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# Strength-Based Learning Groups Support Educators to Create Equitable Learning Environments for Economically Marginalized Students

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Despite the tumultuous sociocultural climate that they face in the United States, educators have continued to champion efforts to build more equitable school systems. For their part, researchers have sought to buttress these efforts through advancing a range of humanizing pedagogical approaches that support educators to effectively engage with the experiences and strengths that students gain from their otherwise marginalized identities. Much of the literature on these approaches exists at a conceptual level, however, with recent scholarship highlighting the need to ground them in additional psychological theory and empirically evaluate how they influence both educators and their students. The current article helps meet this call through synthesizing the work on humanizing pedagogical approaches with identity-based motivation theory to test (a) whether educators can be led to adopt humanizing pedagogical approaches in the first place, and (b) what consequences this has for students' long-term learning outcomes. Specifically, we designed and evaluated a novel model for educator development termed "strength-based learning groups" that created collaborative opportunities for educators to learn about and apply these approaches in their classrooms. Across two research–practice partnership studies ($N_{observations}$ = 1,077), we provide experimental (Study 1) and longitudinal mixed-methods (Study 2) evidence that the learning groups not only sustainably increased university educators' positive beliefs about their students who held economically marginalized identities, but also were linked to these students having more positive academic experiences and earning higher grades in courses taught by educators in the learning groups compared to educators in randomly assigned and propensity score matched control conditions.



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The data are available at https://osf.io/z8rsm/.

The experimental materials are available at https://osf.io/z8rsm/.

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***Educational Impact and Implications Statement***

Students who grew up in lower income households or who were the first person in their family to attend college are commonly portrayed as lacking the skills and knowledge necessary to succeed. Yet, these experiences often equip students with valuable but underrecognized strengths that can benefit them throughout their educational journeys. In two studies, we examined whether university educators could be led to recognize these important assets through participating in "strength-based learning groups" that provided them an opportunity to work with their colleagues and expert researchers as they created new classroom materials that could help them effectively engage with students' otherwise stigmatized identities and abilities. Across 3 years of data collection, we found that the strength-based learning groups not only sustainably increased educators' positive beliefs about students who held such identities, but also supported these students to feel more confident and comfortable, and earn higher grades, in the educators' courses. Our findings demonstrate the potential of working with educators and other key elements of the classroom context to help ensure that students have equitable opportunities to pursue their future goals.

*Keywords:* teacher education and development, equity, identity, higher education, critical theory

*Supplemental materials:* https://doi.org/10.1037/edu0000993.supp



School systems, and the societies in which they operate, are frequently built in ways that undermine the academic and holistic success of economically marginalized students (see Destin, 2020; Reardon, 2013). Within higher education, for example, students from lower income households and students who are the first person in their families to attend college (i.e., first-generation college students) often have to contend with imposed psychological and financial barriers beyond the many stressors that are normatively associated with the college experience (e.g., Broton & Goldrick-Rab, 2018; Browman & Destin, 2016; Covarrubias & Fryberg, 2015; Cox, 2016; see Destin et al., 2021). The consequences of these barriers extend well beyond the classroom. They reinforce broader inequities ranging from people's access to lucrative career opportunities, to their likelihood of being incarcerated, to even their odds of dying from preventable mental and physical illness (Adler & Stewart, 2010; Baum et al., 2013; Lochner, 2020; Ridley et al., 2020). As a result, researchers, practitioners, and policymakers are investing considerable resources into efforts to redress disparities between economically marginalized and economically privileged students (for examples and overviews, see Collyer et al., 2023; Schuyler et al., 2021; Takashiro, 2024; Walker et al., 2022).

Educators have long stood at the forefront of these efforts, leading calls for the resources and structural change necessary to ensure that all students are afforded the opportunities that they deserve in school (e.g., Baker, 2011; Picower, 2011). Toward this end, interdisciplinary scholars have developed a number of humanizing pedagogical approaches focused on creating learning environments that effectively value and care for students who experience economic and various other forms of marginalization (e.g., del Carmen Salazar, 2013; Freire, 1970; Paris, 2012; Vossoughi & Gutiérrez, 2016). Although these approaches have resulted in several distinct literatures—including culturally relevant, culturally sustaining, and Freirean pedagogies—they collectively rest on two core tenets about the nature of inequity. First, they recognize that schools have been built by and for individuals who hold identities that are privileged within society (Ladson-Billings, 2014). Consequently, they replicate historical patterns of classism, racism, sexism, and other biases through producing practices and policies that devalue students who come from marginalized backgrounds (Fanon, 1961). Second, these approaches highlight that, despite such systemic barriers, students' otherwise stigmatized identities and associated experiences serve as an important source of invaluable skills, perspectives, knowledge, and ways of being (see Hernandez et al., 2021; Yosso, 2005). Humanizing pedagogical approaches thus serve as an underlying belief system that educational practitioners can build on to develop practices that refute pervasive deficit-based notions about marginalized students in favor of strength-based approaches that recognize their identities as assets to their success and society at large (see Silverman, Rosario, et al., 2023).

To date, the literature surrounding these approaches has primarily existed at an abstract theoretical level. As such, discussions of how humanizing pedagogies may be practically applied in the classroom are often met with the all too familiar refrain of "this sounds great but how do we do it?" (Ladson-Billings, 2006). Rich literatures on related pedagogies (e.g., cooperative learning, Freinet, and Montessori approaches) can provide initial guidance through demonstrating the value of building learning environments that center students' ideas, skills, and relationship-building (for descriptions, see Aronson, 1978; Cochon Drouet et al., 2023; D. W. Johnson & Johnson, 2009; Sivell, 2017). These pedagogies disrupt traditional hierarchical educational practices that frequently undermine economically marginalized students' educational opportunities (e.g., Butera et al., 2024). However, they were not built with the overt goal of challenging pervasive deficit-based narratives about the abilities of students who face economic and other forms of marginalization. Humanizing pedagogical approaches, on the other hand, name this goal as the guiding framework around which educators build their classrooms. Thus, while educators who apply humanizing pedagogical approaches may engage in many of the same practices as those who adopt the related well-established pedagogies named above, they will explicitly tailor these practices to create learning environments that welcome the range of experiences and strengths that students can gain as a direct factor of their otherwise marginalized identities (Destin et al., 2022).

Recent studies have provided valuable descriptive accounts of how this tailoring process occurs among educators who are already

familiar with humanizing pedagogical approaches. Focus group data from Borrero et al. (2018), for example, suggests that these approaches can encourage educators to engage in critical reflexivity as they challenge the deficit-based assumptions that many commonplace educational practices make about the kinds of students who can be successful or the set of experiences that marginalized students might bring to the classroom (see also Freeman et al., 2020). A recent ethnographic study similarly provides initial insights into how broad humanizing pedagogical approaches filter into educators' day-to-day practices (Kondo, 2022). The university educator featured in the study had considerable familiarity with the approaches and emphasized how they can be used to connect students' identities to course goals while maintaining rigorous academic standards. For instance, the educator described creating classroom activities that provided opportunities for students to apply the insights that they had gained from their often overlooked home communities and cultures to extend perspectives on central course topics. At the same time, the educator went out of her way to provide critical and instructive feedback on students' assignments to convey her high expectations for their success and abilities to contribute to the course (Kondo, 2022). In these ways, it is clear that many educators have already begun to translate the tenets of humanizing pedagogical approaches into a diverse range of practices that recognize and reward marginalized students' strengths.

Nonetheless, the empirical literature on humanizing pedagogical approaches is still in its early stages. It has been critiqued for falling short of providing strong empirical evidence regarding (a) whether educators may be led to adopt these approaches in the first place and (b) what consequences they have for students' learning outcomes (Franco et al., 2024; for review, see Bottiani et al., 2018). Educational psychology is well-situated to respond to these important concerns through synthesizing the largely abstract literature on humanizing pedagogical approaches with relevant theory regarding the various forces that shape marginalized students' academic beliefs and behaviors. Doing so has the potential to sharpen understandings of how and when these approaches may be employed to meaningfully promote educational equity while also deepening insights into the dynamic processes through which educators influence student success. Given its shared emphasis on identity as a focal point in students' academic experiences, identity-based motivation theory (Oyserman, 2015) represents an especially promising opportunity to generate precise empirical insights into the effects of humanizing pedagogical approaches.

## Bridging Humanizing Pedagogical Approaches and Identity-Based Motivation

Identity-based motivation theory posits that how individuals think about and pursue their goals is closely informed by their interpretations of their active identities within a given context. In educational settings, research indicates that students feel more motivated and engaged when they are working on classroom tasks that feel congruent or compatible with their current interpretations of their identities (see Oyserman, Lewis, et al., 2017). These interpretations are not static over time, but rather highly responsive to situational and environmental cues (e.g., Oyserman, Destin, & Novin, 2017). For instance, in many educational contexts, activating students' economically marginalized identities can cue pervasive stigmas that frame them as less capable and invested in school than their economically privileged peers (e.g., Croizet & Claire, 1998; Destin et al., 2017; S. E. Johnson et al., 2011; see Lewis & Sekaquaptewa, 2016). When educational contexts cue these stigmas, they constrain students' opportunities to view their economically marginalized identities as congruent with their academic pursuits (see Oyserman & Destin, 2010). Nonetheless, recent studies have provided compelling evidence that bringing to mind these identities while guiding students to interpret them as assets to achieving their goals reinforces student motivation and persistence in the classroom (Bauer et al., 2025; Hernandez et al., 2021).

In concert with related initiatives (e.g., the pathways intervention; Oyserman et al., 2006, 2021), these latter findings demonstrate the potential of working with individual students directly to shift how they come to understand the connections between their identities and academic success. However, additional perspectives grounded in identity-based motivation theory suggest that identity congruence as a process is not in the hands of students alone. The social forces surrounding students, including educators, are proposed to have a striking influence over identity congruence as they create the learning environments within which students come to understand the relationships between who they are and their educational experiences (Destin & Hernandez, 2021). In this way, identity-based motivation theory is inherently linked to humanizing pedagogical approaches and provides a theoretical basis on which to make precise hypotheses regarding their effects. Specifically, the two literatures merge to predict that as educators learn to communicate these approaches in their classrooms, they create educational contexts that afford increased opportunities for economically marginalized students to experience identity congruence and reinforce their productive academic outcomes.

Silverman, Hernandez, and Destin (2023) have begun to test this possibility in laboratory-based studies examining how the beliefs that educators communicate about identity influence economically marginalized students' motivation. The authors demonstrated that randomly assigning university students to read a brief (2-min) excerpt from an educator delivering a lecture in which they explicitly described the value of students' otherwise marginalized backgrounds increased economically marginalized students' perceptions that the educator viewed their identities as compatible with their academic success. As predicted by identity-based motivation theory, this effect in turn helped explain short-term increases in key learning outcomes, including students' feelings of academic empowerment and authenticity within their learning environments (Silverman, Hernandez, & Destin, 2023).

These results collectively begin to demonstrate the potential of identity-based motivation theory to provide specific insights into how educators' humanizing pedagogical approaches influence students' experiences. Even so, it remains an open question as to whether and how actual educators may be led to adopt these approaches in ways that meaningfully affect their economically marginalized students' academic beliefs and behaviors. Indeed, prior research that has sought to prepare educators with new teaching practices and approaches unrelated to humanizing pedagogies has been met with mixed results. Studies consistently indicate that educator professional development initiatives have null or limited effects on educators' outcomes, with few articles examining their consequences for educators' students and even fewer taking place in higher educational contexts (see Cordingley, 2015; Desimone, 2009; Phuong et al., 2018; for exceptions, see Gehlbach et al., 2023; Huang et al., 2024).

