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Student-Led Institutional Change for Diversity and Inclusion: Insights From the Justice, Equity, Diversity, and Inclusion (JEDI) Ambassador Program

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This practice brief describes a model for pursuing student-led institutional change focused on diversity, equity, and inclusion. While the literature emphasizes the importance of student agency, most diversity and educational initiatives still tend to happen to or for students rather than in partnership with them. Meanwhile, student organizations and student activism are legitimately helping improve the university but amount to uncompensated labor. We highlight the Justice, Equity, Diversity, and Inclusion Ambassador program, which engages undergraduate engineering students in efforts of student-led institutional change focused on diversity, equity, and inclusion in higher engineering education. Informed by Youth Participatory Action Research, we discuss the challenges and insights associated with five main aspects of the program: (1) monetary support, (2) student selection, (3) training, (4) mentored project work, and (5) impact and communication with the community. Finally, we provide implications from the Justice, Equity, Diversity, and Inclusion Ambassador program for higher education and engineering education diversity support programs.

Keywords: youth participatory action research, institutional change, undergraduate students, engineering, diversity

The Case for Student-Led Institutional Change Toward Diversity, Equity, and Inclusion

We offer this practice brief as a team of researchers and practitioners focused on diversifying higher engineering education. The engineering profession has a history of being dominated by White and Asian men and supporting a norm for straight, middle-class, able-bodied individuals, among other dominant intersectionalities (Riley, 2008; Secules, 2019). We see higher engineering education as a significant site of potential intervention where systems and individuals, which may tend to marginalize nondominant groups, can be changed to become more supportive. We seek novel approaches to sustainable institutional change that will shift the system of higher engineering education toward diversity, equity, and inclusion (DEI).

Typical approaches to institutional change toward DEI have emphasized the important roles of faculty, staff, and administrative efforts. Most faculty teaching and research and most staff and administrator efforts are often focused on institutional maintenance and are relatively inert regarding institutional change. Often a few specific initiative offices (e.g., a National Science Foundation ADVANCE grant, an office of DEI) are focused on sustained institutional change and offer many important services and initiatives. However, when the initiatives impact students without their input, they may limit the students' experience of agency regarding the issues of marginalization at the university. When students are positioned as pure recipients of services, they are treated as "patients" and unintentionally disempowered, rather than as empowered, "agents" (Inden, 1990; Secules, Gupta, et al., 2018). Thus, services such as tutoring and mentoring are of course vital but do not expand the agency of students within the institution.

While the role of students is framed usually as recipient of diversity practice and resources, engineering colleges often point toward student organizations (Society for Hispanic Professional Engineers, National Society of Black Engineers, Society of Women Engineers) as a source of DEI efforts. We note the importance but also the limitation of seeing students as the source of DEI reform, as students are not paid or particularly trained for these efforts and their efforts may be harder to maintain year to year. Nevertheless, student organizations and activism highlight the importance of recognizing student agency as a key part of educational systems and initiatives (Havey et al., 2024; Secules, Sochacka, & Walther, 2018). These student organizations and activist efforts also highlight the energy of students to want to create institutional change. Although student activism has decelerated somewhat since the Civil Rights Movement (Ferguson, 2017), it has resurged in recent years through movements such as Occupy Wall Street and Black Lives Matter (Cole & Heinecke, 2020).

Higher education scholars have highlighted frameworks such as students-as-partners (Bunnell et al., 2021; Healey et al., 2016) and learning assistants (Turpen et al., 2018), which can enhance student agency and engagement in university processes and

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classroom interventions. While there has been new energy around students-as-partners and student leadership frameworks, many of the students-as-partners studies in the literature are simply asking for student feedback on surveys or asking students for advice on reforming a course curriculum (Mercer-Mapstone et al., 2017). While helpful, these more constrained framings are likely insufficient for pursuing meaningful institutional change.

