysis of Covariances Results for Measures Related to Stress and Anxiety, Psychological Adjustment, and Social Engagement in the Intervention Study at Time 1

	<i>Dependent Variable</i>		
	Social Identity Threat	Comfort in Interactions	Maintaining Relationships
	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>			
High School GPA	0.04	0.11	4.42*
Race and Ethnicity	0.32	2.86 ⁺	3.41 ⁺
Gender	0.25	2.99 ⁺	0.94
Low-income Status	8.20**	3.80 ⁺	1.21
<i>Main and Interactive Effect</i>			
Condition	0.04	2.96 ⁺	0.22
Generation	0.15	0.28	0.17
Condition × Generation	0.36	6.51*	0.03
<i>Raw Means and Standard Deviations</i>			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.23 _a (1.13)	5.33 _a (0.89)	5.96 _a (5.38)
FGs, Control	3.02 _a (1.25)	4.59 _b (1.37)	5.66 _a (5.08)
CGs, Difference-education	2.77 _a (1.21)	5.25 _{a,b} (1.14)	5.67 _a (4.72)
CGs, Control	2.80 _a (1.09)	5.44 _a (0.80)	5.19 _a (4.62)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 125. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$, ** $p < .01$.

Table 6
Univariate Analysis of Covariances Results for Measures Related to Academic Engagement in the Intervention Study at Time 1

	<i>Dependent Variable</i>				
	Interest in Student Services	Academic Identification	Value of Working with Others	Help-seeking Intentions	Intent to Spend Time on Classwork
	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>					
High School GPA	0.08	1.59	0.58	0.74	0.15
Race and Ethnicity	2.24	0.57	0.46	0.03	1.80
Gender	0.10	0.19	0.91	0.21	0.92
Low-income Status	0.10	0.61	0.08	0.64	0.59
<i>Main and Interactive Effect</i>					
Condition	0.49	0.19	1.41	1.80	1.25
Generation	0.05	0.33	0.10	1.66	0.14
Condition × Generation	3.52 ⁺	2.94 ⁺	4.65*	1.15	1.80
<i>Raw Means and Standard Deviations</i>					
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.24 _a (2.54)	6.64 _a (0.53)	5.99 _a (0.77)	2.06 _a (1.12)	9.52 _a (9.24)
FGs, Control	2.14 _a (2.31)	6.33 _a (0.86)	5.44 _b (0.87)	1.65 _a (0.82)	6.17 _a (6.74)
CGs, Difference-education	2.46 _a (1.92)	6.43 _a (1.02)	5.62 _{a,b} (1.05)	2.04 _a (0.85)	7.42 _a (7.55)
CGs, Control	2.97 _a (2.69)	6.60 _a (0.63)	5.78 _{a,b} (0.84)	1.99 _a (1.02)	7.72 _a (7.93)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 125. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 7
Univariate Analysis of Covariances Results for Measures Related to Intergroup Relations in the Intervention Study at Time 1

	<i>Dependent Variable</i>		
	Appreciation of Difference	Comfort of Low Status and Underrepresented Groups	Perspective- Taking
	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>			
High School GPA	3.67 ⁺	1.81	0.16
Race and Ethnicity	3.73 ⁺	0.17	0.04
Gender	3.31 ⁺	2.12	0.002
Low-income Status	2.24	2.01	1.82
<i>Main and Interactive Effect</i>			
Condition	0.02	0.29	0.21
Generation	0.38	0.31	0.04
Condition × Generation	4.41*	0.05	0.04
<i>Raw Means and Standard Deviations</i>			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	6.22 _a (1.00)	4.76 _a (0.95)	4.35 _a (0.68)
FGs, Control	5.84 _a (0.96)	4.88 _a (1.13)	4.38 _a (0.60)
CGs, Difference-education	5.96 _a (1.17)	5.07 _a (1.19)	4.40 _a (0.53)
CGs, Control	6.30 _a (0.61)	5.23 _a (0.92)	4.49 _a (0.59)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 125. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 8
Univariate Analysis of Covariances Results for Measures of Stress and Anxiety in the Intervention Study at Time 2