In response, scholars have advocated for a paradigm shift in the design and evaluation of these initiatives. Recent frameworks underscore the need to avoid traditional prescriptive approaches to professional development that "assign" educators specific classroom practices in favor of creating more active and collaborative spaces that facilitate educators' deep engagement with new pedagogical tools (Borko et al., 2010; Korthagen, 2017; see also Penuel et al., 2007). As a result, educators can leverage their own expertise in order to translate empirically grounded recommendations into meaningful and sustainable changes for their unique learning environments. Once again, additional work suggests that this form of educator development may be particularly valuable within higher educational contexts given the relative lack of formal teaching preparation that university and graduate school educators receive (e.g., Czerniawski et al., 2017; MacPhail et al., 2019).

We build from these emerging frameworks to test the effects of a novel professional development initiative that aimed to support university educators as they learned about the core tenets and value of humanizing pedagogical approaches. Although the exact design of these strength-based learning groups differed between the two studies presented below (described further in the respective Method sections), they consisted of the same three primary components that were facilitated by two researchers with expertise on the topics of identity, motivation, and educational inequity.

First, educators participated in a series of individual and small group reflection activities in which they considered how their own identities and those of their students shaped their academic journeys. In line with psychological insights regarding effective pathways for activating sustainable shifts in individuals' attitudes and behaviors (see Petty & Briñol, 2012), these activities were intended to foster educators' sense of personal connection to subsequent discussions regarding the factors that guide students' experiences inside and outside of the classroom.

Second, educators learned about humanizing pedagogical approaches as well as the preliminary empirical data demonstrating their promise for supporting student success (e.g., Silverman, Hernandez, & Destin, 2023). This component of the learning groups took the form of an interactive presentation delivered by the expert researchers. The presentations emphasized identity-based motivation theory as a guiding framework for examining how humanizing pedagogical approaches may tangibly influence students' beliefs about their identities and ensuing patterns of academic engagement. Through subsequent discussion, educators began to consider how these approaches can be incorporated into their learning environments, as well as the consequences this may have for their economically marginalized students.

The third and final component of the learning groups had educators work with their colleagues to create specific materials for their classrooms based on humanizing pedagogical approaches. Following the emerging frameworks for educator development, these activities were nonprescriptive (Korthagen, 2017). Educators were not given specific assignments or language that they could use in their courses to convey that they were interested in students' identities and associated strengths. Instead, they took advantage of their own expertise to consider how these approaches could be effectively incorporated into their classrooms in ways that improved the experiences of their economically marginalized students. The educators then worked in small groups to provide iterative rounds of feedback on one another's practices. Thus, this component of the learning groups was designed to encourage educators to deeply process the core tenets of humanizing pedagogical approaches in ways that could foster enduring shifts in their beliefs, behaviors, and the outcomes of their students (see Cunningham et al., 2007).

## Current Studies

The current article evaluates the effects of the strength-based learning groups on both educators and students across two research–practice partnership studies (Coburn & Penuel, 2016) conducted at two higher educational institutions in the United States. Study 1 was conducted with a law school in the Midwest and Study 2 was conducted with a 4-year university in the Southeast. Although there are important differences between these types of institutions (described below), the two featured in our article faced common challenges to effectively serving their relatively high proportions of first-generation college students and students from lower income backgrounds. In fact, both research–practice partnerships were initiated by administrators at the respective institutions following recent internal data that they had collected indicating that their economically marginalized students faced more negative outcomes than economically privileged students, including receiving lower grades and feeling less comfortable in their courses. As such, testing the effects of the strength-based learning groups at both institutions presents a unique opportunity to provide converging evidence regarding their efficacy across diverse learning environments. This not only helps address the relative lack of educator-focused research in higher education, but also meets recent calls to more effectively attend to the experiences of economically marginalized students enrolled in law schools and universities given the potential of these contexts to propel societal equity (Destin et al., 2021; Sander, 2011).

Study 1 serves as a pilot study providing experimental evidence regarding the near-term effects of the learning groups on educators' positive beliefs about economically marginalized students, as well as these students' feelings of identity congruence, authenticity, and academic empowerment in educators' courses (i.e., the outcomes derived from identity-based motivation theory). Study 2 goes on to examine whether these effects persist over time and evaluate the psychological processes through which they lead to subsequent increases in student achievement using within-person, propensity score matched, and mixed-methods analyses. The design and recruitment efforts for the studies were approved by the Institutional Review Boards of the respective host institutions. Educator and student participants completed an approved informed consent process prior to their participation.

## Transparency and Openness Statement

The data and code for both studies have been made publicly available at: https://osf.io/z8rsm/ (Silverman, 2025). Unless otherwise noted, analyses across both studies were conducted in R V4.3.2 using the "lme4" (Bates et al., 2015) and "lmerTest" (Kuznetsova et al., 2017) packages. The studies were not preregistered. The complete set of measures and details regarding the design of the research–practice partnerships and strength-based learning groups may be found in the online supplemental materials.

## Study 1

The research–practice partnership featured in Study 1 was developed over the span of 3 years. During the first 2 years, researchers and administrators at the law school collaborated to administer surveys and semistructured interviews to better understand educators' and students' perceptions of the challenges and opportunities that the institution faced to serving economically marginalized students (see the online supplemental materials). During the final year, the researchers and administrators worked together to interpret these data and apply them to inform the design of the strength-based learning group described below.



### Method

#### *Sample*

In total, 22 educators participated in Study 1. These educators were selected for the study because they had previously expressed interest in being a part of the strength-based learning group—which was advertised as an opportunity for them to work with their colleagues and relevant researchers to learn about humanizing pedagogical approaches to supporting economically marginalized students. Of these educators, nine were randomly selected to be invited to participate in the learning group (i.e., the treatment condition; see details below). The remaining 13 educators were told that they were not randomly selected to participate but that there may be future learning group opportunities (i.e., the control condition).[1]

Additionally, 145 students enrolled at the law school participated in Study 1. Students were recruited for the study through emails sent by university administrators and the researcher partners. As described in detail below, the analyses in Studies 1 and 2 focus on students' responses to a survey that asked them to respond to a set of measures separately for each of their courses. In other words, students completed the measures described below multiple times, once for each of the courses in which they were enrolled, yielding a total of 650 student-course observations (i.e., each student was enrolled in an average of 4.48 courses). The final sample for the current analyses includes students' responses to these measures from the courses that they were enrolled in with educators who were randomly assigned to the treatment or control condition. Thus, the final sample includes 93 observations from 68 students. Each student-level observation represents one student's response to the survey measures about one of the courses that they were enrolled in with an educator in the treatment or control condition. Students had multiple observations when they were enrolled in multiple courses with educators in one of the conditions during the term in which the surveys was administered.

Complete demographic information for both the educators and students who participated in Study 1 may be found in Table 1. Broadly, the educator and student demographics are representative of law school populations in the United States at large, consisting of primarily White students, women, and students from higher socioeconomic status (SES) backgrounds (Brooks et al., 2024; Li et al., 2020). Of particular relevance to the current study, students who were considered as being economically marginalized (i.e., who were 1 *SD* below the mean of a composite indicator of SES) were from lower income households and a majority of them were first-generation college students (see Measures section below).

#### *Strength-Based Learning Group*

As briefly mentioned above, the design of the strength-based learning groups in Studies 1 and 2 consisted of the same core components but were adapted based on the goals and constraints of our practitioner partners. For the sake of informing future efforts to support educators' humanizing pedagogical approaches, we share additional details regarding the learning group programming within each study separately in the sections below.

The learning group in Study 1 took place during the summer of 2021. Due to the COVID-19 pandemic, it was administered as a set of virtual presentations, activities, and discussions that lasted just over three hours. In short, the learning group was designed to facilitate educators deep reflection on the goal of humanizing pedagogical approaches—to create learning environments that center the value of students' otherwise marginalized identities and associated strengths—and consider how they could authentically weave this goal throughout their courses. Educators first participated in a set of activities in which they reflected on how their own identities and those of their economically marginalized students shape their educational experiences. This was done to ground the learning group in the humanizing pedagogies' recognition that people's identities play a crucial part in determining their access to opportunity, how they are viewed in learning environments, and the expectations and stigma that they must often navigate. Next, expert researchers led a presentation and discussion about the empirical evidence underlying the effects of these approaches. In this way, we sought to frame the approaches as a guiding framework for designing concrete practices that effectively engage with students' economically marginalized identities, rather than an abstract set of ideas. This was reinforced in the final set of activities in which the educators worked with one another and the researchers to iteratively develop materials based on humanizing pedagogical approaches. Educators were asked to first identify a specific practice or course assignment that they believed represented a meaningful opportunity to engage with students' economically marginalized identities. They then individually adapted the practice or assignment following guided prompts that encouraged them to reflect on how it could connect to the breadth of strengths and experiences that students might have gained from these identities. Finally, educators worked in small groups to provide feedback on each other's proposed practices with an emphasis on pinpointing further opportunities to demonstrate their genuine commitment to elevating students' economically marginalized identities within their courses. This activity led educators to develop a wide range of course materials. For example, one educator adapted an assignment that she previously had students complete individually to include a group work portion to ensure that she was rewarding a wider array of strengths in her courses. Another educator created a "get-to-know-you" survey that he administered with students on the first day of class to learn more about their identities, past experiences, and strengths. He planned to use this information to redesign other elements of his course to incorporate the perspectives and knowledge that his students might have gained from their otherwise marginalized identities and related experiences.

[1] We were not able to offer a follow-up learning group opportunity to the educators in the control condition due to the COVID-19 pandemic. These educators were instead given online access to the full learning group materials and were encouraged to reach out to the researchers leading the project during the school term following the study's completion.

**Table 1**
*Study 1 Demographics*

| Demographic variable | Treatment educators ($n = 9$) | Overall student sample ($N = 145$) | Students enrolled in courses with educators in the treatment or control condition ($n = 68$) |
|---|---|---|---|
| Generation status (%) | | | |
| First-generation (neither caregiver received a 4-year college degree) | 0 | 15.2 | 17.6 |
| Continuing-generation (at least one caregiver received a 4-year college degree) | 100 | 74.5 | 77.9 |
| Gender (%) | | | |
| Woman | 66.7 | 54.5 | 63.2 |
| Man | 33.3 | 33.1 | 29.4 |
| Other (deidentified to maintain anonymity) | 0 | 2.8 | 2.9 |
| Race (%) | | | |
| White | 88.9 | 53.0 | 52.9 |
| East Asian | 11.1 | 11.7 | 16.2 |
| Southeast Asian | 0 | 1.4 | 1.5 |
| Latinx | 0 | 3.4 | 4.4 |
| Black/African-American | 0 | 4.8 | 7.4 |
| Indian subcontinent | 0 | 4.1 | 2.9 |
| Multiracial | 0 | 11.7 | 10.2 |
| Average years teaching at current institution | 12.44 ($SD = 5.39$) | NA | NA |
| Average household annual income (1–9 scale) | NA | \$90,001–\$150,000 5.26 ($SD = 2.55$) | \$90,001–\$150,000 5.71 ($SD = 2.57$) |

*Note*. Rates of missingness in the demographic information ranged up to 10.3%. Demographic data were unavailable for educators randomly assigned to the control condition.