The Justice, Equity, Diversity, and Inclusion Ambassador Program

The Justice, Equity, Diversity, and Inclusion (JEDI) Ambassador program employs undergraduate students at Florida International University (FIU) who are in the College of Engineering and Computing to help lead efforts to improve aspects of JEDI in the college and beyond. Students are employed in an approximately five-person cohort for a period of two semesters. Students are supported in creating *action research* projects focused on (a) education research in the local FIU and community, (b) leadership for change initiatives at FIU, and (c) evidence-based educational design efforts that promote broadening participation and JEDI in engineering. Each of their major projects is connected to multiple mentors for day-to-day support and guidance. Figure 1 shows the JEDI Ambassador program overview.

FIU is a large public university in Florida and an R1 and a Hispanic-Serving Institution. The context of pursuing DEI-focused change and the JEDI Ambassador program within a Florida public university are complex and evolving. The program began in 2021. At that time, Secules (the first author) was a cofounder and faculty advisor to the university's (Out in Science, Technology, Engineering and Mathematics) student organization, which supports lesbian, gay, bisexual transgender, and queer, plus students in Science, Technology, Engineering and Mathematics (STEM). This Out in Science, Technology, Engineering and Mathematics group was particularly politically active and was often approaching Secules for advice on how to push forward their change initiatives at the university or give critical feedback to leadership on diversity and inclusion efforts. Their efforts included feedback for Green (the fifth author) as Associate Director of the Center for Diversity and Student Success in Engineering and Computing on some prior programming he had helped coordinate around trans identity. Secules and Green were inspired by the passion and initiative of the students and sought to develop a program that could empower students to lead DEI-focused change initiatives for university policy and programming.

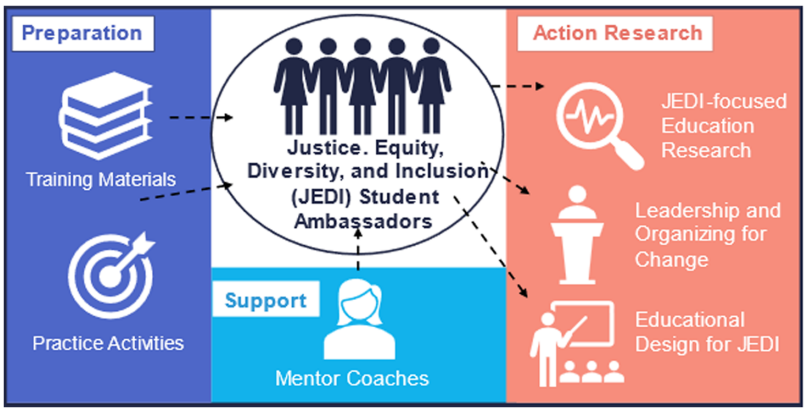
Guiding Framework: Youth Participatory Action Research as an Approach to Institutional Change

The theoretical foundations for the JEDI program draw from Youth Participatory Action Research (YPAR, Cammarota & Fine, 2010) and liberatory pedagogy (Freire, 1970) to center and engage the JEDI Ambassador initiatives as conducted by, with, and for students through critical inquiry and action. Cammarota and Fine (2010) emphasized that to move toward a transformation of educational contexts, we should acknowledge and insist that the youth have the agency and capability to engage in research toward actionable change within their communities. YPAR has been employed in various contexts for youth-led research (Bertrand, 2018; Cook et al., 2019; Malorni et al., 2022; Marciano et al., 2020).

In this spirit, we employ YPAR as a theory of change to impact the College of Engineering and Computing at FIU. YPAR prioritizes engaging youth in meaningful research reflection, investigating and assessing relevant and meaningful issues to them, and being a driver of change in their community (Cammarota & Fine, 2010). The JEDIs take the lead in all stages of the research process, from identifying research questions to designing methodologies and advocacy. YPAR provides tools for youth working within communities, ensuring that the research is grounded in the local context, that the findings contribute to positive change within the community, and that important age and power dynamics are attended to. This collaborative approach ensures that the research is relevant and responsive to the concerns and perspectives of the students involved.

