

Developing Students as Global Citizens through Curriculum Design and Extracurricular Activities

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This paper discusses the need to develop higher education students as global citizens and presents examples of how this need is met at SJSU through institutional goal setting, as well as course and curriculum design that ensure students' development of global understanding and intercultural competencies. Inclusive and culturally sensitive pedagogies are also discussed as key elements of this course and curriculum design. The paper also presents a host of extracurricular activities and programs, with highlights among them the Global Technology Initiative for STEM majors and the Ed.D. Leadership Program Global Field Experience, two of the most successful programs at SJSU, in hopes that the ideas presented are adaptable to other fields of study at institutions around the world.

Keywords: internationalization, globalization, course and curriculum design, teaching and learning in a global context, extracurricular activities, pedagogy

Introduction

Globalization is understood as an increased interdependence of the world's economies through an exchange of information, money and commodities but also people, culture, and religion across national boundaries. As such, globalization is anything but new. In fact, Alexander is considered the first globalist (Liebert, 2011). Inspired perhaps by his famous teacher, who was no other than the great philosopher and polymath Aristotle, he attempted to establish a universal state, which covered an enormous swath of North Africa and Eurasia that stretched all the way from Egypt through what is now Pakistan and India (Liebert, 2011). Classic examples of cultural exchanges attributed to Alexander are those between Greece and Afghanistan (Beck, 2020), Greece and Egypt (Monzani, 2022), Greece and India (Stoneman, 2019; Kokkinidis, 2023), Greece and Pakistan (Mansoor et al, 2004; Chrysopoulos, 2022), as well as Greece and Persia (Shaki, 2012). The word exchange implies, of course, a two-way interaction. For example, Egyptians (Pfeiffer, 2013), Phoenicians (Powell, 1991), and Persians (Star, 1976 & 1977) had already influenced Greek culture, politics, and architecture centuries before Alexander made his way out of ancient Greece.

Alexander is considered to have strengthened the trade routes between East and West that would later become the Silk Road, a network of Eurasian trade routes spanning 6,500 km. The Silk Road is another example of how globalization spread

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in antiquity. Although the main purpose was the exchange of commodities, this network of trade routes facilitated economic, cultural, political, and religious interactions between Asia, the Middle East, East Africa and Europe, for a period of 1,500 years from the 2nd century BC through the middle of the 15th century AD (Hansen, 2012). The Romans (27 BC–476 AD) contributed to globalization by developing an extensive road network (Pitts & Versluys, 2015). Appius Claudius Caecus is said to have started this network with Via Appia, connecting Rome with Brindisi in South Italy in 312 BC, from where goods were transported by sea to other Mediterranean destinations, while Via Egnatia, a 1,120 km road running across the Balkan peninsula, was connecting the Adriatic Coast with Byzantium or Nova Roma, the new capital of the Roman empire. Rome is considered the first global city in the western half of the Old World, a title reflected in its cultural and artistic claims, which became possible through its economic and social developments, facilitated by its vast transportation network and of course, the political and military strength it projected around the Mediterranean world. The Byzantine empire (312 AD–1453 AD), born of the Roman empire, contributed to globalization in similar ways but had a distinct advantage, which further facilitated an expansive and unifying process across its territory. When emperor Constantine became an advocate for the Christian faith, Christians newly found freedom of religious expression became a new cultural force, which bound the Roman universe together, not only within the empire itself but also with large communities outside it. This new cultural force resulted in a larger, more unified “globe” (Akalin, 2019).

Globalization in antiquity was a very slow process, not only because the means of transport were slow but also because of the great dangers involved, while traveling by land or sea. The invention of the steam locomotive in 1804 certainly accelerated the exchange of commodities, people, and culture (History of Rail Transport, 2023). Then came the first sustained, powered flight by the Wright brothers in 1903, which ushered the age of air transportation, significantly accelerating the transportation of people and goods around the globe (Greenwood, 1989). The availability of various means of transport have had and continue to have some remarkable effects on the social mobility of the human species. For example, a demographic and genetic study of a group of Oxfordshire villages (Küchemann et al, 1967) discovered that while between 1650 and 1850 only one marriage partner came from a different parish in about one out of three marriages, this ratio suddenly jumped to two out of three marriages in 1850 and stayed at this level onwards, when a railway connected the villages. If such was the effect of slowly moving trains on the exogamy of local populations back in 1850s, one can only imagine the effect of airplanes on today’s cultural exchange and exogamy rates of various world populations.

While this trend continues to this day with bigger, faster, and safer airplanes, another revolutionary form of information, financial, and cultural exchange has become possible, without even a need to transport people. The invention of computer networks in the 1950s (Computer networks, 2023), the merging of these networks to create the internet in the 1970s (History of the Internet, 2023), and the appearance of the worldwide web in 1989 (History of the World Wide Web, 2023),

has made possible the transfer of information around the world at speeds no one had ever imagined.

This brings us to our current age with a clear need for developing students as global citizens. One of the first expressions of this term came from the Greek cynic philosopher Diogenes (Diogenes, 2023). Diogenes was born in 404 BC in Sinope, an Ionian colony on the Black Sea coast of Anatolia but declared himself a cosmopolitan (κοσμοπολίτης or citizen of the world). A global citizen is someone who is aware of and understands the wider world, which extends well outside their local and national borders. While one does not have to denounce their identity or nationality to become a global citizen, one must nevertheless understand and accept responsibilities – as well as rights – deriving from membership in this wider world. (Global citizenship, 2023). Global citizens take an active role and work with others to make our world more peaceful and fairer but also more sustainable, so that future generations can enjoy it as much as we do.