In the months following the learning group, the educators also had opportunities to continue to refine their materials with the support of the researchers through optional ad hoc virtual meetings, and were given access to a webpage with the materials that educators developed during the learning group.

## Measures

Both the educator and the student outcome measures were presented on a scale of 1 (*strongly disagree*) to 6 (*strongly agree*).

**Educator Measures.** Educators in the treatment condition were asked to complete two surveys measuring two primary outcomes related to educators' likelihood of adopting humanizing pedagogical approaches in their courses. The first survey was administered directly prior to the learning group (i.e., a presurvey), while the second survey was administered 4–6 weeks after the conclusion of the learning group (i.e., a postsurvey). This timeline was selected to help mitigate the potential impact of demand effects on Study 1's results, as well as to provide initial insights into whether the potential benefits of the learning group for educators persisted over time.

***Educators' Strength-Based Beliefs.*** A four-item measure was administered to capture the extent to which educators viewed students' economically marginalized identities as congruent with their success ($\alpha_{pre} = .79$, $M_{pre} = 4.50$, $SD_{pre} = 0.68$; $\alpha_{post} = .97$, $M_{post} = 5.07$, $SD_{post} = 0.99$; adapted from Silverman, Hernandez, & Destin, 2023). Example item: "Students gain beneficial skills and perspectives as a direct factor of their lower SES backgrounds."

***Educators' Self-Efficacy to Support Economically Marginalized Students.*** A three-item measure was administered to capture the extent to which educators felt capable of tangibly supporting the positive learning experiences of their economically marginalized students ($\alpha_{pre} = .89$, $M_{pre} = 3.00$, $SD_{pre} = 0.76$; $\alpha_{post} = .97$, $M_{post} = 4.05$, $SD_{post} = 0.93$; adapted from Silverman, Hernandez, & Destin, 2023). Example item: "I know what I can do in my classroom to support students from lower SES backgrounds."

**Student Measures.** Five months after educators participated in the strength-based learning group, their students completed a survey regarding their academic experiences.[2] Students responded to three primary outcomes derived from identity-based motivation theory separately for each of their courses, as well as provided their demographic information.

***Students' Perception of Educators' Strength-Based Beliefs.*** In line with identity-based motivation theory's focus on students' feelings of identity congruence in context, a single item measure was administered to capture the extent to which students felt as though the educators for each of their courses saw their identities as compatible with their success ($M = 4.53$, $SD = 1.59$; adapted from Silverman, Hernandez, & Destin, 2023). Item: "My professor(s) in [course name] believed that I have gained unique strengths as a factor of my background and lived experiences."

***Students' Empowerment in the Classroom.*** A two-item measure was administered to capture identity-based motivation theory's focus on the consequences that feelings of identity congruence may have for students' feelings of self-efficacy and control over their

[2] The student survey was originally intended to be administered three months after the conclusion of the learning group. However, due to the COVID-19 pandemic and related challenges, university administrators asked us to delay the survey to the beginning of the semester after educators participated in the learning group.

success in each of their courses ($r = .73$, $M = 4.53$, $SD = 1.54$; adapted from Townsend et al., 2019). Example item: "I was able to figure out how to do the most difficult work in (course name)."

***Students' Authenticity in the Classroom.*** A two-item measure was administered to capture identity-based motivation theory's focus on the consequences that identity congruence may have for students' feelings of comfort and inclusion in each of their courses ($r = .84$, $M = 4.76$, $SD = 1.51$; adapted from Silverman, Hernandez, & Destin, 2023). Example item: "I was able to be my authentic self in (course name)."

***Students' Socioeconomic Status.*** Study 1 utilized a standardized composite of students' SES to identify students who held economically marginalized identities. This decision reflects the fact that students' understandings of these identities are informed by various experiences and are often constructed relative to those of their peers (S. E. Johnson et al., 2011). The composite was based on prior research (e.g., Kraus et al., 2009) and included standardized indicators of students' annual family household income ($1 = <\$25{,}000$ to $9 = > \$300{,}000$) and the highest level of education attained by their parents/caregivers ($1 =$ *did not finish high school* to $9 =$ *graduate degree [MA, PhD, JD, MD]*). Among economically marginalized students (i.e., students who were 1 *SD* or more below the mean of the socioeconomic composite, 16% of the observations), the average income was \$25,001–\$70,000 ($M = 2.79$, $SD = 1.42$), and 85.7% of these students were first-generation students (parental/caregiver education: $M = 2.86$, $SD = 0.66$).

### Analyses

**Educator Analyses.** We evaluated the effects of the strength-based learning group on educators in the treatment condition using multilevel models that predicted educators' responses to the two educator outcome measures based on whether the measures were collected before or after educators had participated in the learning group ($0 =$ *prelearning group*, $1 =$ *postlearning group*). The models included a random intercept to account for the fact that these responses were nested within educators.[3] A multilevel sensitivity power analysis conducted using 5,000 simulations in the "simr" package (Green & MacLeod, 2016) indicated that a standardized beta of $\geq .47$ was necessary to detect the predicted effects.

**Student Analyses.** We conducted similar multilevel models to examine the effects of the learning group on students' identity-based outcomes. These models predicted each of the three student outcomes from whether the educator of the course in which students were responding to the outcomes was randomly assigned to the treatment or control condition ($0 =$ *control condition*, $1 =$ *treatment condition*). Additionally, given that the strength-based learning groups were focused on supporting educators to engage with their economically marginalized students specifically, the models also included students' SES, and the interaction between this variable and their educators' conditional assignment. This interaction allows Study 1 to test the prediction that being enrolled in a course with an educator who was randomly assigned to participate in the learning group would specifically benefit the identity-based outcomes of economically marginalized students. Finally, the models included a random intercept to capture the fact that the observations were nested within students. A multilevel sensitivity power analysis indicated that a standardized beta of $\geq .27$ was necessary to achieve 80% statistical power to detect the predicted educator condition by student SES interaction.

## Results

For both Studies 1 and 2, standardized effect sizes from the regression models are presented alongside figures providing the predicted values for each of the educator and student outcomes in order to provide readers with complete and interpretable information regarding the current findings.

### Educator Results

As seen in Figure 1, the strength-based learning group successfully increased educators' likelihood of viewing students' economically marginalized identities as a source of valuable strengths that could help them succeed ($\beta = .34$, 95% confidence interval [CI] [.12, .57], $p = .018$, conditional $R^2 = .83$, 95% CI [.48, .96]; marginal $R^2 = .12$, 95% CI [.02, .37]).[4] Importantly, the learning group also increased educators' reported abilities to effectively engage with their economically marginalized students by more than a full Likert scale point, indicating that they felt a significantly greater sense of self-efficacy to support these students' positive academic experiences ($\beta = .55$, 95% CI [.21, .90], $p = .012$, conditional $R^2 = .61$, 95% CI [.15, .90]; marginal $R^2 = .30$, 95% CI [.06, .62]). Thus, Study 1 provides initial evidence that creating active and collaborative spaces for educators to engage with humanizing pedagogical approaches not only shifts their beliefs about students' identities, but also helps prepare them to effectively work with their economically marginalized students.

### Student Results

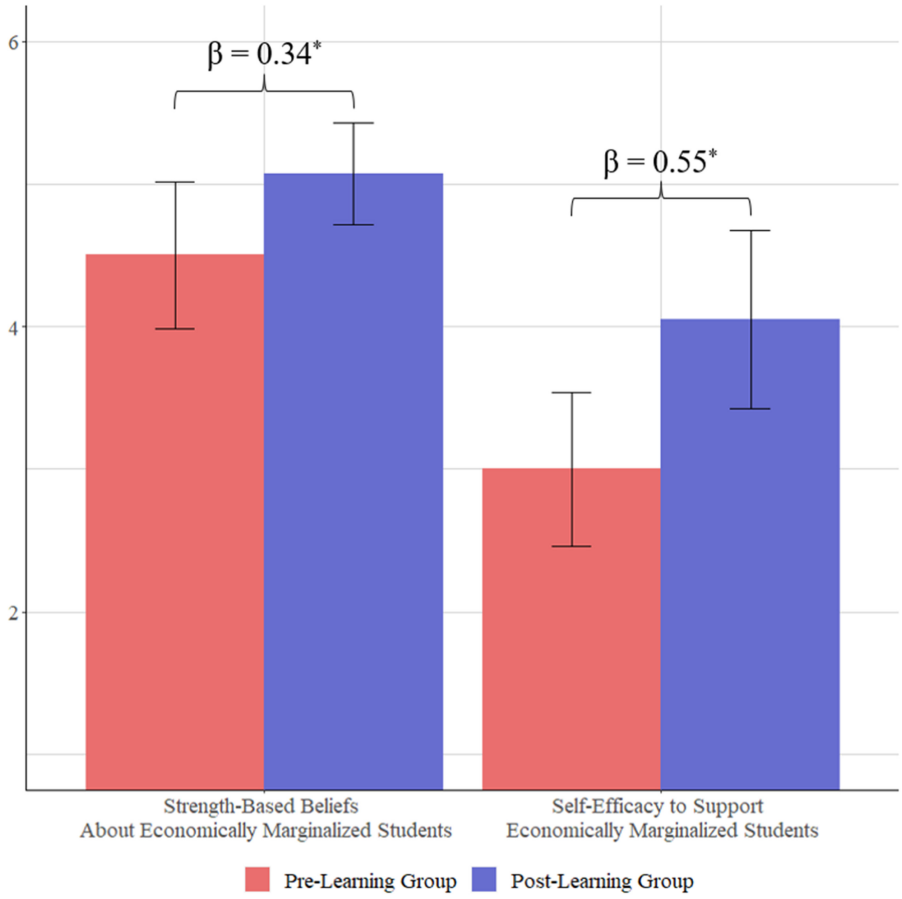
The complete results from the models predicting students' identity-based motivational outcomes may be found in Table 2. Each of the interaction effects between educators' conditional assignment and students' SES backgrounds was in the expected direction. Likely because of the relatively small number of student-course observations in Study 1, the interaction on students' perceptions of educators' strength-based beliefs reached marginal significance ($\beta = -.19$, 95% CI [−.41, .02], $p = .095$) and the one on authenticity was *ns* ($\beta = -.13$, 95% CI [−.36, .09], $p = .258$). The interaction on students' feelings of empowerment in the classroom, however, did reach statistical significance ($\beta = -.19$, 95% CI [−.38, −.01], $p = .046$). Economically marginalized students felt 13% more empowered to succeed in courses taught by educators who were randomly assigned to participate in the learning group compared to courses taught by educators who were interested in participating but were randomly assigned to the waitlist control condition ($\beta = .31$, 95% CI [.05, .57], $p = .022$; see Figure 2). Once again, these findings should be interpreted with caution given that, due to

[3] We opted to present results from multilevel models rather than paired sample *t* tests to ensure that coefficients are comparable across studies and analyses. For results indicating that the findings replicate using paired sample *t* tests, see the online supplemental materials.

[4] Conditional and marginal $R^2$ are presented to share the respective proportion of variance in the educator and student outcomes that is accounted for by both the fixed and random effects compared to just the fixed effects. The 95% confidence intervals were estimated using 500 parametric bootstrapped simulations. Although this effect size is lower than that which the multilevel sensitivity analysis indicated was necessary to achieve 80% statistical power, we find a similar significant result when using paired sample *t* tests for which we were sufficiently powered (see online supplemental materials).