YPAR allows JEDI Ambassadors to pursue advocacy and student–activist efforts to bring about changes toward DEI at the institutional level. As a Hispanic-Serving Institution serving lower income and first-generation students, many efforts aimed at helping students in general will also promote equity and inclusion for demographic groups underrepresented in STEM fields. YPAR allows for the scaffolding of learning to lead to desired actions and

Figure 1
JEDI Ambassador Program Overview



Note. See the online article for the color version of this figure.

impact (Levy et al., 2023) and allows JEDI Ambassadors to connect knowledge through mentored engagement, and they critically reflect on their experiences, the research process, and the broader social/community issues. With YPAR as our theoretical foundation, the JEDI program helps students become research-informed advocates for change.

To concretize the JEDI Ambassador program as an instance of YPAR at a public Hispanic-Serving Institution with majority posttraditional students, we next discuss five key dimensions of programmatic design: (a) monetary support, (b) student selection, (c) training, (d) mentored project work, and (e) impact and communication with the community.

Dimension 1: Monetary Support for Students and Mentors

Two fundamental realities we encountered as we created the JEDI Ambassador program were as follows: (1) that paid staff/faculty were leading efforts they thought would help students without a mechanism for student input and (2) that students were often leading important change efforts through unfunded student organizations. Thus, securing funding for students to partner with staff and faculty leaders was our first goal. A challenge around securing funding came from the novelty and critical focus relative to the other more common approaches to student support or research. When we approached the federal and private funding agencies, we struggled to map the JEDI Ambassador program onto any single program type. It was similar to a research experience for undergraduates in that students would engage in education research, but we intended to broaden the definition of research to emphasize action-oriented components such as outreach and inclusive programming. It was similar to an education research effort focused on institutional transformation, but we intended students to codefine the goals and research questions for their emergent change initiatives rather than work on singular faculty-led research questions.

Without a clear initial investor in the idea, our first source of pilot funding came from our personal institutional resources, that is, faculty startup support and salary savings generated from Center for Diversity and Student Success in Engineering and Computing staff work on federal grants. We then turned to industry, which seemed focused on helping underrepresented students in STEM as a form of corporate social responsibility and a recruiting mechanism. Over time, the initial promising results have helped secure additional funding, and the program now has a federal grant to sustain its implementation and evaluation over 4 years. The federal funding has aligned with being able to support a graduate student mentor as a graduate assistant, Bond (from 2021 to Summer 2023, the third author) and Kumar (from Summer 2023 to present, the second author).

Dimension 2: Selecting and Retaining Student Change Agents

Another crucial aspect of carrying out the JEDI Ambassador program has been selecting the JEDI Ambassadors. While the approach could apply to many university students, we have prioritized having students from engineering majors because there is an urgency to broaden diversity in the STEM professions generally and engineering is where the project mentors are located and the work they focus on. In addition, our engineering building is separate from many other diversity and inclusion resources on the main campus (e.g., LGBTQ office, multicultural center). We wanted JEDI Ambassadors, in part, to bring resources and energy related to JEDI issues that are typically discussed on the main campus to the engineering campus further afield.

Like at many universities, our engineering and computing students tend to be particularly busy. Engineering degrees are credit intensive, and various institutional and system policy pressures placed on students to graduate in 4 years mean that their course schedules are typically packed. In addition, they are balancing a desire for internships and for undergraduate STEM research experiences, and many of our posttraditional students commute a long distance from home and work a large (sometimes greater than 20 hr a week) job off campus for reasons of financial need and family support. We structured the JEDI Ambassador job as 10–12 hr a week, though this does not always accord with the amount of time they have available (i.e., some want 20 hr of paid work, some want 5). As we recruited within the College of Engineering and Computing, we often found that some of the most ambitious and engaged students are already overly committed to these priorities. During interviews with potential JEDI candidates, we focus on students with a specific interest in addressing JEDI issues and a clarity of thought on possible JEDI-related changes they would like to push toward. Many of our applicants seem motivated by personal experience with marginalization, including students minoritized by race, ethnicity, gender, disability, sexual orientation, or immigration status.