To develop students as global citizens requires a framework for teaching and learning, which encompasses knowledge, skills, but also values necessary to engage with the world. This framework emphasizes a global understanding of our world (systems thinking), integrates intercultural skills throughout the curriculum and is supplemented with extracurricular activities. The following sections present the details of such a framework.

Internationalization in the 21st Century Classroom

A review of the literature on intercultural competence provides a foundational framework for understanding how practitioners can begin to understand its importance to higher education internationalization (Bennett, 2009; Deardorff, 2009). For example, Lee, Poch, O'Brien, and Solheim (2017) make compelling arguments about the importance of making intercultural competence one of the core goals of 21st century classrooms. They believe that merely having diversity in the classroom does not bring about intercultural competence (Lee et al., 2017) and argue that pedagogy has to be intentionally designed to ensure intercultural competency in the classroom. Darby (2018) accurately captures the issue at hand when he says that:

Preparing our students to be effective and engaged citizens in today's interconnected global society is of vital importance. One way of doing so is to foster international student success and effective interactions in our multinational classrooms. In order to do that, we ourselves need to be growing in intercultural competence. Might I suggest we bring the same intentionality to our own development as we do to our learning design?

Lee and her colleagues (2017) argue for developing an intercultural pedagogy:

We need intentionally developed pedagogical practices to engage diverse students effectively and respectfully within our classrooms.

Global citizenship requires critical thinking skills and the ability to act in informed ways. In addition to intercultural competency, students must develop a commitment to embracing differences and global perspectives, as well as the skills, that will enable them to navigate differences. They need to value co-existence and collaboration with people around the globe (Andreotti, 2006; Banks, 2008; Baker, 2014). Hudzik (2011, p.19) argues that only a comprehensive approach to internationalization will deliver globally informed content into the vast majority of courses, curricula, and majors. Faculty pedagogy is central to ensuring that students not only acquire the necessary knowledge, but more importantly, they develop the skills and espouse the values that will guide them to use this knowledge as responsible global citizens for the benefit of humanity.

Global and Intercultural Competencies through University Learning Goals and Student Learning Outcomes

To ensure graduates embrace their responsibilities and develop their competencies as global citizens, universities must begin with intentional course and curriculum design that address the specific skills students must develop. At the highest level, the need to integrate global and intercultural competencies at SJSU is expressed explicitly in the university learning goal on social and global responsibilities (SJSU, 2021a), which calls for:

an ability to act intentionally and ethically to address a global or local problem in an informed manner with a multicultural and historical perspective and a clear understanding of societal and civic responsibilities...

...and includes an expectation that students will develop:

diverse and global perspectives through engagement with the multidimensional SJSU community.

One way this goal is implemented across campus is through the SJSU General Education requirements (SJSU, 2021b), which apply to all undergraduate degrees. In particular, General Education Area F (ethnic studies), Area S (self-society and equality in the US) and Area V (culture, civilization and global understanding) have specific student learning outcomes related to intercultural competencies and an understanding of diverse perspectives:

Area F – Ethnic Studies

Student Outcome 1: *Analyze and articulate concepts such as race and racism, racialization, ethnicity, equity, ethno-centrism, eurocentrism, white supremacy, self-determination, liberation, decolonization, sovereignty, imperialism, settler colonialism, and anti-racism.*

Student Outcome 2: *Apply ethnic studies theory and knowledge to describe and actively engage with anti-racist and anti-colonial issues and the practices and movements that have and continue to facilitate the building of a more just and equitable society.*

Student Outcome 3: *Critically analyze the intersection of race and racism as they relate to class, gender, sexuality, religion, spirituality, national origin, immigration status, ability, tribal citizenship, sovereignty, language, and/or age.*

Student Outcome 4: *Critically review how struggle, resistance, racial and social justice, solidarity, and liberation are relevant to current and structural issues such as communal, national, international, and transnational politics as, for example, in immigration, reparations, settler-colonialism, multiculturalism, language policies.*

Student Outcome 5: *Describe and actively engage with anti-racist and anti-colonial issues and the practices and movements that have contributed to the building of a more just and equitable society.*

Area S – Self, society and equality in the U.S.

Student Outcome 1: *Describe how identities are shaped by cultural and societal influences within contexts of equality and inequality. Examples include, but are not limited to, race, ethnicity, gender identity, gender expression, sexual orientation, religion, disability status, age, generation, regional origin, national identity, language, intersectionalities.*

Student Outcome 2: *Analyze historical, economic, political, or social processes that shape diversity, equality, and structured inequalities in the U.S. and reflect on one's own identities and positions within these structures.*

Student Outcome 3: *Evaluate social actions which have or have not led to greater equality and social justice in the U.S.*

Student Outcome 4: *Engage in constructive interactions about social issues in the U.S. within the framework of equality and inequalities.*

Area V – Cultures and global understanding

Student Outcome 1: *Analyze historical, social, and/or cultural significance of creative works of human expression (examples include, but are not limited to, written works, images, media, music, dance, technologies, designs), from at least one cultural tradition outside the U.S.*

Student Outcome 2: *Examine how creative works of human expression [as defined in Outcome # 1] outside the U.S. have influenced the U.S. cultures.*

Student Outcome 3: *Explain how a culture outside the U.S. has changed in response to internal and external pressures.*

Student Outcome 4: *Appraise how the study of creative works of human expression from outside the U.S. shapes one's own understanding of cultural experiences and practices.*

Recognition of the Need for Global Understanding and Intercultural Competency in Accreditation Requirements for Engineering Education

Engineering programs are accredited based on a variety of criteria, some of which outline specific skills expected of engineering graduates. Part of the accreditation process involves demonstrating to outside reviewers that students acquire these skills through specific curricular and extracurricular activities. Increasingly, these skills now include components that involve social but also global responsibilities.