**Figure 1**

*Study 1 Effects of Strength-Based Learning Group on Educators' Strength-Based Beliefs and Self-Efficacy to Support Economically Marginalized Students*




*Note.* Predicted values are plotted with error bars indicating 95% confidence intervals. Standardized betas are presented. See the online article for the color version of this figure.
* $p < .05$.

sample size constraints, the effect size of the interaction fell below that which a multilevel sensitivity power analysis indicated was necessary to achieve 80% power. Nonetheless, the results provide preliminary evidence for the potential of the strength-based learning groups to not only shift educators' beliefs about economically marginalized students but also facilitate these students' productive engagement in the classroom.

## Discussion

Study 1 provides pilot evidence for the potential of the strength-based learning groups to support educators to connect pedagogical approaches to subject matter and course content in ways that bolster economically marginalized students' productive identity-based outcomes. Given that studies testing the effects of educator development opportunities on both students and educators are relatively rare (Desimone, 2009), and that Study 1 demonstrates these effects using an experimental design, the current findings underscore the potential of creating active and collaborative spaces for educators to deeply engage with humanizing pedagogical approaches. In doing so, Study 1 also begins to connect the conceptual literature on these approaches to identity-based motivation theory to enrich perspectives on how educators' pedagogies guide students' academic experiences.

In interpreting these promising findings, it is also important to note the limitations of the present work. Chiefly, given that Study 1 was a pilot study, the number of observations that we were able to collect from both educators and students enrolled in their courses was relatively small. This limitation may account for the fact that two of the student effects in Study 1 trended in the hypothesized directions but reached a level of marginal statistical significance or were nonsignificant. Additionally, the analyses examining changes in educators' outcomes following the learning group utilized a pre–post design because we were unable to obtain data from educators in the control condition. Although the insights provided by these results are bolstered by the fact that they replicate those of prior research (Silverman, Hernandez, & Destin, 2023), pre–post designs inherently leave open the possibility that the positive effects identified in Study 1 were attributable to factors outside of the learning group. Study 2 was designed to address these limitations while

**Table 2**
*Study 1 Results From Multilevel Models Regressing the Students' Identity-Based Outcomes on Their Educators' Conditional Assignment, SES, and Condition by SES Interaction*

| Regression term | Perception of educators' strength-based beliefs | Empowerment in the classroom | Authenticity in the classroom |
|---|---|---|---|
| Educator condition | .04 [−.16, .24] | .12 [−.05, .29] | .13 [−.08, .34] |
| Student SES | .11 [−.14, .35] | .08 [−.16, .32] | .08 [−.16, .31] |
| Educator Condition × Student SES interaction | −.19 [−.41, .03] | −.19* [−.38, −.01] | −.13 [−.36, .09] |
| Simple effect of educator condition among economically marginalized students (−1 *SD* SES) | .22 [−.08, .53] | .31* [.05, .57] | .26 [−.06, .59] |
| Simple effect of educator condition among noneconomically marginalized students (+1 *SD* SES) | −.15 [−.43, .14] | −.07 [−.32, .17] | −.01 [−.30, .29] |
| Conditional $R^2$ | .51 [.19, .76] | .69 [.46, .84] | .28 [.03, .61] |
| Marginal $R^2$ | .03 [.006, .15] | .05 [.01, .18] | .03 [.006, .16] |

*Note.* Standardized betas are presented above 95% confidence intervals in brackets. SES = socioeconomic status.
* $p < .05$.



extending the findings of Study 1 through utilizing longitudinal mixed-methods analyses to examine whether the strength-based learning groups are associated with enduring shifts in the beliefs and experiences of both educators and their students.

## Study 2

Study 2 was conducted as part of a 6-year research–practice partnership at a 4-year university serving high proportions of economically marginalized students (i.e., 57% of students were Pell Grant recipients as of 2019). Similar to Study 1, researchers and administrators at the university spent the first years of the partnership learning more about the unique goals and challenges that the institution was facing. Educators emphasized being interested in finding more sustainable methods of creating supportive classroom environments. Thus, the quantitative results in Study 2 center on data collected with educators and students across the 3 years, or six semesters, following a strength-based learning group. The student-level data were collected solely with economically marginalized students. This targeted approach was chosen to maximize statistical power given the resources available to the project and because of Study 1's demonstration that the learning group specifically affected the outcomes of economically marginalized students without influencing those of their economically privileged peers. We also share findings from semistructured interviews conducted with economically marginalized students enrolled in courses with educators who participated in the learning groups to provide rich theoretical insights into how educators' humanizing pedagogical approaches connected to students' identity-based motivation and academic experiences broadly.

### Method

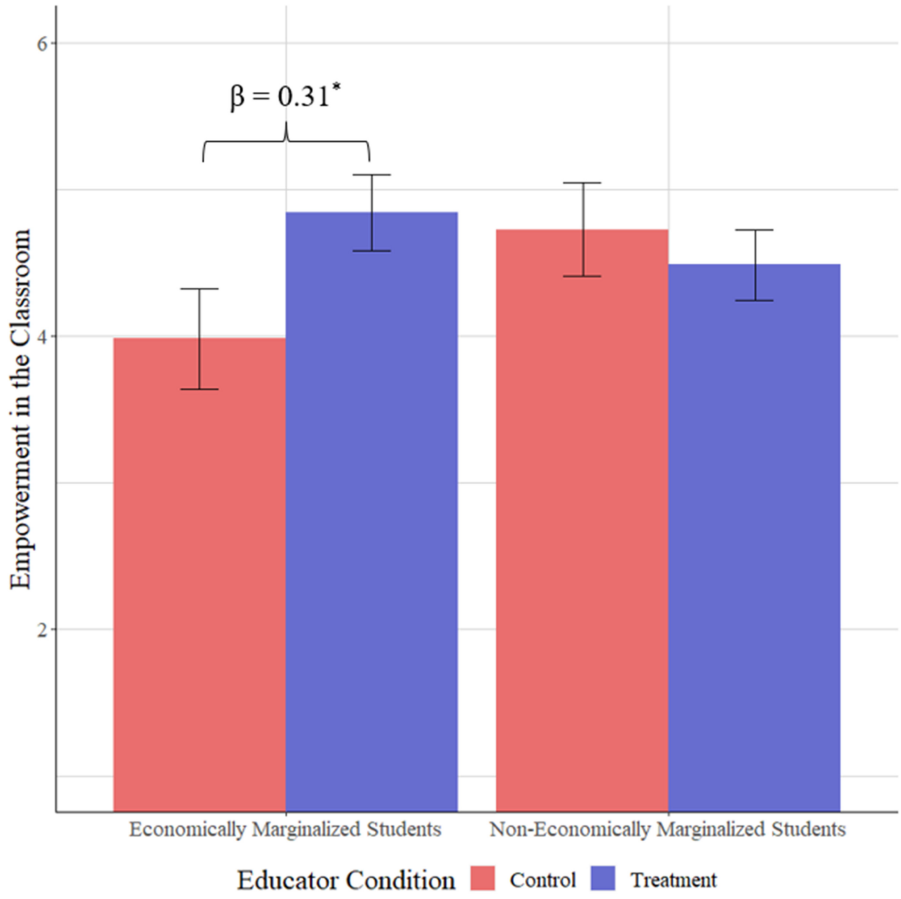
#### *Sample*

A total of 49 educators participated in Study 2. Based on the grant through which the study was funded, as well as discussions between researchers and university administrators, we were unable to randomly assign educators to participate in the strength-based learning group. Instead, 13 educators opted in to participate in the learning group (i.e., the treatment group). Given that it is possible that these educators differed from those who did not opt in on key characteristics, we used propensity score matching techniques to identify 13 educators from the group of 36 educators who did not opt in to participate in the learning group but who most closely resembled those who did (i.e., the control group; Rosenbaum & Rubin, 1985; Stuart & Rubin, 2008). The propensity score model matched educators in the treatment and control groups on characteristics of the educators that we a priori hypothesized would be linked to both the outcomes of interest and educators' likelihood of opting into the learning group (i.e., variables that may lead educators to be more likely to opt into a learning group focused on the experiences of marginalized students, and be associated with educators' beliefs and the identity-based outcomes of their students). The model included seven characteristics: (a) the average grades that educators assigned students during the four semesters prior to the administration of the identity-based learning group, (b) the number of years they had taught at the university, (c) their total number of years as an educator, (d) their gender, (e) whether they were from a systemically marginalized racial group, (f) whether either of their parents/caregivers received a 4-year college degree, and (g) whether they were teaching in a science, technology, engineering, or mathematics department. Propensity score matching was completed using the "MatchIt" package in RV4.3.2 (Ho et al., 2011).

The model was able to identify a satisfactory matched educator from the overall control group for each educator in the treatment group. Although educators from the overall control group were relatively unlikely to opt into participating in the learning group based on the seven matching variables (i.e., the average propensity score was .24), educators in the final matched control group featured in Study 2 were similarly likely to opt into the learning group as educators in the treatment group (i.e., the average propensity scores for each group were .32 and .33, respectively). Further, as shown in Table 3, each of the matching variables achieved satisfactory balance following established conventions for evaluating standardized mean differences and variance ratios between groups in propensity score matching models (Rubin, 2001; Stuart, 2010). The final educator sample consisted of 89 observations collected across five surveys administered with 26 educators. Thus, each educator-level observation represents one educator's response to one of the surveys.

**Figure 2**

*Study 1 Educator Condition by Student Socioeconomic Status Interaction on Students' Empowerment in the Classroom*




*Note.* Predicted values are plotted with error bars indicating 95% confidence intervals to demonstrate the effect of educators' conditional assignment among economically marginalized students (i.e., students who were 1 *SD* below the mean of the student socioeconomic status composite) and noneconomically marginalized students (i.e., students who were 1 *SD* above the mean of the student socioeconomic status composite). The standardized beta for the significant simple slope is presented. See the online article for the color version of this figure.

* $p < .05$.



Additionally, Study 2 extends the findings of Study 1 by examining the effects of the strength-based learning community among a larger sample of 185 undergraduate students who were enrolled in courses with educators in the treatment and/or control groups. Students were recruited for the study through emails sent by university administrators and the researcher partners. Following Study 1's results indicating that the effects of the learning groups were driven by students from lower SES backgrounds, students were only recruited for this study if they were eligible for the Pell Grant, a financial aid program administered by the U.S. government that is distributed based on various indicators of students' economic needs (e.g., household income; U.S. Department of Education, Federal Student Aid, 2021). This indicator was selected to align with both the university's method of identifying socioeconomic-based disparities in student outcomes and the composite measure approach used in Study 1. Importantly, the 185 students in Study 2 closely mirror the sample of students from lower SES backgrounds in Study 1—they came from households earning an average of $25,001–$70,000 per year and 52.4% were first-generation college students. Complete student demographic information for Study 2 may be found in Table 4.

