Welcoming Students to Undergraduate Computer Science Programs: On-ramps, Rest Areas, and Lane Changes

Niharika Bhaskar
n2bhaska@ucsd.edu
University of California San Diego
San Diego, California, USA

Amari N. Lewis
anlewis@eng.ucsd.edu
University of California San Diego
San Diego, California, USA

Rona Darabi
rdarabi@ucsd.edu
University of California San Diego
San Diego, California, USA

Joana Fang
jifang@ucla.edu
University of California Los Angeles
Los Angeles, California, USA

Jingting Liu
jil356@ucsd.edu
University of California San Diego
San Diego, California, USA

Kristen Vaccaro
kvaccaro@ucsd.edu
University of California San Diego
San Diego, California, USA

Joe Gibbs Politz
jpolitz@ucsd.edu
University of California San Diego
San Diego, California, USA

Mia Minnes
minnes@ucsd.edu
University of California San Diego
San Diego, California, USA

ABSTRACT

Studying computer science is a journey: people start at different times, travel at different paces, and pause along the way. In this experience report, we describe a peer-led, year-long program designed to welcome students to Computer Science and Engineering as a discipline, department, and academic program. We detail the logistical, curricular, and personnel structures of this program, highlighting design choices we made to (a) open multiple ways to join the program all year, (b) de-emphasize "getting ahead", (c) prioritize reflection, and (d) connect students to existing resources. Throughout, we emphasize the critical role of peer mentors in leading and shaping this space. We share our own lessons learned, as well as reflections from students and mentors on the value of this learning community outside of formal classroom structures.

CCS CONCEPTS

• **Social and professional topics** → **Computing Education**.

KEYWORDS

Undergraduate computing programs, peer mentors, hidden curriculum, broadening participation

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1 MOTIVATION AND CONTEXT

After a period of intense enrollment growth, our public institution, like many others, now finds itself with a large steady-state Computer Science and Engineering (CSE) program (roughly 2000 undergraduate students), in which students nonetheless report struggling to find peers and mentors to connect with [9]. Moreover, we see significant disparities in representation of students who identify as women, Black and African American, and/or Hispanic/Latino(a) as compared to the representation of these students at our university.

Initiatives in the classroom and beyond try to address this: multiple introductory course sequences account for varying prior experiences, pedagogy teaches and encourages collaboration, teaching assistants for each course are available for 1-1 support, and student-led social and professional organizations thrive. Anecdotally, we find that these opportunities best serve students who are already primed to navigate the sheer number of options for getting involved. This often means being ready to engage with opportunities at the very start of the year, when much of the advertising around them (and in some cases, opportunities to sign up for them) is focused.

We built a computing-focused program for incoming CSE students to have an on-ramp to all the resources available for them on campus. The program, CSE-PACE (Peer-led Academic Cohort Experiences), is designed to offer a welcoming and supportive space for students to explore technical, professional, academic, and social opportunities available. Rather than duplicating existing offerings (it is not a tutoring center nor a student club), CSE-PACE forms a bridge to those opportunities. CSE- PACE builds and grows a community of incoming students, with resources and mentoring that persist across courses and throughout the (first) academic year. At the heart of this program are student leaders, called Lead Peer Mentors or LPMs (section 3.1), who serve as role models and who facilitate the participants' explorations.

In this experience report, we share the lessons we learned for recruiting and serving students in this program, point out potential impacts of the local university context and infrastructure, and highlight the components that are specific to the computing discipline.

2 PRIOR AND RELATED WORK

2.1 First year experiences

Multiple universities host first-year experiences ([19–22, 25]) where undergraduate students opt into small cohorts and take (core or general education) classes together. Cohorts for computing students transferring from community colleges have also been studied [17]. Each of these programs seeks to build social connections between students while contextualizing introductory coursework. Students in these existing cohort programs typically enroll directly upon matriculation and commit to long-term participation in the program.

2.2 Sense of belonging and social support

The education literature documents how sense of belonging can impact student retention in undergraduate programs (for example: [13] and [7] in CS, [8] in Math, and [24] in STEM more generally). Recent work relates retention and performance (especially in introductory coursework) with sense of belonging [9]. Experiences in the first year of an undergraduate computing program can be particularly important to students whose identities are not well-represented in CSE classes [2, 3, 10]. CSE-PACE aims to reinforce student sense of belonging by providing a consistent, year-long community where multiple aspects of being a computer scientist and engineer are explored and honored. A recent paper comparing students in biology and computing programs suggests that computing students report fewer connections to other students in their classes [12]. There's also evidence that emergency remote instruction during the COVID-19 pandemic weakened computing students' support networks [14]. A main goal of CSE-PACE is to proactively and continuously facilitate opportunities for students to meet and work with one another.