For example, Criterion 3 of the Accreditation Board for Engineering and Technology (ABET, 2021) embeds explicitly an expectation for consideration of global factors and understanding of global contexts in two student outcomes, such as *an ability to*:

(Student Outcome 2) *Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, **as well as global, cultural, social, environmental, and economic factors.***

(Student Outcome 4) *Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions **in global, economic, environmental, and societal contexts.***

...while three additional outcomes require global and cultural perspectives implicitly:

(Student Outcome 3) *Communicate effectively with a range of audiences.*

(Student Outcome 5) *Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.*

(Student Outcome 7) *Acquire and apply new knowledge as needed, using appropriate learning strategies.*

Several developments in the past fifty years have contributed to the need for cultural sensitivity and understanding of international perspectives, as expressed in the seven ABET outcomes:

- (a) The global job market for engineers has become very competitive. As a result, companies search for engineering talent across the world (Morrow, 1994). Applicants must be familiar with new languages, standards, and cultures. In addition, ease of travel, as well as socioeconomic and geopolitical factors continue to increase mobility around the globe, further increasing diversity in engineering workplaces around the world.
- (b) Engineering products are increasingly made through collaboration of teams from various companies around the world. For example, engineering teams in the U.S. and Europe collaborate with engineers in India, China, and Latin America.
- (c) Engineering products are marketed and sold around the world. Hence, engineers must better understand the cultural sensitivities of their clients and communicate with them in culturally appropriate ways.
- (d) Engineering classrooms around the world have increasingly become more diverse. Considering that students from different cultures bring their own preferences for how they learn in and outside the classroom, Outcome 7 implies that engineering faculty must take these preferences into consideration and provide learning environments that allow for optimal learning experiences.

In summary, at least five of the seven student outcomes on the ABET list require a global perspective.

Global Understanding and Intercultural Competency in a Capstone Engineering Design Course Sequence

In the Aerospace Engineering Program at SJSU, ABET Student Outcome 2 (ABET, 2021) has been interpreted to imply an *ability to design aerospace vehicles that meet specific requirements and subject to public health, safety and welfare, global, cultural, social, environmental, and economic constraints*. The requirement to take into consideration global, cultural, and social constraints has been integrated with the SJSU General Education outcomes in areas S and V as described above (Backer & Sullivan-Green, 2016). After all, advanced general education courses at SJSU are designed to help students become integrated thinkers who can see connections between a variety of concepts and ideas. By integrating the SJSU General Education requirements with ABET outcomes, students are challenged to understand the relationship of engineering to the broader community, in the U.S. and worldwide. This is accomplished as follows. Each semester of their senior year, students register for a one-unit general engineering course, Engr195A&B – Global and Social Issues in Engineering I and II respectively in the fall and the spring semesters. Students are also concurrently registered in their senior design courses, AE171A&B – Aircraft Design I and II or AE172A&B – Spacecraft Design I and II, as shown in Table 1.

Engr195A&B introduce students to social, cultural, and ethical aspects of engineering through discussion, case studies, and related assignments (reflections). Subsequently, in AE171A&B or AE172A&B students follow up with in class discussion and additional assignments, through which they are challenged to apply the concepts they learn in Engr195A&B in their specific aerospace engineering context (Tables 1 and 2).

Table 1. Engr195A and First Semester Aerospace Engineering Capstone Senior Design (AE171A, AE172A) Assignments that address ABET Student Outcomes as well as Outcomes from General Education Area S.

General Education Area S	
SO-1	<p><i>Engr195A</i> – Reflection Paper 1 (700-800 words): Critically engage the topic of the social construction of identity in your life. Discuss and provide examples of how at least one of your identities (i.e., religious, gender, ethnic, racial, class, sexual orientation, disability and/or age, among others) has been shaped by cultural and societal influences within contexts of equality and inequality. Integrate course material (concepts, theories, discussions, lectures, readings). Cite at least one course reading.</p> <p><i>AE171A, AE172A</i> – Essay 1 (500 words): Consider your identity as a future aerospace engineer. How is your identity shaped by cultural and societal influences within contexts of equality and inequality?</p>
SO-2	<p><i>Engr195A</i> – Reflection paper 2 (700-800 words): Consider technological innovations and developments in your field. Describe, in detail, an example of how one such innovation/development (using any example post-1970) has either increased or decreased environmental or social justice and inequality in the U.S. Discuss what the technological development is and its environmental or social consequence(s). Looking forward, can you predict any other possible unintended environmental and/or consequences from this branch of technology?</p>

	<p>Next, discuss how your current or past projects have or will contribute to environmental and/or social justice or injustice in the U.S. Include at least two citations.</p> <p><i>AE171A, AE172A</i> – Essay 2 (750 words): Treat aerospace technology innovation as a social process (it is!) and examine how new airplanes, UAVs, spacecraft or rockets have conformed to, been reflective of, or influential for diversity, equality, or structured inequality in the U.S. Note your place within this social complex – your experience of the presence or absence of diversity or equality, or your participation in, or observation of systems that perpetuate harm. Focus on any stage of the lifecycle of aerospace technology innovation, dissemination, and obsolescence, as for example, the problem the new aerospace technology claims to address, the innovation aspect of the new technology, the interests of the powerful in this new technology, and how the technology may have contributed to sustaining or disrupting this power.</p>
SO-3	<p><i>Engr195A</i> – Reflection paper 2 (see SO-2) <i>AE171A, AE 172A</i> – Essay 3 (500 words): Consider the technological innovations in aerospace engineering in general and aircraft / spacecraft design in particular, describe a historical example, and indicate how it has increased social justice in the U.S. and the world.</p>
SO-4	<p><i>Engr195A</i> – Reflection Paper 1 (700-800 words): Read excerpts from Callenbach (1975). Apply this reading to your current lived experience in the U.S. In your paper address the specific course learning objective “identify, compare, and contrast how local community organizations, groups, and agencies address social issues relevant to the environment and quality of life in the Santa Clara Valley” by comparing one element in our current society to Callenbach’s described society.</p> <p><i>AE171A, AE172A</i> – Essay 4 (750 words): Imagine how your aerospace technology, if scaled up, could remedy some aspect of structural inequality in the American society. Treat your technology as potentially influencing widespread social activity in a way that alters relationships among actors in the population. In this way your technology is seen as figuring into an intervention or form of activism. Perhaps the technology creates parity (via price, functionality, availability, etc.), so that a population may now participate equally in or receive the benefits of this activity. Perhaps the technology reveals the sources of inequality or the beneficiaries of that inequality. Perhaps it enables people to acquire the resources, skills, or access that confer greater equality of participation in society.</p>