Students were invited to complete up to six surveys during the 3 years of data collection. They were compensated with $15–$20 for their participation (compensation was increased during later timepoints to improve recruitment). As in Study 1, the surveys asked students to respond to measures separately for each of their courses. Thus, the final student sample consists of 874 observations collected across six surveys administered at the end of each of the semesters between Fall 2021 and Spring 2024. Thus, each student-level observation represents one student's responses regarding one of the courses that they were taking with an educator in the treatment or control group within one of the semesters. Students may have

**Table 3**
*Study 2 Educator Demographics and Propensity Score Matching Statistics*

| Demographic variable | Treatment condition ($n = 13$) | Propensity score matched control condition ($n = 13$) | Standardized mean difference | Variance ratio |
|---|---|---|---|---|
| Propensity score | 0.33 | 0.32 | 0.03 | 1.13 |
| Generation status (%) | | | 0 | |
| First-generation (neither caregiver received a 4-year college degree) | 30.8 | 30.8 | | |
| Continuing-generation (at least one caregiver received a 4-year college degree) | 69.2 | 69.2 | | |
| Gender (%) | | | 0 | |
| Man | 38.5 | 38.5 | | |
| Woman | 61.5 | 61.5 | | |
| Race (%) | | | | |
| Marginalized racial group (overall) | 38.4 | 30.8 | 0.16 | |
| White | 61.5 | 69.2 | | |
| Latinx | 7.7 | 7.7 | | |
| Black/African-American | 7.7 | 7.7 | | |
| Middle Eastern | 0 | 7.7 | | |
| Latinx and White | 23.1 | 7.7 | | |
| Department affiliation (%) | | | | |
| STEM (overall) | 76.9 | 76.9 | 0 | |
| Biology | 23.1 | 23.1 | | |
| Chemistry | 15.4 | 15.4 | | |
| Computer science | 15.4 | 0 | | |
| Mathematics | 15.4 | 15.4 | | |
| Social science | 15.4 | 15.4 | | |
| Other | 15.4 | 23.1 | | |
| Average years teaching at current institution | 11.31 ($SD = 6.17$) | 13.00 ($SD = 7.46$) | −0.27 | 0.68 |
| Averages years teaching total | 13.00 ($SD = 6.56$) | 13.69 ($SD = 6.60$) | −0.11 | 0.99 |
| Average grades assigned between Spring 2018 and Spring 2020 (0–4 grade point scale) | 2.76 ($SD = 0.37$) | 2.76 ($SD = 0.36$) | −0.001 | 1.06 |

*Note*. STEM = science, technology, engineering, and mathematics.

been enrolled in courses with educators in both the treatment and control groups during a given semester, as in Study 1. It is also important to note that the sample of students featured at each timepoint differed as students enrolled and withdrew from the university over time, and depending on which students were enrolled in at least one course with an educator in the treatment and/or control group.

**Table 4**
*Study 2 Student Demographics*

| Demographic variable | Students ($N = 185$) |
|---|---|
| Generation status (%) | |
| First-generation (neither caregiver received a 4-year college degree) | 52.4 |
| Continuing-generation (at least one caregiver received a 4-year college degree) | 29.7 |
| Gender (%) | |
| Woman | 65.9 |
| Man | 34.1 |
| Race (%) | |
| White | 49.2 |
| East Asian | 0.3 |
| Southeast Asian | 0.3 |
| Latinx | 25.0 |
| Black/African-American | 1.1 |
| Latinx and White | 35.7 |
| Average household annual income (1–9 scale) | $25,001–$70,000 2.33 ($SD = 1.50$) |

*Note*. The student sample consists of only students who were eligible for the U.S. Federal Pell Grant. Eligibility is based on financial need. Thus, the students came from households earning less than $70,001 annually. Due to a lack of available administrative data, 17.8% have missing data for the first-generation status variable.

### *Strength-Based Learning Group*

The strength-based learning group in Study 2 covered similar material to that of Study 1 with two primary differences. First, the learning group in Study 2 was administered through a series of in-person sessions, rather than a single online learning group meeting with optional follow-ups as in Study 1. Second, to provide more sustained opportunities for educators to work with one another and develop concrete classroom practices, educators were asked to participate in multiple learning sessions. Educators first engaged with humanizing pedagogical approaches as part of a one-and-a-half-day session that was administered during the summer of 2021. As in Study 1, the primary goal of the initial session was to provide a constructive space for educators to build their understandings of humanizing pedagogical approaches—including how traditional educational practices often communicate deficit-based narratives about economically marginalized students and the opportunity that educators have to create learning environments that instead value these students' identities, experiences, and strengths.

To reinforce the main messages of this initial session and respond to educators' ongoing needs as they applied humanizing pedagogical approaches in their classrooms, educators were also invited to participate in five additional two-hour discussions throughout the

school year following the initial session. These discussions provided additional time for educators to work with their colleagues to consider how they could incorporate new practices or adapt old ones to center economically marginalized students' identities and strengths. Each discussion covered a broad pedagogical topic selected by the educators while explicitly considering how the topic related to the tenets of humanizing pedagogical approaches. For instance, during a discussion about how to create effective group-based assignments, educators learned about research demonstrating the collaborative and leadership strengths that students often gain from their economically marginalized identities (e.g., Dittmann et al., 2020) and considered how these assignments could help them convey the breadth of strengths that are an asset to student success. In this way, the format of the learning group in Study 2 extends beyond traditional "one-shot" approaches to educator development with the goal of facilitating educators' deeper learning regarding humanizing pedagogical approaches.

As in Study 1, educators who participated in this learning group developed a wide range of course materials to help align their practices with these approaches. For example, after several discussions with other educators and expert researchers, one computer science educator opted to remove tests from his curriculum. As he reflected on whether his course materials effectively rewarded students' diverse strengths or prepared them with additional skills throughout the initial learning group session, he noted that he did not think that testing effectively met his course goals. Thus, he replaced the tests with additional assignments in which students practically applied course content to understand and address the real-world issues that mattered to them. The educator made this change to both engage students' interests and strengths, and ensure that his assignments were more closely aligned with the kinds of tasks that students may be asked to complete should they choose to become professionals in his field of study. Other educators focused on revising language in their syllabi and introductory lectures to overtly recognize students' marginalized identities as assets to their success in the course and encourage students to share more about their identities and past experiences. During the follow-up learning groups, several educators began to extend the approaches beyond the classroom. They discussed how they could translate these approaches to create more accessible office hours, support effective career advising and mentorship, and address financial and psychological barriers that economically marginalized students faced within the broader university context. Readers may find additional quotations from educators describing the varied ways that they adapted their courses based on the strength-based learning group within the online supplemental materials.

## Measures

**Educator Measures.** As noted above, educators completed up to four surveys throughout the course of Study 2. The first survey was administered during the 2 weeks prior to the initial learning group session (Time 0) whereas the latter four surveys were administered 1 month (Time 1), 12 months (Time 2), 24 months (Time 3), and 36 months (Time 4) after the conclusion of the initial session.

***Educators' Strength-Based Beliefs.*** Educators completed a four-item measure of the extent to which they saw students' economically marginalized identities as assets to their success, similar to that of Study 1 ($\alpha = .81$, $M = 4.64$, $SD = 0.88$).

***Educators' Self-Efficacy to Support Economically Marginalized Students.*** Educators completed an expanded five-item measure of their sense of efficacy to engage with and support economically marginalized students, similar to that of Study 1 ($\alpha = .70$, $M = 4.87$, $SD = 0.75$).

**Student Measures.** We collected both qualitative and quantitative data from students to provide rich insights into how they responded to educators who participated in the strength-based learning group. The qualitative data consisted of semistructured interviews that were conducted 10 months after the strength-based learning group with 13 economically marginalized students enrolled in at least one course with an educator who was a part of the learning group.

The quantitative data collection followed the same procedure as in Study 1 with students responding to nearly identical measures of the identity-based motivational outcomes during the final weeks of each of the six school semesters following the learning group. The first survey was administered at the end of the Fall 2021 semester (i.e., 6 months after the initial educator learning group session) while the final survey was administered at the end of the Spring 2024 semester (i.e., 36 months after the initial learning group session). Given that students did not complete each of the surveys that they received, we have access to these outcomes for 585 of the 874 observations. Missing data were not imputed. We have complete data for the final variable, students' course grades, as this information was provided by the university directly.

***Qualitative Interview Protocol.*** The semistructured interview protocol was codesigned by researchers and practitioners at the university to help identify the specific classroom practices and experiences that influenced students' perceptions of their educators (publicly available at: https://osf.io/z8rsm/). Although students were selected for the interviews because they were enrolled in at least one course with an educator who participated in the learning group, students were unaware of which of their educators had participated in the group. The interview questions were worded to remain open-ended to minimize leading students in any one direction and allow them to respond in personally meaningful ways (e.g., "Do your professors do anything inside or outside of class that is particularly valuable to you?", "How do you think your professors view you at [redacted university name]?") In this vein, the interviews were also led by an external researcher, rather than a member of the university who may have inadvertently made the students feel pressured to provide more positive responses than they would have otherwise (for additional information regarding the protocol development, see the online supplemental materials). The interviews were about 45 min in length.

***Students' Perception of Educators' Strength-Based Beliefs.*** The quantitative student surveys included an expanded two-item measure of the extent to which students thought that their educators saw their identities as compatible with their success, similar to that of Study 1 ($r = .84$, $M = 4.73$, $SD = 1.32$).

***Students' Empowerment in the Classroom.*** Students completed a two-item measure of their feeling of efficacy and control over their academic success, similar to that of Study 1 ($r = .67$, $M = 4.72$, $SD = 1.42$).

***Students' Authenticity in the Classroom.*** Students completed a two-item measure of their feelings of comfort in their course, similar to that of Study 1 ($r = .81$, $M = 5.08$, $SD = 1.18$, $n = 585$).

***Course Grades.*** Finally, students' grades within each of their courses were provided by the university on a 0–4 grade-point-average

scale at the conclusion of each semester in which the study was run ($M = 2.83$, $SD = 1.24$).

### Analyses

**Educator Analyses.** We tested the potential effects of the strength-based learning groups on educators using two different analyses given that we were not able to use random assignment in Study 2. First, we followed the same procedure as in Study 1 to test for within-person effects among educators who participated in the learning group through predicting educators' responses to the two measures from a binary indicator of whether the responses were collected before or after the initial learning group session (0 = *prelearning group, Time 0*; 1 = *postlearning group, Times 1–4*). These models included a random intercept for educator, as well as a fixed effect to account for timepoint.

We separately compared the responses of educators who participated in the strength-based learning group to those in the propensity score matched control group using multilevel models that predicted educators' outcomes during Times 1–4 from a binary group indicator (0 = *matched control group*, 1 = *treatment group*) while including a random intercept for educators, as well as a fixed effect accounting for timepoint.[5] Multilevel power analyses following the same procedures as in Study 1 indicated that the minimum standardized betas necessary to achieve 80% statistical power were .21 and .45 for the within-person and propensity score matched models respectively.

**Student Qualitative Analyses.** Following the educator analyses, we present the results from the semistructured student interviews to provide further insights into how students experienced and interpreted different practices that educators engaged in following the strength-based learning group. The interviews were audio recorded before being transcribed and verified by two trained research assistants. We then followed Wolcott's three levels of analysis framework (1994) to identify common and potentially meaningful themes within the data related to students' interactions with their educators. Three research assistants and one lead researcher completed an initial open coding process in which they independently read three of the 13 interviews and marked any instance of a student discussing their educators at the university (i.e., an independent experience or perspective that the students offered regarding a specific educator or related to educators at the university more broadly). The coders then met to organize these instances into specific themes guided by the top-down predictions made by identity-based motivation theory and bottom-up perspectives that students offered regarding the educator practices that were most meaningful to their academic experiences. This initial coding scheme was then iteratively refined across three cycles of coders applying the scheme with four of the interviews, meeting to discuss their insights, and then adapting the scheme until they were satisfied that it accurately captured theoretically and practically important themes.