2.3 Role models

A mentoring program open to *all* incoming students helps move away from a deficit model of seeking support and community and can improve culture overall [1]. In some programs available to all, women, Black and African American, and Hispanic/Latino(a) students are *over*represented among those engaging with the program [4]. These programs can be an opportunity to amplify the leadership and reach of diverse student leaders. A recent focus group study shares the story of Hispanic/Latino(a) students who found motivation and affirmation in seeing undergraduate teaching assistants who were also Hispanic/Latino(a) [11]. Moreover, given recent evidence [23] that the sources of student struggle in early classes frequently come from outside the classroom (e.g. personal obligations, lack of sense of belonging, and lack of confidence) it can be valuable to have role models who may have faced similar issues and may have strategies and advice for overcoming them.

2.4 Peer mentoring and tutoring

Near peer mentoring has been studied as an effective practice [1, 5, 26], specifically for retention [6]. Undergraduate computing programs increasingly leverage undergraduate teaching assistants/ tutors to help with personalized instructional support at scale [15, 16]. Our CSE department does as well. Many of our undergraduate classes are supported by this tutor program. A primary role of these tutors is helping students get "unstuck" in short interactions as part of lab hours. Our tutor population is familiar with all aspects of our courses, are highly capable, and embedded in and central to our culture. The Lead Peer Mentor model described in this report gives infrastructure for *complementing* the tutor role, where Lead Peer Mentors are empowered to set norms and expectations around inclusive practices within and beyond the classroom. Further our program runs for the full year with the same Lead Peer Mentors, while course-specific tutors usually do not persist with the same cohort throughout the year.

Prompt #1: Scenario: one of the students in your mentoring cohort sends you the following email:
"Hi, I've been feeling really stressed out because of [my intro CSE class]. In the labs I have a partner who just works on things really fast and doesn't talk at all and ends up submitting the lab with me barely doing anything. Then on the [programming assignments] I just get stuck and don't even know what to ask the tutors. I feel like I follow along in lectures OK when I can go but then I just don't know what to type when I get into the labs to do the homework. What should I do? I really don't want to fail this course." How would you respond to this email? Assume you are NOT a tutor for [the intro CSE class], but are the student's mentor as a part of CSE-PACE. Your response might include a direct email reply, and also any other actions you might take or other people you might contact.

Prompt #2: Choose a topic in computing that you think is important. Record a video of no more than 3 minutes introducing the topic and talking about some of its impacts on society, positive and/or negative. Your video should be accessible to a first-year CSE major, so it should not, for example, assume an understanding of content beyond a first programming course.

Figure 1: The Lead Peer Mentor application was designed for applicants to demonstrate the skills that they would need to support and inspire incoming computing students.

3 PEER-LED ACADEMIC COHORT EXPERIENCES

The main organizational structure of CSE-PACE, our year-long program for incoming computing students, was a weekly meeting of students with Lead Peer Mentors, the graduate student teaching assistant (TA), and faculty. Each session started with a welcome by the TA reminding students about the goals of CSE-PACE, introducing the leadership team, sharing information about earning credit for participation and upcoming computing opportunities on campus. We intentionally included this full introduction each week so that newcomers would never feel left behind.

Often, the TA or faculty led a short lesson or activity on topics such as creating respectful group discussions, imposter phenomenon, upcoming important registration deadlines, and so on. In most weeks, the big group activity was followed by each lead peer mentor taking a group of 3-10 students to a small group meeting space for a mini-workshop, group work, or other activity. Other weeks had special guests such as representatives from computing-related student organizations on campus or CSE faculty. All sessions ended with the full group (and any guests!) mingling over food.

Running CSE-PACE involved selecting and training peer leaders, scheduling and logistics of weekly meetings, and establishing the program's overarching cultural expectations.

3.1 Lead Peer Mentors

The Lead Peer Mentors were the primary point-of-contact with students. As such, a particularly important part of the design of this program was the recruiting, onboarding, and ongoing professional development for the lead peer mentors.

Recruiting. Applications opened for the lead peer mentor position approximately two months before the start of the academic year. The applications were advertised to all CSE majors, all current CSE undergraduate teaching assistants, and all CSE-affiliated student organizations. Applicants were asked to complete two tasks representative of what they would be doing as Lead Peer Mentors; the application prompts are in Figure 1. Eleven Lead Peer Mentors were selected from the 31 applications received.

Onboarding. The Lead Peer Mentors needed to facilitate student group discussion from day one of CSE-PACE, but had a range of levels of prior experience doing so. It was important to give them guided, hands-on practical experience as part of the pre-launch training. The training sessions had two parts: a synchronous online component introducing the team and the overall structure of the program we were launching, and an in-person component where the lead peer mentors each took turns "running the room" using provided lesson plans for mini-workshops.

Ongoing professional development. The TA and faculty met weekly with the lead peer mentor group to reflect on each week's sessions, troubleshoot problems that came up, and collate best practices. For example, since a big focus in Fall quarter sessions was on encouraging inclusive discussions during the small group cohorts, the lead peer mentors collectively brainstormed effective strategies to lead truly inclusive discussions, not dominated by a few loud voices.