	<i>Dependent Variable</i>			
	Social Identity Threat	Psychological Vulnerability	College Stress	Psychological Distress
	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>				
High School GPA	0.81	0.42	0.82	0.30
Race and Ethnicity	1.19	0.08	0.03	0.41
Gender	0.38	0.28	4.39*	1.86
Low-income Status	2.41	0.66	2.47	3.92 ⁺
<i>Main and Interactive Effect</i>				
Condition	0.92	0.23	0.58	0.42
Generation	0.51	0.03	0.20	1.93
Condition × Generation	0.22	1.16	0.09	0.73
<i>Raw Means and Standard Deviations</i>				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.30 _a (1.25)	0.84 _a (0.89)	2.13 _a (0.79)	2.80 _a (0.67)
FGs, Control	3.22 _a (0.86)	1.18 _a (1.05)	2.19 _a (0.77)	3.07 _a (0.86)
CGs, Difference-education	2.92 _a (0.75)	0.91 _a (1.02)	2.00 _a (0.92)	3.03 _a (0.94)
CGs, Control	2.63 _a (1.28)	0.76 _a (1.04)	2.14 _a (0.90)	2.95 _a (0.84)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 95. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 9
Univariate Analysis of Covariances Results for Feelings of Psychological Adjustment in the Intervention Study at Time 2

	<i>Dependent Variable</i>			
	Well-being	Comfort During Interactions	Perception of College Transition	Perceived Overlap Between Self and Others
	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>				
High School GPA	3.26 ⁺	0.09	0.40	3.00 ⁺
Race and Ethnicity	2.44	1.55	1.04	0.09
Gender	0.06	1.13	0.23	0.68
Low-income Status	1.70	4.20*	2.52	0.29
<i>Main and Interactive Effect</i>				
Condition	0.09	0.30	0.75	0.16
Generation	0.11	0.13	0.29	0.18
Condition × Generation	2.03	1.16	2.17	1.88
<i>Raw Means and Standard Deviations</i>				
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.16 _a (0.58)	5.28 _a (1.19)	4.52 _a (1.47)	3.66 _a (1.42)
FGs, Control	2.90 _a (0.82)	4.88 _a (1.41)	3.72 _a (1.60)	3.18 _a (1.52)
CGs, Difference-education	3.03 _a (0.78)	5.44 _a (1.04)	4.15 _a (1.72)	3.57 _a (1.18)
CGs, Control	3.20 _a (0.48)	5.62 _a (0.89)	4.42 _a (1.40)	3.81 _a (1.02)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 95. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 10
Univariate Analysis of Covariances Results Academic Engagement in the Intervention Study at Time 2

	<i>Dependent Variable</i>				
	Use of Student Services	Academic Identification	Value of Working with Others	Help-seeking Frequency	Time Spent with Other Students
	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>					
High School GPA	0.07	0.22	0.72	0.25	3.90 ⁺
Race and Ethnicity	0.13	0.004	0.36	0.83	1.42
Gender	0.86	2.69	0.46	0.96	2.14
Low-income Status	1.62	0.03	0.14	0.59	2.30
<i>Main and Interactive Effect</i>					
Condition	0.85	0.29	0.14	0.60	0.41
Generation	0.22	0.03	0.06	0.35	2.04
Condition × Generation	4.13*	3.56 ⁺	3.02 ⁺	0.58	0.21
<i>Raw Means and Standard Deviations</i>					
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.04 _a (1.43)	5.93 _a (1.42)	5.54 _a (1.06)	1.55 _a (0.83)	20.95 _a (11.58)
FGs, Control	2.15 _a (1.50)	5.38 _a (1.44)	5.25 _a (1.00)	1.56 _a (0.82)	20.65 _a (9.55)
CGs, Difference-education	2.26 _a (1.88)	5.54 _a (1.21)	5.31 _a (1.00)	1.64 _a (1.02)	18.56 _a (11.35)
CGs, Control	2.59 _a (1.58)	5.89 _a (0.95)	5.74 _a (0.79)	1.38 _a (0.73)	21.04 _a (8.40)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 95. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race and ethnicity (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 11
Univariate Analysis of Covariances Results for Social Engagement and Intergroup Understanding in the Intervention Study at Time 2