Table 2. Engr195B and Second Semester Aerospace Engineering Capstone Senior Design (AE171B, AE172B) Assignments that address ABET Student Outcomes as well as Outcomes from General Education Area V.

General Education Area V	
SO-1	<p><i>Engr195B</i> – Reflection Paper 1 (500 – 750 words): Consider the ways in which small, rural, farmers in Mexico and India might be affected by the introduction of genetically modified crops. Oftentimes, the introduction of such technologies require small, rural, farmers to adapt or change their lifestyles, that is, the way they work, where they work, and how they live. Is there anything morally problematic, or morally questionable, about this? If there is, what is it? If there is not, explain.</p> <p><i>AE171B, AE172B</i> – Essay 1 (750 words): Analyze an aerospace technology invented outside of the U.S. Describe its genesis in that society’s particular circumstances, its adaptation to current interests/needs, and finally how this technology came to be embedded within and become influential for that society/culture. Make an argument about how the technology has cultural significance, i.e., it bears upon distinctive and important parts of the innovating society. Perhaps this technology disrupts relationships among actors (e.g., who has greater influence), alters widespread social routines (patterns of practice that involve the technology) or introduces some conditions that are deemed defining of ‘the new way’ (such as new regularities/assumptions/expectations in the way of living). Perhaps distinctive elements of that society’s future development can be traced to the introduction of this new aerospace technology.</p>
SO-2	<p><i>Engr195B</i> – Reflection Paper 2 (500 – 750 words): Technology is often the product of people and their circumstances, yet its influence also far surpasses its immediate environment. Explain the historical context and cultural traditions which led to the development of the mechanical clock. How did the adoption of the mechanical clock in Europe later affect the U.S.? Give examples. Lastly, consider your own experience with either mechanized, electrical, or atomic timekeeping. How much of an influence does it have on your everyday life, especially as someone studying engineering? Again, give examples.</p> <p><i>AE171B, AE172B</i> – Essay 2 (500 words): Consider an aerospace engineering technology invented outside of the U.S. Describe the cultural and social factors that led to the invention of this technology. Describe how this invention has evolved and influenced the culture in the U.S.</p>
SO-3	<p><i>Engr195B</i> – Reflection Paper 3 (500 words): Locate some technology, such as an application, mobile technology, or non-software-based technology. Research either how that technology has had a social impact on a culture or group of people outside of the US or how that technology, developed in the U.S., has affected a culture outside the U.S.</p> <p><i>AE171B, AE172B</i> – Essay 3 (500 words): Assume your airplane/spacecraft will go into production in the U.S. Describe how your product will put pressure on a culture outside the U.S. (choose a specific country.) Use the social and cultural processes introduced in <i>Engr195B</i> to guide your answer.</p>
SO-4	<p><i>Engr195B</i></p> <p><i>AE171B, AE172B</i> – Essay 4 (750 words): Identify elements of a foreign aerospace technology (whether originated there or not) that are distinctively related to an aspect of the culture, then contrast these elements with the U.S. culture. (Note for example how social media technology is differently and distinctively developed and deployed in China vs. the U.S). Discuss how this</p>

	broader cultural picture (i.e., the deep presumptions of the innovating culture) could inform design of aerospace technology within the U.S. and/or as intended for global distribution. Contrast cultural presumptions and then show how those of the non-U.S. culture can be diagnostic of limitations in the U.S. perspective, or revelatory of possible improvements (including a spanning synthesis).
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Course Design for Intercultural Competency

The student body in higher education is evolving into a diverse, global community, in which students and instructors from different cultures, and with different abilities, skills, experiences, and personalities learn together. This diversity of the student body is an asset to the learning community. At the same time, it also presents challenges in creating a truly inclusive learning environment that allows all students to thrive. Indeed, research shows students learn best when they feel a sense of belonging. Becoming sensitive to the needs of a diverse student body is not only a prerequisite for effective teaching and learning, it is also the first step towards helping students develop intercultural competencies. In deciding how one can design an inclusive learning environment, we examine, first individually and then in relation to each other, four elements, which are central to teaching and learning.

A. The student: The student must be central when defining the learning environment. Student experiences and background inform both their perception of the course content, as well as their perception of the learning environment. Hence, faculty need to take into consideration who their students are and how to best meet their needs through intentional course design.

B. The faculty: A faculty member's identity, background, and experiences are also important elements, which inform the learning environment, in and outside the classroom. As instructors aim to teach more inclusively, it is important to reflect on how their own identity, background, and previous experiences inform their teaching. It is interesting to note that during faculty development workshops on course design and pedagogy offered by the authors, some faculty will cling to lecturing and traditional teacher-centered pedagogies by virtue of the fact that "this is how they were taught, and somehow it worked for them", while others will reject the exact same pedagogies by virtue of the fact that "this is how they were taught and it never worked for them". Such views, which are based on individual personal experiences, perceptions, and biases are deeply ingrained and often work to counter the logic and wisdom of proposed research-based pedagogies and course design.