The iterative coding process yielded six codes representing the six primary ways that students discussed interacting with educators: (a) generalized classroom interactions (i.e., educators' overarching classroom practices; 40.2% of codes applied), (b) individualized classroom interactions (i.e., educators' behaviors that were tailored to the specific student in the classroom; 19.4% of codes applied), (c) generalized interactions outside of the classroom (i.e., educators' overarching practices that occurred outside of educators' role as a teacher for a specific course; 7.5% of codes applied), (d) individualized interactions outside of the classroom (i.e., educators' practices that were tailored to the student but occurred outside of a specific course; 11.9% of codes applied), (e) interactions related to students' future goals (i.e., educators engaging with students' goals after graduating from university; 16.4% of codes applied), and (f) interactions related to students' personal lives (i.e., educators engaging with students' identities, families, and other aspects of their lives outside of their future goals; 4.5% of codes applied). Each of the codes was further "weighted" based on whether the experience that the student described was positive, negative, or neutral to provide further insights into how students perceived educators' practices. Two research assistants who were unaware of which educators were in the treatment and propensity score matched control groups independently coded each of the student interview transcripts. Disagreements were resolved through discussion and reconciled by the lead researcher. For additional descriptions of the codes and data analysis, see the online supplemental materials.

**Student Quantitative Analyses.** After describing the experiences that students shared in the interview data, we present quantitative results from analyses comparing the identity-based outcomes and grades of students enrolled in courses with educators in the learning group and propensity score matched control group. The analyses were run as multilevel models including a random intercept for student. The models also included a fixed effect for timepoint[6] and a binary indicator that accounted for the fact that 14 students (205 observations) were participating in a separate initiative aimed at increasing the retention of economically marginalized students at the university through a scholarship and mentoring program. A multilevel sensitivity power analysis indicated that a standardized beta of $\geq .09$ was necessary to achieve 80% statistical power within the student models.

Finally, to better understand the psychological processes through which the results emerged, we conducted a multilevel path analysis that tested whether the potential effect of the strength-based learning group on students' grades was mediated through students' identity-based motivational outcomes. This analysis was completed in Mplus V8.10 (Muthén & Muthén, 1998–2017) using Bayesian estimation methods. The models were conducted using the TYPE = TWOLEVEL option in Mplus to cluster observations within students while controlling for five dummy coded indicators for timepoint. These covariates separately opposed the Fall 2021 term with the Spring 2022, Fall 2022, Spring 2023, Fall 2023, and Spring 2024 terms.

## Results

### Educator Results

Both the within-person and propensity score matched models in Study 2 replicated the educator findings from Study 1. The former models revealed that educators who participated in the strength-based

[5] For analyses indicating that the magnitude and statistical significance of the educator and student effects did not change when timepoint is excluded from the models, see the online supplemental materials.

[6] Timepoint was entered into the models as a fixed rather than random effect for the sake of parsimony and increasing statistical powered to detect the predicted results. For analyses demonstrating that the results replicate when timepoint is entered as a random intercept, see the online supplemental materials.

learning group reported significantly greater strength-based beliefs about economically marginalized students ($\beta = .46$, 95% CI [.27, .65], $p < .001$, conditional $R^2 = .69$, 95% CI [.50, .83], marginal $R^2 = .19$, 95% CI [.10, .35]) and self-efficacy to support these students ($\beta = .25$, 95% CI [.04, .47], $p = .030$, conditional $R^2 = .57$, 95% CI [.29, .77, marginal $R^2 = .08$, 95% CI [.03, .23]) during each of the timepoints following the learning group relative to the timepoint prior to the learning group. Results from the latter propensity score matched models reinforce these findings and the success of the propensity score matching approach itself. During the weeks prior to the administration of the learning group, there were no significant differences between the outcomes of educators in the treatment and matched control groups ($\beta$s = .02–.12, $p$s = .685–.943). Across the four timepoints collected following the initial learning group session, however, educators in the treatment group were significantly more likely to view students' economically marginalized identities as assets to their success ($\beta = .65$, 95% CI [.33, .98], $p < .001$, conditional $R^2 = .81$, 95% CI [.67, .90], marginal $R^2 = .33$, 95% CI [.13, .57]) and felt better equipped to support these students ($\beta = .64$, 95% CI [.27, 1.02], $p = .003$, conditional $R^2 = .86$, 95% CI [.73, .93], marginal $R^2 = .27$, 95% CI [.08, .52]) than educators in the control group.

Importantly, Study 2 suggests that these positive effects are sustainable over time. As can be seen in Figure 3, the initial increase in both educator outcomes from Time 0 (prelearning group) to Time 1 (1-month postinitial learning group session) among educators in the treatment group persisted across the 3 years of data collection, including 36 months after the initial learning group session (i.e., Time 4). Although the difference between educators in the treatment and control groups at Times 3 and 4 is attenuated, this appears to be because of an increase in the outcomes among educators in the control group rather than a decrease among educators in the treatment group. This may be an artifact of spreading effects as the broader university increasingly encouraged the adoption of humanizing pedagogical approaches following the initial success of the strength-based learning group.

### *Student Qualitative Results*

Analyses from the semistructured interviews provided initial qualitative insights into how the strength-based learning group may have also influenced the experiences of educators' economically marginalized students (for complete results, see the online supplemental materials). Across 13 interviews, students mentioned distinct experiences with educators 134 times. Although the interview questions were open-ended and some of them asked about students' negative experiences with educators directly, less than a quarter (30 instances) of the codes applied to the interview data were negatively valanced. These codes typically involved students perceiving educators in both the treatment and control groups as having highly demanding expectations for students in their courses.

Almost three quarters of students' experiences (97 instances) were positively valanced. As predicted by the literature on humanizing pedagogical approaches, economically marginalized students consistently highlighted the importance of having educators who were deeply invested in them as both scholars and human beings. Despite the fact that students were unaware of whether their educators were in the treatment or control group, 12 of the students explicitly linked these positive experiences to educators who participated in the strength-based learning group while only five of the students linked them to educators in the control group. For example, Jayla, a Black first-generation college student majoring in biology, shared the following when asked why she had such a favorable perception of one such educator:

> And so, I was like—I kept second guess myself and then, after the class, he [an educator who participated in the learning group] just stopped me and was like, 'hey like, don't second guess yourself, like you really know this stuff so you know, just trust your gut.' And, I don't know, it just kind of made me feel good.

Although the most commonly applied code was related to students' broad perceptions of their educators' overarching dispositions within their courses (i.e., generalized classroom interactions, 40.2%), students like Jayla frequently provided rich descriptions of the importance of their personal interactions with educators inside and outside of the classroom (i.e., individualized classroom interactions, 19.4%; individualized interactions outside of the classroom, 11.9%). These experiences primarily centered on students feeling as though educators—particularly those in the treatment group—went above and beyond to support student success. Nikki, a Black and Latina first-generation college student majoring in biology, summarized this sentiment succinctly:

> For Dr. S [pseudonym given to an educator who participated in the leaning group], she's more than like a coordinator in a way she's like the… fairy godmother. Like to like coordinate and make sure that you're on top of your stuff…

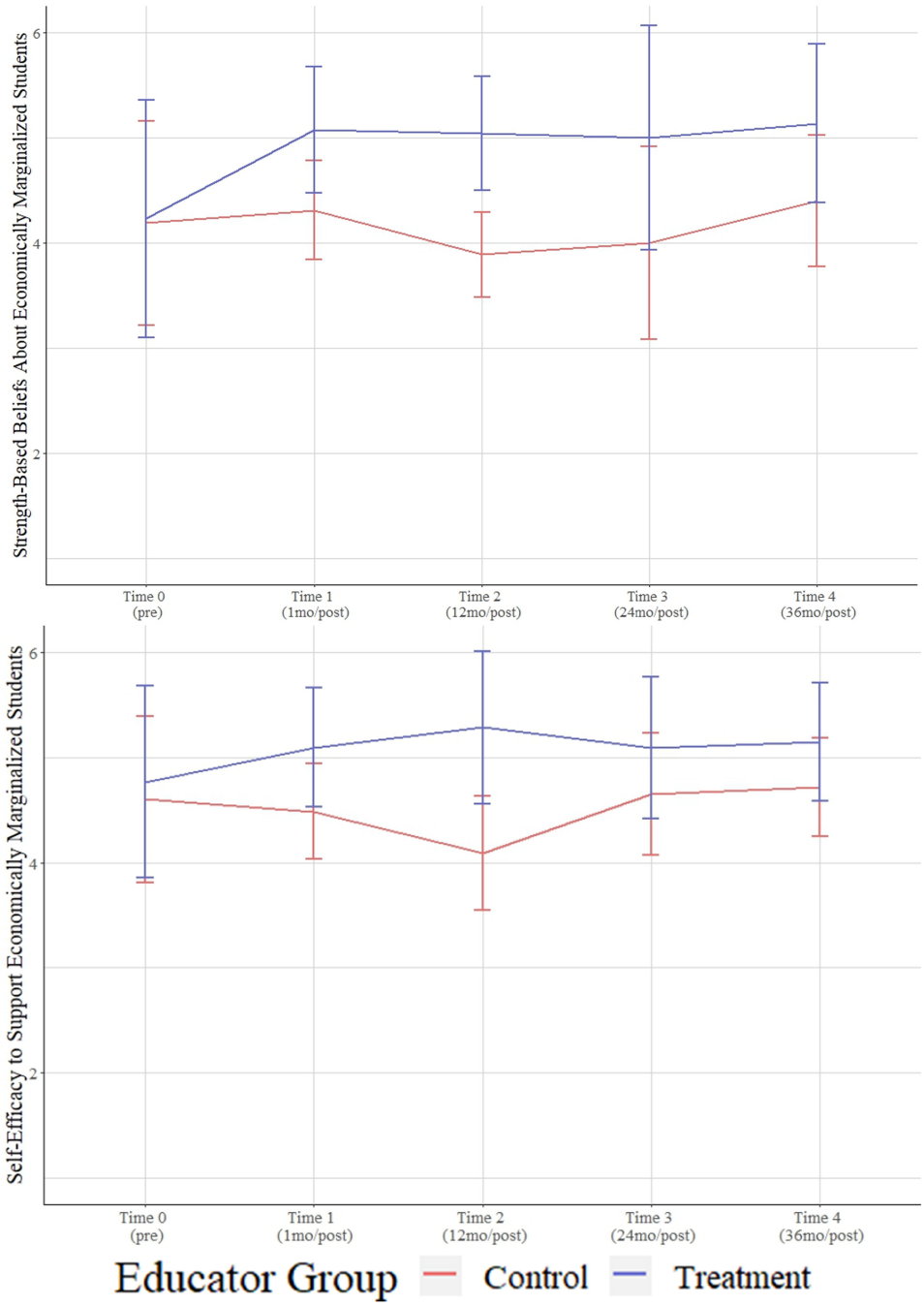
When asked about the kinds of support that he received at the university, Henri, a Black first-generation college student majoring in computer science, similarly described his appreciation for an educator in the treatment group who went out of her way to check in on him throughout his first year:

> Henri—"Sometimes I feel like she's [an educator who participated in the learning group] like my mom part two. Like, she's always sending me emails just like really like, 'how's classes?' and stuff like she's always making sure that I'm on top of my game."
>
> Interviewer—"Yeah, so what, why is that, like helpful for you or why does that feel supportive?"
>
> Henri—"I feel supported because I'm being me and being like the only person in college right now. Of my two siblings, I'm the oldest so I didn't really have anyone I know. Like, usually people with older siblings, they know how the college process goes. They have a little bit of input, networking. I didn't really have anyone."