At some points, we have also had trouble retaining our JEDI Ambassador students for various reasons. Some students take other high time-commitment jobs for monetary reasons. Other students leave to take leadership positions in student government or activist organizations—these students have fewer monetary reasons for taking the JEDI job and become good candidates for student leadership opportunities with little to no financial compensation. We have found that undergraduate student-led projects take a long time to develop and support and that students sometimes need to start and stop work due to internships, graduation, or shifting responsibilities. In general, our strategies have been to compensate students adequately, to be responsive to these differing student circumstances, to primarily conduct JEDI projects in teams so that there is some robustness despite some turnover, and to support students in connecting to any highly externally valued experiences we can make available within JEDI, such as presenting an article at a conference.

Dimension 3: Training Students for JEDI Work

Our primary philosophy is that students can learn to conduct action research on JEDI issues through actively engaging in project work with regular mentored feedback. However, to be student-led, we need the students to have a baseline idea for what action research entails and how they would focus their energy. Thus, we provide a brief overview of JEDI topics and project ideas, education research methods (qualitative and quantitative), design of educational experiences, and other leadership/collaboration skills. Students are largely new to these aspects, so the training emphasizes frequent hands-on experiences. For example, we typically practice interviews in pairs, with one partner developing a protocol to probe one aspect of the partner's life (e.g., story of why they chose their

college major) and the other partner developing a protocol to probe another aspect. Each student takes notes as a researcher and debriefs with each other and the whole group.

We prioritize projects the students are interested in, so we frequently prompt them to reflect on their goals and interests as they might relate to the research and educational design tools they are exposed to. We help clarify what an interview, a survey, or an observation might be useful for so they can help think about alignment with their goals. During the final phase of the training, we give them time to ideate, brainstorm, and discuss the research and action that would be meaningful for the JEDIs to pursue. Finally, we ask the JEDIs to rank the partners and projects that they would work with. We then assign the projects/partners as close to their ranking and requests as possible.

We have sometimes struggled with the right proportion of preemptive training versus on-the-job mentored training. Too little training, and we find ourselves teaching the same lessons to each JEDI Ambassador individually in ways that could have been more efficient in a large group. Too much training, and we shrink the time we have for completing projects while perhaps still leaving the true nature of the work opaque. In general, we have moved toward the idea of a short (2-week) intensive training and then shifting faster toward the mentored project work for their full learning to progress.

Dimension 4: Student-Led Mentored Project Work

We pair two mentors for each team: a faculty mentor (Secules) for strategic support across all projects and a graduate student or staff mentor (Bond, Kumar, Green, Halkiyo) for day-to-day mentoring support. As project mentors, we seek pragmatic and local findings that can have a direct impact over the local settings students find themselves in. While we need to engage with research literature, theory, and methodology/methods to complete the research, we do not initially get into the weeds of these aspects with students. We typically prime students with two to three selected pieces of literature with the idea of exposing them to key concepts and theories. We highlight a couple of contrasting pieces from the literature, perhaps one survey-based study and one small *n* qualitative study, to see the value of each and to think about which resonates with the student team the most. This typically helps students refine their directions further, and we codesign the rest of the research study or other projects together.

Once the projects have commenced, the mentor team asks the students to lead while we guide and scaffold the likely needed next skills. For example, in an interview or survey study, we ask students to draft the protocol and then collaboratively revise it based on our experience. We initiate students to interviews through shadowing or partnering with a mentor first before they are asked to conduct them on their own. Consistent with YPAR, we aim for a horizontal hierarchy—although we have different sets of roles and responsibilities on the project, we try to work together without a strong managerial vertical hierarchy of monitoring and incentivizing work. We support emergent shifts in student interests and what they are genuinely discovering in the work.