C. The course content: A faculty member's experience and background often set the tone for the course content. For example, faculty tend to favor some content over other based on their personal knowledge and research experiences. By the same token students bring to the classroom their own interests, which should also be taken into consideration, although not in ways that would exclude important or required material.

D. The pedagogy: This last element consists of the strategies a faculty member uses in the classroom, as well as outside the classroom, to ensure all students have opportunities to learn the material and acquire important skills (e.g., problem solving, analyzing systems, creative writing, etc.). Pedagogy also includes things

like the number and type of assessments (formative and summative) during each course, the amount of time students are expected to engage with the material outside the classroom, and the accessibility of course materials, to name a few.

Inclusive Teaching and Learning

The demographic changes in college classrooms necessitate a transformation into learning environments that value diversity, foster inclusion, and engage students in authentic, interactive ways (O’Leary et al, 2020). To eliminate systemic inequalities in higher education, a concerted effort is needed to transform classroom instruction from the traditional lecture/seminar model to a more inclusive, equity-minded pedagogical model, that ensures all students have an opportunity to succeed academically, persist in their field of study, and attain their intended degree. This transformation requires a paradigm shift, in which faculty become aware of their implicit biases, commit to culturally responsive pedagogies, and adopt affirming attitudes towards their students. This inclusive approach to instruction is especially important in STEM courses, in order to create a positive classroom climate that improves persistence (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999), closes achievement gaps (Canning, Muenks, Green, & Murphy, 2019), and leads to equitable undergraduate student outcomes.

Inclusive teaching and learning refer to *ways in which pedagogy, curricula and assessment are designed and delivered to engage students in learning that is meaningful, relevant and accessible to all. It embraces a view of the individual and individual differences as the source of diversity that can enrich the lives and learning of others* (Hockings, 2010). Diversity is considered an asset that informs the content as well as the pedagogy used in a course. The benefits of an inclusive learning environment are increased student motivation, self-confidence, and creativity, which in turn bring about improvements in student academic outcomes, such as stronger critical thinking and problem-solving skills (Salazar, Norton & Tuitt, 2010; Milem, Chang & Antonio, 2005; Milem, 2003).

There are two pivotal aspects concerning students’ experience of belonging: inclusion is about feeling part of a space (e.g., a classroom), while belonging pertains to a sense of comfort and safety in this space. The faculty member who designs a learning environment has to be intentional in considering the living experiences of the students in the classroom to make sure that everyone feels included and experiences a sense of belonging. Inclusion in an academic environment can be developed by faculty along five dimensions: (1) intrapersonal awareness, (2) interpersonal awareness (3) curricular transformation, (4) inclusive pedagogy, and (5) inclusive learning environment (Salazar, Norton & Tuitt, 2010).

Inclusive faculty practice self-reflection about their own lived experiences, their view of the world, and how their beliefs and culture affect their curricular and pedagogical choices. They also expand their knowledge about other cultures and students’ diverse experiences. Inclusive faculty foster interpersonal awareness in their classroom by including activities that support building relationships and connections between students and faculty, as well as among the students. Group work has been shown to be a very effective tool for facilitating interpersonal

interactions, provided that conflicts among members are appropriately channeled. Curriculum content can be transformed by using culturally accurate curriculum but also inclusive pedagogies in the classroom as well as outside the classroom. Inclusive faculty rely on pedagogies that foster engagement, motivation and learning for all student groups, to ensure all students have opportunities to thrive in their courses. Examples of inclusive pedagogies include noncompetitive collaborative assignments, engaging students in construction of knowledge, large and small group discussions, portfolios, student-led discussions, and experiential learning. Lastly, an inclusive learning environment is a space where everyone feels a sense of belonging, built upon principles of equity (giving students what they need to succeed) and accessibility. An inclusive learning environment removes potential barriers to successful student experiences based on race, gender, socio-economic status, and disability. Inclusive faculty care deeply about all their students, hold high academic expectations for them, and empower them to succeed personally and academically. Furthermore, they build professional connections with students and ensure a safe learning environment with constructive feedback (specific, prompt, frequent, positive, and personal).

Research shows that similar classroom interventions can lead to different results (positive or negative) depending on the student populations in the classroom, the faculty management style, and the topics taught (Eddy & Hogan, 2014; Freeman et al, 2014; Borrego et al, 2013). A class can be structured with low, moderate or high levels of student involvement. The traditional lecture typically involves low levels of student engagement. Students are active for only a small percentage of the class time (15% or less) and are given less than one assignment per week (graded or ungraded). An active class, on the other hand, is highly structured. Students engage in activities for larger portions of class time (40% or more) and are given more than one assignment per week (Eddy & Hogan, 2014). A moderately structured class lies somewhere in between these two examples. Inclusive faculty design their classes with a moderate to high level of student involvement to encourage students to spend more time on class material on a weekly basis and reduce the practice of massing study time only before exams. Students learn to distribute their learning activities, increasing thus their long-term knowledge retention. In addition, students are expected to come to class prepared to ask questions and engage with follow-up topics and material. A highly structured class decreases anxiety, improves students' interpersonal skills, as they work in small groups in a collaborative environment, and promotes critical thinking.

All students benefit from additional class structure, with Black and first-generation students benefitting the most (Eddy & Hogan, 2014). These groups of students explicitly value structured activities and tend to speak up and participate more in a structured classroom, due to an increased sense of community associated with a moderately to highly structured class (Stephens et al, 2012; Eddy & Hogan, 2014).