	<i>Dependent Variable</i>	
	Maintaining Relationships	Appreciation of Difference
	<i>F</i>	<i>F</i>
<i>Covariate</i>		
High School GPA	0.45	0.003
Race	2.34	0.04
Gender	0.12	0.29
Low-income Status	1.79	0.91
<i>Main and Interactive Effect</i>		
Condition	0.001	1.02
Generation	0.03	0.03
Condition × Generation	2.02	3.41 ⁺
<i>Raw Means and Standard Deviations</i>		
	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	21.04 _a (15.56)	6.02 _a (1.06)
FGs, Control	24.85 _a (19.74)	5.40 _a (1.20)
CGs, Difference-education	27.79 _a (16.12)	5.82 _a (1.14)
CGs, Control	23.74 _a (12.99)	6.02 _a (0.80)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 95. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$.

Table 12
Univariate Analysis of Covariances Results for Responses to College Scenarios in the Intervention Study at Time 2

	<i>Dependent Variable</i>		
	Frequency of Encountering Scenarios	Positive Reactions to Scenarios	Negative Reactions to Scenarios
	<i>F</i>	<i>F</i>	<i>F</i>
<i>Covariate</i>			
High School GPA	1.89	0.01	2.79 ⁺
Race	1.08	0.01	0.38
Gender	1.35	5.21*	1.08
Low-income Status	1.53	0.21	1.12
<i>Main and Interactive Effect</i>			
Condition	0.29	0.03	1.68
Generation	0.01	< 0.001	0.49
Condition × Generation	0.46	2.06	0.55
<i>Raw Means and Standard Deviations</i>			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
FGs, Difference-education	3.00 _a (1.41)	4.10 _a (1.11)	3.78 _a (0.94)
FGs, Control	2.90 _a (1.71)	3.81 _a (1.26)	3.69 _a (0.89)
CGs, Difference-education	2.47 _a (1.42)	3.67 _a (1.16)	3.64 _a (0.98)
CGs, Control	2.89 _a (1.85)	3.96 _a (1.00)	3.19 _a (1.06)

Note. Degrees of freedom (*df*) for all dependent variables = 1, 95. FGs = first-generation students, CGs = continuing-generation students, GPA = grade point average. High school GPA (continuous), race (0 = disadvantaged, 1 = advantaged), gender (0 = male, 1 = female), low-income status (0 = low income, 1 = not low income), condition (0 = control, 1 = difference-education), and generation (0 = first-generation, 1 = continuing-generation). Within each column, means that have different subscripts differ significantly based on post hoc tests of adjusted means ($p < .05$).

⁺ $p < .10$, * $p < .05$.

Table 13

Results of Moderated Mediation Analyses with Psychological Benefits as Mediators Between Condition and Academic Performance, Moderated by Generation Status

<i>Possible Mediators</i>	<i>Indirect Effect</i>		
	<i>b</i>	<i>SE_{boot}</i>	95% CI
Psychological Toughness			
Psychological Thriving	-0.063	0.050	[-0.204, 0.001]
Resilience	-0.103	0.059	[-0.259, -0.016]
Psychological Competence	-0.094	0.059	[-0.260, -0.013]
Academic Engagement			
Use of Student Services	0.020	0.034	[-0.027, 0.122]
Academic Identification	-0.052	0.048	[-0.195, 0.007]
Value of Working with Others	-0.060	0.048	[-0.199, 0.002]
Intergroup Understanding			
Appreciation of Difference	-0.032	0.035	[-0.143, 0.010]

Note. Indirect effect of intervention condition through various psychological benefits on academic performance, moderated by generation status (PROCESS Model 8 with 10,000 bootstrap resamples). Analyses include our standard set of covariates.