It can be challenging to support, mentor, lead, and compensate truly student-led work. Although we frame the work as entirely student-led, we do have obligations to our funders and to each other to use the funds and our time judiciously. A project that is falling behind or not meeting deliverables can still be a problem, even though the student leader may not see it as a problem. This has been a particular area of conversation and strategy for the mentoring team—how to scaffold and support work without being controlling. We have made some progress by adhering to the principle that there is a value to truly student-led work, even if it moves slower or is at lower capacity than could be organized by more experienced leaders.

Dimension 5: Creating Impact and Communication With the Community

One of the key missions of JEDI is to create research findings, educational designs, and leadership projects that can help students transform their local community through meaningful action. Throughout a research project, we think about who the key partners and audiences for the research are (or, who would care about the findings?) and how best to connect them with the JEDI students. This group of individuals may be hard to locate or difficult to schedule time with, as they may be administrators or community members. As the student-led projects take a long time to develop with multiple competing priorities, sometimes a student drops away from their JEDI work before we are able to see their ideas through toward impact. In the cases where we have been able to connect students to community members who are truly invested in the project area, the rewards and satisfaction for students are apparent.

To formalize the process of connecting the student work to community impact, we now run multiple end-of-cohort-year events. We have students participate in a university undergraduate research fair and an education department showcase, both of which run poster sessions that support undergraduate research. The cohort year culminates in a JEDI showcase, which is a poster session specifically aimed at presenting to staff, faculty, administrator, and student stakeholders in the College of Engineering and Computing. In this showcase, we emphasize to students that they are sharing their findings as a form of impact, not simply to finish their research process. As an additional benefit, this end-of-cohort-year poster documentation helps the projects have an ending point that can be shown to next year's cohort to promote the next cohort's understanding and continuity to potentially build on the prior year's ideas.

The JEDI Model: Successes and Headwinds

Taking stock of the JEDI model, we find several initial successes. In a collaborative interview study with program alumni, Bond-Trittipo et al. (2024) found that participants found JEDI to be a safe, welcoming space to embrace their marginalized identities and freely express and pursue their ideas for creating change in the local university and community context. Further, participants shared that the program supported them in learning about DEI issues and growing as activists and DEI advocates. Across 3 cohort years, the JEDI Ambassadors' products have included one national conference paper (Garcia et al., 2023), four presentations at the university's undergraduate research fair, and ten JEDI showcase posters. Other project outcomes included four "STEM Field Day" K−12 outreach events, a workshop on women's rights held at the College of Engineering and Computing, a study of student perspectives on "weed out" culture, a study on LGBTQ engineering student experiences, and feedback for creating disability-inclusive biomedical engineering labs. Thus, JEDI Ambassador students became

agents of change, took leadership and responsibility, and contributed in the transformation of their university.

JEDI has also faced headwinds. In addition to the aforementioned challenges with funding, recruitment, retention, training, mentoring structure, and community impact, we have faced increasing headwinds regarding the political climate in Florida for programs in JEDI. The mere existence of JEDI has become an increasingly radical act. We note that in this context our external funding and our action research orientation are crucial aspects we lean on to justify our continued focus on JEDI topics. As the state politics progress, we worry about the sustainability of the program after the external funding has ended, and we worry about placing students at the center of controversy if the program is scrutinized by university or state leaders. Nevertheless, as the political landscape retrenches, we remain committed to the orientation toward activism and local change that originally inspired its creation. Locally, we see our work as more vital than ever.