Active and flipped learning are very successful pedagogies in promoting student success, especially among diverse groups of students (Eddy & Hogan, 2014). Research provides extensive evidence that active learning pedagogies are more effective than traditional lecturing, whether a class is in person (Freeman et al, 2014; Haak et al, 2011), hybrid or online (Gavassa et al, 2019). Students engage

with the content before class through readings, videos, slides; they may also complete low stake assignments before coming to each class. During class students focus on highly-structured active learning activities that promote deep learning and understanding of the content through close interactions with and immediate informal feedback from the instructor and other students. Active learning is generally associated with a moderately to highly structured class and the effects of the two different strategies are difficult to separate. Active learning focuses on requiring students to spend more time learning content before class, come to class better prepared, and spend time during class actively engaging with the material instead of listening to a lecture. Strategies that instructors can use to implement active learning pedagogies include the use of clickers (or iclickers through smartphones), daily reading quizzes, in-class group exercises or problem solving, think-pair-share, peer interaction and class discussion, case-based learning, student generated test questions, muddiest point, etc. Active learning helps students develop problem solving and higher order thinking skills, resulting in deeper understanding of the content, while it has little impact on information transfer associated with lower order cognitive skills (Haak et al, 2011). The use of active learning strategies associated with moderately and highly structured classrooms has been shown to close the achievement gap of first-generation students and underrepresented minorities (Haak et al, 2011). The increased social interactions in active classrooms help create a culturally inclusive environment that improves student sense of belonging.

In general, collaborative learning and group work have been shown to be effective tools for a more inclusive environment (Smith et al, 2009). Student performance and learning in group work, however, depend on student level of engagement during collaborative activities. Students who actively participate in collaborative learning activities discussing course content and building on ideas are more likely to develop a deeper understanding, while students who merely listen during a collaborative activity more likely gain only a shallow understanding (Chi & Wylie, 2014). Group work outcomes are linked to the cognitive engagement of each student during the activity. For example, if one student dominates the group activity, the other students have fewer opportunities to actively engage. Several factors affect how students participate in collaborative work, such as their individual level of competency, their social and cultural identities, the speed at which the group moves through the activity, the value perceived by each student in the activity, and the role each student feels comfortable undertaking. For example, Chi and Wylie (2014) indicate that Asian-American students are more likely to assume the role of a listener rather than a more active role, relative to their White American peers. International students also report increased anxiety in peer discussion with respect to the rest of the class. Students' mastery of content increased for students who worked in groups with structured positive interdependence and who were also comfortable in their group (Theobald et al, 2017). Unstructured group dynamics could result in inequalities in the roles that students assume, so instructors could consider deliberately structuring interactions to make sure every student is actively involved in the activity (Chi & Wylie, 2014; Theobald et al, 2017; Micari & Drane, 2011). Tanner (2013) summarizes some helpful tools and suggestions to self-assess and promote student engagement and classroom equity.

Culturally Responsive Pedagogies

Research shows that students from different cultures, experiences, and ethnicity engage with learning in different ways. For example, the Western assumption that talking is closely related to thinking and reflecting is not shared in the East Asian cultural tradition. Kim found that Asian American students' learning and performance is impaired when students are asked to talk through science and math problems, while it is a helpful strategy for European American students (Kim, 2002). Research also shows that first generation students of color thrive academically when the learning environment is perceived as collaborative or interdependent (Stephens, Townsend et al, 2012; Stephens, Fryberg et al, 2012). Interpersonally engaging emotions have been shown to be central to the model of self and relationships in Mexican cultural contexts (Savani et al, 2013). As a consequence, feelings of positive interpersonal interactions with faculty and peers have been shown to increase performance of students who identify as Mexican. When students belonging to historically excluded ethnic groups, such as Black Americans, Latino Americans, and Native Americans, feel part of the community both performance and motivation increase (Walton & Cohen, 2007; Goodenow & Grady, 1993). In contrast, a sense of "belonging uncertainty" has a large negative effect on the motivation of minority students.

Global Technology Initiative (GTI)

In 2004, the SJSU Charles W. Davidson College of Engineering established a \$1 million endowment to fund the Global Technology Initiative. The GTI mission is to give SJSU students a global perspective on technology and business developments. The goal is to expand students' horizons about the opportunities and challenges of a global economy, expose them to global environmental and energy problems in which technology plays a central role, and motivate their learning of global issues and different cultures. During their study tour students visit carefully selected companies, universities, and historical sites, based on research they perform beforehand in the history, culture, and economy of the country visited.

The GTI program sponsors 25 undergraduate students on a two-week all-expenses-paid study tour. The program is funded by the GTI endowment, as well as the College of Engineering endowment fund, which exceeds \$22 million. To ensure equity, GTI fellows are selected independent of their financial standing. This aspect of the program is very important, as most SJSU students come from working-class families and would not be able to participate otherwise. Among other things, the program aims at developing the students' leadership experience and potential. Upon return from their study tour, GTI fellows share their learning experiences with their peers, extending thus the impact of the program well beyond the group of participants.

Three cohorts (2004 through 2006) visited Taiwan and China, while an additional three cohorts visited India (2004 through 2010). These destinations were selected because of their strong relationship with Silicon Valley information technology companies and their competitive technology industries. Furthermore,

India and China, each with populations over 1.4 billion, have a significant impact on global environmental and energy issues (Wei, Backer, Chung & Wood, 2012).

An exciting part of the program is that it is continually evolving, taking students to different parts of the world. In Summer 2023 GTI went to Jyväskylä, Finland for the first time (SJSU GTI Program, 2023). The summer program will include lectures, workshops, social gatherings, and site visits around Finland. Students will take 3–4 short courses during their visit. These include a required course on advanced engineering technologies and robotics plus a choice of three electives that include dynamic creativity management, global team leadership, European corporate finance, ethics and law for international managers, psychology for business leadership, international business speaking, service design, game art and design, and responsible tourism.