Nikki and Henri's insights begin to add further specificity to identity-based motivation theory's emphasis on the role of educators and other social forces in shaping how students construe their identities in context. Both quotations centered on how the instrumental support that educators provided placed them at the center of the students' university experiences, as a "fairy godmother" or "mom part two." For Henri, the value of this form of support extended beyond his academic success to afford him greater opportunities to be his authentic self and navigate the university effectively as a first-generation college student. The implications of these findings for theory and practice were extended by students who described the importance of the more identity-specific forms of support that their educators provided in explicit connection to the goals of the strength-based learning group (i.e., interactions related to students'

**Figure 3**

*Study 2 Educators' Strength-Based Beliefs and Self-Efficacy to Support Economically Marginalized Students Based on Their Participation in the Strength-Based Learning Group*




*Note.* Conditional means are presented with error bars indicating 95% confidence intervals. See the online article for the color version of this figure.

personal lives, 16.4%). For instance, Nikki shared the following as part of a larger discussion regarding how her educators engaged with her background:

> They [educators] ask about it [referring to identity], and I feel like it's just not like just to ask to get a question but ask like to learn about us. To see like, for example, like I speak Spanish and English and sometimes like I—when I don't understand—when I don't understand how to say something in English, I'll say it in Spanish. And I feel like my teachers like … they know that about me, but like it's something that they—I don't know how to explain it. I don't know something that they—I guess like we share in a way.

Veronica, a Latina first-generation college student majoring in Biology, also mentioned the value of having educators who expressed a sincere interest in her background. In describing an educator who she noted had an important influence on her first semester at the university, Veronica said:

> Yeah, like right before class he [an educator who participated in the learning group] would ask us like—Oh, he would ask me, "where are you from?" And I told him I'm from [redacted city in the U.S.] and then sometimes he'll make jokes about like, "Oh, you would know since you're from [U.S. city]" and stuff like—like he would ask about like where I came from, what high school I went to, like my background. I don't know like he just asked questions, and that was really nice because, like it felt like he wasn't just again there to just show up like he actually cared about me.

These quotations further demonstrate the potential of educators and their humanizing pedagogical approaches to create learning environments that facilitate economically marginalized students' feelings of identity congruence. Educators who participated in the learning group demonstrated genuine interest in who their students were outside of the immediate learning environment. As a result, they created opportunities for students to forge positive connections between their salient identities that are often ignored or marginalized within these environments and their success in the educators' courses. Such findings also help outline the specific cues and experiences through which educators help shape students' interpretations of their identities.

Considered together, the results from the semistructured interviews also begin to suggest that the effects of the strength-based learning group transcended educators to influence their economically marginalized students. Although the current qualitative data are not positioned to make causal claims, in open-ended lines of questioning, 12 of the 13 students interviewed pointed to educators who participated in the learning group as having an especially positive influence on their experiences at the university. When asked how this influence occurred, students consistently described the value of educators engaging in practices that signaled their deep investment in students' academic success and recognition of the value of their identities. We went on to test whether these experiences may have translated into quantitative differences in students' identity-based motivational outcomes and achievement.

### *Student Quantitative Results*

As may be seen in Table 5, Study 2 provides broad support for the prediction that being enrolled in a course with an educator in the treatment group would be linked to a variety of long-term benefits among economically marginalized students. Building on both the student interview data and results from Study 1, economically marginalized students were more likely to perceive their educators to view their identities as a source of valuable strengths when they were enrolled in courses taught by educators who participated in the learning group relative to ones taught by educators in the propensity score matched control group ($\beta = .09$, 95% CI [.002, .17], $p = .046$). The association between being in a course with an educator who participated in the learning group and students' feelings of empowerment to succeed in educators' courses did not reach statistical significance, though it trended in the expected direction ($\beta = .06$, 95% CI [−.03, .15], $p = .161$). However, economically marginalized students were more than a third of a Likert scale point more likely to feel as though they could be their authentic selves in courses taught by educators in the treatment group relative to ones taught by educators in the control group ($\beta = .13$, 95% CI [.04, .21], $p = .004$). This latter finding aligns with both the predictions made by identity-based motivation theory and the results of the semistructured interview coding which similarly demonstrated the value of students feeling a sense of comfort and care in courses taught by educators in the treatment group.

Perhaps most strikingly, economically marginalized students earned grades that were more than a quarter of a grade point higher, on average, in courses taught by educators who participated in the strength-based learning group compared to those in the control group ($\beta = .10$, 95% CI [.04, .17], $p = .002$). In practical terms, this corresponds to the difference between receiving a C+ to B− grade point average and receiving just under a B average across the 3 years of data collection (see Figure 4). Though propensity score matched results do not imply causality, this finding is particularly compelling given that educators in the treatment and control groups assigned identical grades ($M$s = 2.76) during the semester preceding the learning group.

**Table 5**

*Study 2 Results From Multilevel Models Regressing the Students' Identity-Based Outcomes and Grades*

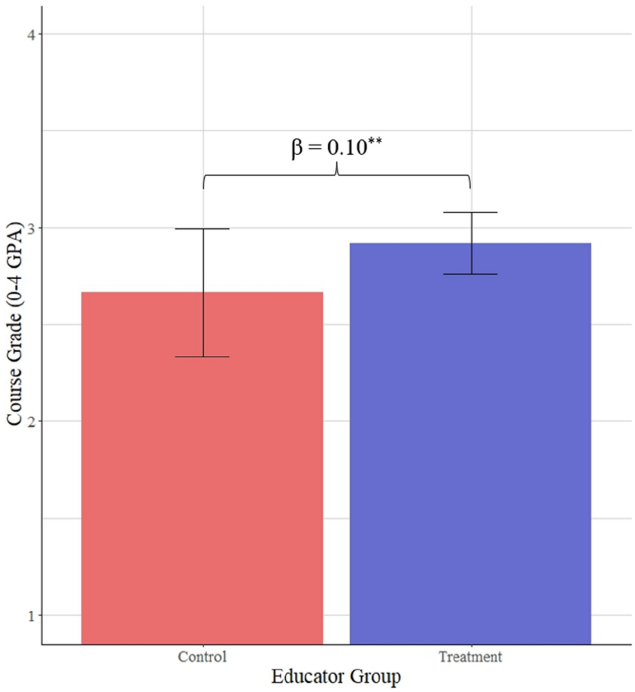
| Regression term | Perception of educators' strength-based beliefs | Empowerment in the classroom | Authenticity in the classroom | Grade |
|---|---|---|---|---|
| Educator condition | **.09* [.002, .17]** | **.06 [−.03, .15]** | **.13** [.04, .21]** | **.10** [.04, .17]** |
| Student initiative covariate | −.02 [−.16, .13] | −.03 [−.17, .10] | −.10 [−.25, .04] | −.03 [−.18, .11] |
| School term covariates (comparison = Fall 2021) | | | | |
| Spring 2022 | .04 [−.04, .12] | −.02 [−.11, .07] | −.05 [−.14, .03] | .004 [−.07, .07] |
| Fall 2022 | .10 [−.02, .22] | −.07 [−.20, .06] | −.02 [−.15, .10] | −.07 [−.17, .02] |
| Spring 2023 | .21** [.07, .34] | .02 [−.13, .17] | .01 [−.14, .15] | −.05 [−.17, .07] |
| Fall 2023 | .04 [−.09, .17] | −.11 [−.26, .03] | −.13 [−.27, .01] | .02 [−.09, .12] |
| Spring 2024 | .22*** [.09, .34] | .05 [−.09, .18] | .01 [−.12, .15] | .07 [−.03, .17] |
| Conditional $R^2$ | .44 [.35, .54] | .30 [.20, .41] | .36 [.26, .46] | .47 [.40, .54] |
| Marginal $R^2$ | .04 [.02, .09] | .02 [.01, .06] | .03 [.02, .09] | .02 [.01, .06] |

*Note.* The coefficients relevant to the current hypotheses are bolded. Standardized betas are presented above 95% confidence intervals in brackets. The relationship between the Fall 2023 semester and authenticity in the classroom approached statistical significance.

* $p < .05$. ** $p < .01$. *** $p < .001$.

**Figure 4**

*Study 2 Students' Course Grades Based on Whether Their Educators Participated in the Strength-Based Learning Group*




*Note*. Predicted values are presented with the standardized beta and error bars indicating 95% confidence intervals. GPA = grade point average. See the online article for the color version of this figure.
** $p < .01$.

### *Testing Psychological Process*

We conducted a multilevel path analysis to further understand the processes through which these differences in student achievement may have emerged. Due to constraints in both statistical power and software capabilities in models including both the educator- and student-level outcomes, the main text of this article focuses on an analysis testing whether the relationship between educator condition and students' course grades was mediated through students' perceptions of educators' strength-based beliefs and feelings of authenticity. For an exploratory serial path analysis through both educator- and student-level outcomes, see online supplemental materials. Results provided support for both simultaneous pathways (see Figure 5). The positive link between being enrolled in a course with an educator in the learning group and students' grades was partially explained by the fact that students were more likely to perceive that these educators valued their identities (indirect effect $\beta = .03$, 95% CI [.002, .05], $p = .013$) and created courses in which they could be their authentic selves ($\beta = .03$, 95% CI [.0002, .06], $p = .025$) relative to educators in the control group.

These findings provide direct evidence extending identity-based motivation theory's predictions. Creating a sustained space for educators to critically reflect on the ways in which students' otherwise stigmatized marginalized identities were an asset to their success was linked to economically marginalized students having greater contextual affordances to experience their identities as congruent within their courses. In turn, students earned significantly higher grades in these courses compared to those taught by educators in the control group. The results also help mitigate potential concerns that the differences between the grades of students in courses with educators in the treatment and control groups were driven through processes that were irrelevant to the goals of the strength-based learning group (e.g., grade inflation). Although such a possibility cannot be ruled out entirely, the findings from the multilevel path analysis converge with those of the semistructured interviews to suggest that educators in the strength-based learning group cultivated trusting relationships with economically marginalized students that fostered student learning and course engagement. Such insights may be particularly beneficial as research uncovers the educator practices (e.g., changes in assessment criteria, increased comfort in interactions with economically marginalized students) that help facilitate these relationships and students' subsequent productive outcomes.