Implications for Higher Education and Engineering Education

We highlight the following implications of the JEDI Ambassador program model for diversity support and student-led institutional change in higher education and engineering education. First, we highlight the model as holistically incorporating an important combination of programmatic aspects, including undergraduate research experiences, cohort support programs, mentorship, diversity awareness training, and student activism. We note that there are elements of each of these aspects of the JEDI model present throughout higher education and engineering education, but they are rarely integrated into the same program. The JEDI model, built on a YPAR framework, provides a holistic way of conceptualizing each of these pieces together. While YPAR programs incorporating social science research, training, mentorship, and activism are present in the K−12 literature (Bertrand, 2018; Cook et al., 2019), they are not as present in the higher education literature. This may be because of the meaning of the word "youth"—as all of our JEDI leaders are over 18 and adults, we do not mean YPAR to patronize the students. Instead, we use YPAR to help conceptualize age and power differentials as we undertake the ambitious work of institutional change. The JEDI program intentionally brings together students, faculty, administrators, and other constituents of the institution, harnessing the enthusiasm of students eager to effect institutional change while also providing the necessary support structures for their endeavors. We find that the pursuit of action and knowledge acquisition can happen concurrently through practical applications (Kennelly et al., 2024).

Second, we highlight the value of the model for conceptualizing student empowerment and agency. In a typical university practice, student agency is limited, and students are positioned as recipients of knowledge, training, and support. Further, most diversity programming in engineering is narrowly focused on optimizing student success in retention, through targeted support to develop academic skills and experiences. In JEDI, the student–leader–researchers are positioned as valued cocreators of knowledge; they engage in and lead research projects and are active agents of change in educational issues they care about. As JEDI mentors draw on frameworks such as Youth Participatory Action Research and liberatory pedagogy, we find resources to reconceptualize the power dynamics of higher education, and we see the student ambassadors as coconspirators to think with and work with to transform educational practices and the university climate.

Third, we note that other models may be equally or more conducive to student-led change in other university contexts. For example, many of our students are from lower income backgrounds, and many cannot engage in activism as free labor. We intentionally keep JEDI Ambassador as a paid role, even though some students have expressed to us that they would do the work for free, and some have left to pursue largely unpaid student leadership work through student government or activist organizations. In another context, perhaps the YPAR work would be for course credit or simply at will. Similarly, our focus on a cohort model sometimes breaks down—students cannot meet at the same time, they drop out of the program, and they would hypothetically join the program later if we let them. We have kept the cohort structure, for now, for the benefit of student community and training efficiency, but it is quite likely that a less structured cohort model could also work. Finally, in other political and institutional contexts, there may be greater support or greater resistance to DEI work generally, and the strategies and circumstances may need to change accordingly. While we navigate our local climate, we use this article to call to people in other climates for parallel and strategic initiatives and solidarity.

Finally, we have a suspicion that our program is novel but that some similar programs may simply not be documented in detail in the literature. For proponents of similar programs leveraging participatory or liberatory frameworks, we call for more dissemination on the details, practices, challenges, and strategies at play in the process. Further, those pursuing YPAR and liberatory pedagogy tend to speak theoretically and about the overall outcomes of their initiatives, without highlighting the day-to-day realities. To help the community build knowledge about these processes and translate these initiatives to new contexts, we advocate for further information sharing in the literature. We note that this may be limited by the time and resources of, often overworked, diversity support personnel to publish on their processes. Thus, we also advocate for more research–practice partnerships between social science researchers and diversity support programs to help expand this area of dissemination.

As we reflect on the JEDI Ambassador program and the considerable political and disciplinary challenges it seeks to impact, we recognize that it may seem inefficient or unsustainable to center inexperienced undergraduate students in this struggle for meaningful institutional change. Yet, across the country, centering JEDI issues in higher education is becoming a radical and necessary act, and there is beauty and wisdom in cultivating student capacity for this transformational work. The JEDI Ambassador program is fostering the leaders and change agents of tomorrow, and the ripples of change will continue to spread.

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