GTI fellows are required to take a special section of the Tech 198 – Technology and Civilization course. In addition to satisfying SJSU Studies Area V (see earlier discussion), this course is designed to prepare students to cope with the cultural shock of visiting and learning in a different cultural environments. In the years when the GTI cohorts visited China or India, the course focused on the political, social, economic, technological, and cultural history of the country to be visited. These courses were developed by faculty members in the Department of History at SJSU (Wei, Backer, Chung & Wood, 2012).

GTI fellows are given opportunities to take a language course before their trip. For example, in Spring 2011, they were offered an optional, introductory course in Mandarin, in which students engaged in communicative activities and reflected on cultural connections and cultural differences between China and the U.S. Students were taught culturally appropriate ways to exchange basic greetings, discuss their profession and hobbies, make requests and give permission, express gratitude and modesty, order food in a restaurant, and ask for help to deal with emergent situations.

Ed.D. Leadership Program Global Field Experience

SJSU offers a three-year, cohort-based, doctoral program in educational leadership with a broad curriculum taught by faculty from a variety of disciplines across the campus (SJSU Ed.D. Leadership Program, 2023). It is designed to prepare the next generation of education leaders with the knowledge, skills, and dispositions necessary to understand the causes of inequitable outcomes in PK–12 and higher educational institutions. Students in this program are prepared to assess pedagogies, practices, policies, and curricula that hold the potential to improve the life chances of minoritized students. An integral part of the Ed.D. Program is the Global Field Experience (SJSU Ed.D. Leadership Program Global Field Experience, 2020). During the second summer session of the program, doctoral students register for a three-unit course (Ed.D. 585 – Field Experience, Global Context,) and partake in a global experience, which includes a two-week educational and cultural experience outside of the U.S.

This experience builds on another course in the Ed.D. Program (EdD 540 – Education and Leadership in Global Context: Globalization and Narrative Ethics), which provides global perspectives on education and leadership in contemporary

society with emphasis on social, political, and economic factors that affect access and equity and the role of leadership. Costa Rica and Finland are two countries in which Ed.D. student cohorts have traveled to gain a comparative perspective between the educational systems, policies, and practices in those countries and the educational system, policies, and practices in the U.S. The global field experience is an integral part of our Ed.D. Leadership Program, in which all doctoral students are required to participate. The cost of the program for each student is approximately \$3000.

Extracurricular Activities and Programs

In addition to course and curriculum design that includes the knowledge, skills, and values needed to succeed in today's interconnected world, SJSU also offers a variety of programs and extracurricular activities that promote intercultural understanding and global citizenship. Table 3 provides a list of such activities and programs.

Table 3. SJSU Extracurricular Activities and Programs to Promote Internationalization and Global Citizenship

Program	Recipient	Notes/description
Cultural Conversations	SJSU international students	Cultural Conversations introduces international students at SJSU to aspects of American culture that they may have heard about but have not had the chance to explore. It is also an opportunity for the participants to share their perspective and engage in meaningful intercultural dialogue.
iSucceed	SJSU international students	Peer mentor program exclusively for SJSU international students, designed to help them navigate arrival and campus life through their first year at SJSU. New international students are paired with a Peer Mentor, a fellow Global Spartan who provides guidance as they begin their SJSU experience.
Global student network	SJSU students; SJSU international students; SJSU students interested in studying abroad	The Global Student Network (GSN) is a student organization dedicated to: (1) Facilitating global friendship and cross-cultural interaction, (2) Providing a support network for international and domestic students, (3) Promoting study abroad and international experiences. Student participants gain awareness of cultural diversity on campus, promote intercultural communication in the SJSU campus community, welcome international and domestic students, encourage interactions among students, while sharing and promoting Study Abroad experiences.

Study Abroad and Away Office	SJSU students and faculty	The Study Abroad and Away Office provides expertise and assistance to faculty in developing short term credit-bearing programming for our students that have a cross-cultural focus and provide an experientially based vehicle for teaching SJSU courses domestically and internationally.
Alternative Break Program	SJSU students	These co-curricular programs focus on cultural immersion and community engagement and often include a service-learning project to engage with the local community. The Alternative Break Program offered through Study Abroad and Away Office focuses on learning about local cultures. They are not discipline-specific and do not offer academic credit. Programs are led by SJSU staff and vary in length (1 week for spring programs; 1-3 weeks for summer programs).
Faculty Lead Study Abroad Program (FLP)	SJSU students and faculty	Faculty-Led Programs (FLP) provide an opportunity for SJSU faculty to expand their field knowledge, gain off-campus teaching experience (internationally and domestically), establish and/or reconnect with colleagues and contacts outside of Silicon Valley and help build more global citizens through an international SJSU curriculum. This is possible through leading a cohort of students on programs outside of the Bay Area (internationally and domestically) while teaching an SJSU course relevant to the host location. Courses focus on a particular theme and are taught by SJSU faculty. Programs are typically 1-4 weeks long, take place during winter, spring or summer breaks, and earn SJSU credit.
Summer School Abroad	SJSU students	Students experience an international university's summer school program with locals and students from around the world. Participants take classes at an international university for 2-8 weeks during summer break and earn SJSU credit.
SJSU Exchange	SJSU students	Students participating in this program study at a partner university with students from all over the globe, pay their regular SJSU tuition, and receive SJSU credit for every class they take. There are programs for every major, and all financial aid applies. Scholarships are available. One or two semesters long.
International Student Exchange Programs (ISEP)	SJSU students	SJSU is a member of International Student Exchange Programs (ISEP), a non-profit organization that offers study abroad options at over 200 universities in 51 countries, one semester or yearlong. ISEP costs vary depending