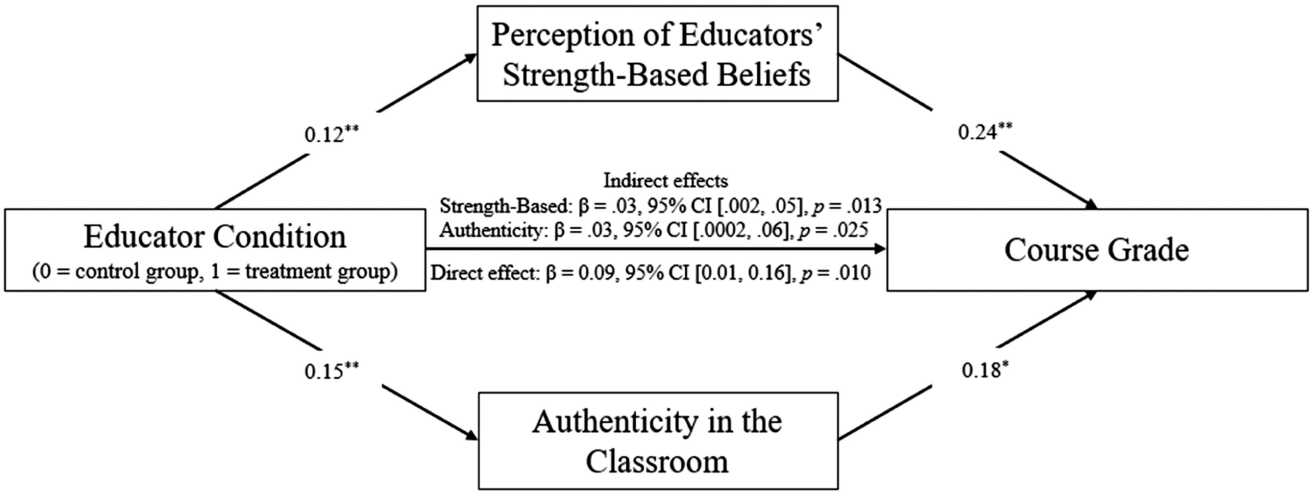
## Discussion

Study 2 provides further empirical evidence in support of the value of providing opportunities for educators to deeply engage with humanizing pedagogical approaches. We demonstrate that creating a sustained space for educators to learn about and apply these approaches equipped them with a framework and sense of self-efficacy to effectively engage with economically marginalized students. Results from mixed-methods analyses suggest that these shifts in educators' beliefs were linked to important differences in students' identity-based outcomes. Across semistructured interview, survey, and grades data, economically marginalized students consistently reported more positive and productive experiences in courses taught by educators who participated in the strength-based learning group compared to those in a propensity score matched control condition. Importantly, these findings were demonstrated across 3 years or six semesters of data collection, including 20 months after the conclusion of the final learning group session. Thus, Study 2 provides longitudinal evidence for the positive implications of working with educators to create classrooms that value and care for economically marginalized students.

There are a number of important considerations that are necessary to interpreting these results. First, the significant associations between being in a course with an educator in the learning group and students' self-report outcomes in Study 2 (i.e., perceptions of educators' strength-based beliefs and authenticity) differ from the primary effect identified in Study 1 (i.e., academic empowerment). It is possible that this difference is simply because of ceiling effects or the smaller sample size in Study 1, particularly given that each of the effects trended in the expected direction across both studies. Nonetheless, it raises the intriguing possibility that how students respond to educators in the strength-based learning groups differs based on their broader learning contexts. For instance, in the high-achieving context of Study 1, economically marginalized students may interpret educators' applications of humanizing pedagogical approaches as an indication that these students can excel in class, thereby promoting their academic empowerment. On the other hand, given that the economically marginalized students in Study 2 were younger and had only recently entered higher education, they may be more sensitive to the implications that the approaches have for how they are able to enact and view their identities in the

**Figure 5**

*Study 2 Results From Multilevel Path Analysis on Students' Grades*




*Note.* Complete results from the multilevel path model that simultaneously tested the mediating roles of students' perceptions of educators' strength-based beliefs and authenticity in the classroom on students' course grades. Standardized betas are presented. CI = confidence interval.
* $p < .05$. ** $p < .01$.



classroom. Future research may investigate this possibility with a particular eye toward how effect heterogeneity may be driven by (mis)alignment between educators' approaches and the cultures and values of the educational systems in which they operate (e.g., Butera et al., 2021; Tipton et al., 2020).

A second consideration regarding the current results is that the self-report student outcomes are based on one- or two-item measures. This was done to minimize the repetitiveness and length of the surveys since students responded to the same items multiple times for each of their courses (see discussions of pragmatic measurement, Kosovich et al., 2017). However, condensing scale items can come at the expense of measurement reliability (Raykov, 2008). Additional studies may thus examine whether the current findings are robust to additional measures, including behavioral indicators of the specific practices that both students and educators apply in the classroom (e.g., Kroeper et al., 2022; Muenks et al., 2020).

Finally, it is again important to recognize that the promising findings of Study 2 are largely based on comparisons between educators who opted into the learning group and a propensity score matched control group. Although propensity score matching techniques have been found to reduce bias in nonexperimental data, with some studies even demonstrating that results from propensity score matched data closely resemble those found when using random assignment (e.g., Campbell & Labrecque, 2024; see Stuart, 2007), they are inherently nonexperimental and cannot rule out every potential confounding variable. Nonetheless, the fact that (a) educators in the treatment and control groups reported similar outcomes during the timepoint directly prior to the learning group, (b) the findings from Study 2 replicate across a variety of model specifications and align closely with the predictions made by identity-based motivation theory, and (c) we found similar benefits of the learning group using an experimental design in Study 1, this work collectively underscores the value of strength-based learning groups for making enduring progress toward educational equity.

## General Discussion

Educators have always been among the staunchest advocates for stronger and more just educational systems. Humanizing pedagogical approaches emerged as a particularly valuable avenue for achieving this goal through alleviating the systemic barriers that are frequently imposed on marginalized students while effectively engaging with their diverse experiences and strengths. As these approaches grow in popularity, the literature underlying them finds itself at a pivotal moment. On the one hand, descriptive studies have begun to pave the way in translating the largely abstract discussions regarding humanizing pedagogical approaches into concrete practice (e.g., Kondo, 2022). On the other, recent scholarship has raised concerns regarding the relative lack of methodologically rigorous investigations of whether and how the approaches influence key outcomes among educators and their students (Bottiani et al., 2018).

The current article responds to this moment through developing and testing the effects of strength-based learning groups that provided opportunities for university educators to collaborate with their colleagues and expert researchers as they learned to apply humanizing pedagogical approaches in their courses. We provide experimental and longitudinal propensity score matched evidence that the learning groups not only prepared educators to effectively value students' economically marginalized identities, but were also linked to these students feeling more empowered (Study 1) and valued (Study 2), and earning higher grades (Study 2) in courses taught by educators who participated in the learning groups relative to educators in randomly assigned and propensity score matched control groups. While the magnitude of several of the student-level effects was relatively small (see Kraft, 2020), it is noteworthy that the

significant results are based on outcomes that were collected well after the conclusion of the learning groups (i.e., at least 6 months and up to 20 months following the groups). Perhaps more importantly, the results were achieved through a program that was directed toward students' educators rather than students themselves. As described above, studies consistently demonstrate that even when educator professional development programs achieve their intended effect on educators, this rarely translates into downstream positive outcomes for their students (Phuong et al., 2018). Through demonstrating the efficacy of the learning groups across diverse samples of educators and students, we advance calls to look beyond individual-student interventions to sustainably shift the oppressive learning environments that drive educational inequity (Destin, 2020).

In doing so, the current work also begins to provide the strong empirical foundation necessary to understand how humanizing pedagogical approaches may be tangibly applied to improve these learning environments. Rather than prescribing specific practices that educators should use to demonstrate their strength-based beliefs, the current data—particularly the insights shared in the semistructured student interviews in Study 2—broadly underscore the value of educators applying pedagogies that demonstrate their genuine investment and interest in their economically marginalized students' experiences. Doing so will require researchers and educators to work together to develop practices that are calibrated to educators' courses, students, and expertise (for example practices that educators shared in Study 2, see the online supplemental materials). We demonstrate the potential of the strength-based learning groups to serve as a guiding model for facilitating this work. Specifically, the present studies illustrate the importance of creating collaborative spaces in which educators can integrate relevant empirical insights regarding humanizing pedagogical approaches with their own professional knowledge in order to make meaningful changes throughout their learning environments (see Korthagen, 2017).

As a result, the current research also emphasizes the potential of treating these approaches as more than just abstract ideas to understand the role they play in activating tangible psychological processes that benefit student learning. We bridge the literature on humanizing pedagogical approaches with identity-based motivation theory to provide novel insights into the role that students' understandings of whether their identities are congruent with academic success play in guiding their educational experiences. Whereas prior research has applied identity-based motivation theory to primarily examine these understandings as an output of students' own beliefs and behaviors (see Oyserman, 2015), our findings stress the importance of examining how these understandings unfold through dynamic interactions between students and the social forces who construct their learning environments. Study 2 provides especially intriguing evidence for this perspective. Results from semistructured interviews and a multilevel path analysis show that preparing educators to create courses in which their economically marginalized students are afforded opportunities to experience their identities as congruent with their success is associated with subsequent increases in student achievement. In other words, identity congruence may be most effectively studied through directly testing how it unfolds in response to student- and context-level factors, as well as their interaction.

This extension of identity-based motivation theory illuminates further routes for effectively facilitating the holistic success of economically marginalized students. Well-established literatures suggest that activating students' marginalized identities within learning environments can lead to feelings of identity threat and related stigmas that undermine motivation, achievement, and well-being (e.g., John-Henderson et al., 2014; Schmader & Hall, 2014). Our findings utilize identity-based motivation theory to demonstrate that shifting learning environments to invoke these identities while affording opportunities for students to experience them as an asset to their success can benefit a wide range of identity-based and achievement-related outcomes. Although the current studies demonstrate the power that educators have to advance this goal, future work may extend our insights to examine how additional social forces can be supported to consistently reinforce economically marginalized students' identity congruence. Peers, administrators, family members, and even educational policies have a clear influence on how students come to understand themselves in relation to their academic pursuits (see Destin & Silverman, 2025). As such, working with multiple social forces to elevate the value of students' marginalized identities and associated strengths represents a clear path to supporting students' positive academic experiences. Such research will also help clarify the relationships between different layers of students' learning environments as well as the joint influence that they have on students' identity-based motivation.

Toward this end, there are also important opportunities to extend the current findings across different types of institutions. Given that students' understandings of their identities and experiences with certain forms of marginalization emerge well before they are eligible to attend college (e.g., Umaña-Taylor et al., 2014), additional work should examine the effects of strength-based learning groups among educators and students in K-12 settings. Studies may also attend to the ways in which overarching institutional cultures shape the efficacy of strength-based learning groups. For example, research has begun to empirically demonstrate the ways in which traditional educational structures frequently reproduce inequity through evoking norms related to competition and selection (Autin et al., 2019; Butera et al., 2024; Goudeau et al., 2025). Such norms may limit the efficacy of the learning groups or even lead to new patterns of effects as students contend with conflicting messages about their position within the institution. Furthermore, the current studies are based on research–practice partnerships that were formed in response to the universities' goals of redressing the educational disparities they faced. Such a priori investment on the part of the institutions and educators in the learning groups may have been necessary to the success of the partnerships. However, additional work should examine whether similar effects can be achieved within contexts that are more resistant to the ideas underlying humanizing pedagogical approaches. Developing effective initiatives within these contexts presents an especially high-impact method of improving marginalized students' educational experiences and further explicating the contextual processes underlying the present results.

In a similar vein, studies may look to extend the current findings among students who hold additional marginalized identities. Studies 1 and 2 focused on economically marginalized students given the universities' goals and the specific stigmas that are often attached to these identities. It is likely that the strength-based learning groups may be adapted to speak to related experiences of marginalization, particularly linked to a student's race, gender, and nationality. These identities are often similarly framed as incongruent with people's success (Zou & Cheryan, 2017) and thus represent a valuable opportunity for future efforts. We especially note the

importance of conducting research that engages with intersecting marginalized identities to gain a more encompassing perspective of how humanizing pedagogical approaches can connect to students' diverse experiences (see Velez & Spencer, 2018).

Altogether, the current research represents an important step forward in understanding how teaching and learning can be reshaped to make enduring progress toward educational equity. Beyond providing evidence for one practical avenue for supporting educators and their economically marginalized students through strength-based learning groups, our findings also help build a theoretical basis on which future collaborations toward improving understandings of the interactions between economically marginalized students and their learning environments may be built. Although such efforts are likely to be met with their fair share of challenges, researchers, practitioners, policymakers, students, and families have important opportunities to translate the tenets of humanizing pedagogies into impactful efforts to transform educational systems.

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