		on the program, and financial aid applies to most but not all programs.
CSU Chancellor's Office International Programs (CSUIP)	SJSU students	California State University International Programs (CSU IP) provide students in the CSU system with an affordable opportunity to study abroad for a semester or a year. Students earn SJSU credit while studying at a host university with local students or a study center with other CSU students. Affiliated with more than 30 recognized universities in 18 countries, CSU IP offers a wide selection of courses and study abroad destinations. In addition to taking major, minor, and GE courses, students also have the opportunity to participate in language and culture-focused programs. SJSU students participating in CSU IP pay SJSU tuition, and financial aid applies to all programs. CSU IP scholarship opportunities are also available.
CSU International Programs Resident Director	SJSU faculty	Each year the office of the California State University International Programs (CSU IP) recruits faculty to serve as Resident Directors (RDs) for a number of its study abroad programs. These positions represent one of the best chances within the CSU to work and live for an academic year in the following countries: France, Italy and Spain. The CSU IP website provides information about the RD opportunities and instructions on how to apply.
Global Leadership Advancement Center (GLAC)	International research scholars	As a vibrant hub for scholarly research and educational excellence, GLAC promotes and supports the field of global leadership in various ways. The GLAC Scholar-in-Residence program hosts professors from other universities who spend their research sabbaticals or short-term periods working with GLAC faculty and GLAC staff. Professors affiliated with other universities and organizations may also participate in GLAC research projects and programs as a designated GLAC Research Fellow.
Virtual International Partners (VIP)	SJSU students	The VIP program connects students at SJSU and partner universities around the world for a semester-long virtual cultural exchange. Students can earn academic credit (if within the College of Health and Human Sciences) or participate in an extracurricular program while meeting someone new in a different part of the world.
International Gateways	English learners	SJSU opened an intensive English language program in 1975 to meet the needs of incoming international students. Thousands of students

		from more than sixty countries have improved their English skills for academic, professional, or personal reasons. International Gateways includes a semester at SJSU as well as the long-standing Academic and Test Preparation program.
Language and Cultural Exchange Program (LACE)	SJSU students	Promotes cross cultural friendships between International Gateways students and SJSU students. The purpose is to enhance positive understanding and appreciation for cultural diversity in an informal atmosphere. LACE is a voluntary program for International Gateways and SJSU students. LACE pairs students of different cultural backgrounds for one academic semester to promote English language conversation for International Gateways students, and foreign language conversation and cultural exchange for SJSU students. International Gateways students can practice their English with an SJSU student. SJSU students meet international students to help them with their English language skills, while developing some of their own foreign language skills.
Collaborative Online Intercultural Learning (COIL)	SJSU students and students from partner institutions	In Collaborative Online International Learning (COIL) courses, cohorts of students from at least two cultures work together in a shared learning environment online, under the supervision of teachers from each culture. A COIL course can be implemented in a normal smart classroom. In today's global world, our students will have to work and negotiate with people from other cultures. People who can effectively collaborate in such a global environment are needed in many fields. COIL courses are practical and enable students to enhance their communication skills and cultural learning, while working online on projects with peers from other cultures. http://www.coilconsult.com/what-is-coil-.html
Interdisciplinary Minor in Global Leadership & Innovation	SJSU undergraduate students	Global leadership skills and design thinking projects are valuable – and highly desirable – attributes for people working in all areas of business, non-profits, government, and education. Open to undergraduate students in any major, the SJSU 15-unit interdisciplinary Minor in Global Leadership & Innovation provides a comprehensive curriculum that includes theory, skill development, and practical application. Interdisciplinary Minor Requirements: BUS5 016 Introduction to Leadership & Innovation (3 units)

		BUS5 165A Global Leadership (3 units) BUS5 165B Leadership & Innovation Practicum (3 units)
Certificate in Advanced Global Leadership	Graduate Students and Professionals	Offered through the Lucas Graduate School of Business, the Certificate in Advanced Global Leadership is designed for graduate students from all disciplines and business professionals who want to hone their leadership skills and learn how to better prepare themselves and their organizations to excel in today's competitive global business environment. The three-class graduate level program is taught by innovative master teachers with diverse global backgrounds and select guest speakers. Together, they ensure the right mix of theory and practice. Required courses may be taken in any order: BUS 262A Global Leadership & Innovation (3 units) BUS 262B Global Leadership Development (3 units) BUS 268 Managing Across Cultures (3 units)
Exchange Student Program	Students from international institutions	The SJSU exchange student program provides an opportunity for students from SJSU bilateral exchange partner institutions, CSUIP and ISEP, to study at SJSU for one or two semesters as non-degree seeking students.

Conclusion

While globalization was certainly present in antiquity, it is only in recent years that aerospace and information technologies have resulted in exponential growth of cultural, financial, and knowledge exchange around the globe, hence the urgent need to develop higher education students as informed and responsible global citizens. The chapter presented ways SJSU attempts to meet this need through institutional goal setting, as well as intentional course and curriculum design that ensure students' development of global understanding and intercultural competencies. Specific student assignments in engineering courses were presented as examples that illustrate the integration of General Education outcomes, where global and intercultural competencies typically belong, with newly prescribed engineering design outcomes, which also emphasize such competencies. Key elements of this course and curriculum design are inclusive and culturally responsive pedagogies inside and outside the classroom. Lastly, the chapter presented a host of extracurricular activities and programs at SJSU, with highlights among them the Global Technology Initiative for STEM majors and the Ed.D. Leadership Program Global Field Experience as two of the most successful programs on campus. It is the hope of the authors that the ideas presented in this chapter are adaptable to other fields of study at institutions around the world.

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