3.2 Scheduling and Logistics

The weekly meetings at the core of CSE-PACE had a number of moving pieces that needed to be carefully managed.

To maximize the number of students who could be served by this program, sessions were held three times a week; each student was invited to pick one time each week to attend. Weekly session times were scheduled to accommodate the required first-year CSE classes, minimizing any potential class conflicts. Food was served at each session for social interaction and as a concrete form of support (especially, but not exclusively, for students facing food insecurity).

The content of weekly session varied throughout the year. Figure 2 summarizes the topics and activities for the weekly sessions. In the first few weeks of the year, small group activities started with an ice breaker. This was typically followed by a mini-workshop on a technical topic or academic advising. In the summer prior to the launch of the pilot program, the faculty worked with a team of undergraduate research assistants to compile over twenty lesson plans for lead peer mentors to choose from; these lesson plans are available publicly at the program website[1] and cover topics such as (anti-)social computing, security of bluetooth devices, robotics applications in healthcare, and more.

In Winter quarter, about half the sessions had special guests (for example, representatives from computing-related student organizations on campus or CSE faculty not affiliated with the program). The lead peer mentors had an active role in these sessions as well: they connected each student with guests who would resonate with their specific interests, and they modeled asking questions in large group discussions and panel formats.

Spring quarter meetings had the least structure: each week, the lead peer mentors curated activities based on what their students most wanted. For example, some lead peer mentors gave an overview of the the industry internship application process, others ran workshops (one on HTML, one on building browser extensions, another on LinkedIn), another worked with his group on a startup idea that had come up in a cohort conversation during Winter, and others created informal study jams with background music.

Students filled in an online check-in form at each session. The information collected in the check-in form included: email, name, which weekly session time they attended, who was their Lead Peer Mentor, "How are you?", "If you are new, how did you hear about us?", and occasional specific questions about topics of interest and how classes are going. The TA also scanned through responses to the open-ended questions to flag and follow up on student concerns. In addition to helping us support students, attendance data from the check-in form provided some formative assessment for the program.

Beyond the weekly sessions, the TA, faculty, and lead peer mentors were available to students through online discussion forums (the campus learning management system and a Discord server). Multiple times each term, the Lead Peer Mentors worked with the TA to identify students who hadn't attended weekly sessions in a while and then reached out individually to students on this list with whom they had worked in CSE-PACE. The goal was to keep the connection between students and Lead Peer Mentors strong, whether or not students chose to attend synchronous sessions.

3.3 Design principles and implementation

Using a metaphor of computing education as a highway journey, we applied three main design principles. Figure 3 summarizes the implementation strategies we used to implement these principles.

Multiple on-ramps. Open to every incoming computing student without an application process, registration for CSE-PACE remains available year-round. Students can earn academic credit, regardless of how late in a term they join.

Proactive recruitment We collaborate with Admissions and Student Affairs to reach out to incoming students before arrive to campus. CSE-PACE is advertised when students first receive their admission offer to our campus, at events for admitted students, by email over the summer, and during campus orientation.

Ongoing personalized recruitment Critically, CSE-PACE leadership continued to reach out (by email and by visiting classes) to students throughout the year. We found it to be particularly effective when members of the leadership team shared aspects of their own identities in personalized emails, offered to meet individually with students to help them determine if the program would

[1] https://pace.ucsd.edu/external

Week	Fall	Winter	Spring
1	Welcome	Welcome	Welcome
2	Intro to Artificial Intelligence, part 1	Student Organization Fair	Flex LPM-led time
3	Intro to Artificial Intelligence, part 2	Pathways in Computer Science	Field Day
4	4-year course plans	Professor Panel	Flex LPM-led time
5	CSE Building Scavenger hunt	Midquarter Study Social	Flex LPM-led time
6	Block Based Programming / Password Safety	Course planning / Campus walk	Flex LPM-led time
7	Block Based Programming / Online Security	Deep Dive Week 1 (Robots/ Bitcoin/ Chat GPT)	Flex LPM-led time
8	Create your own Tik Tok	Deep Dive Week 2 (Robots/ Bitcoin/ Chat GPT)	Flex LPM-led time
9	Thanksgiving Break	Deep Dive Week 3 (Robots/ Bitcoin/ Chat GPT)	Celebration!
10	Celebration!	Celebration!	

Figure 2: Calendar of session topics and activities for the full first year of CSE-PACE

be a good fit for them, and suggested 1-1 mentorship. In some of these interactions, as well as when lead peer mentors reached out to students who had stopped attending, students shared (personal or academic) hurdles that they were facing and we were grateful that we were able to help the students overcome some of these by working proactively to connect them with campus financial aid, housing, medical, and/or advising services.

Snowball recruitment At each weekly session, we invited students to "bring a friend" next time and reminded them that it's never too late for their friends to join. This both reinforced the social and community goals of CSE-PACE, and leveraged the social networks of existing participants in our recruiting efforts.

Passive recruitment: course catalog Incoming students often look to the course catalog and department websites for information on which courses and programs to sign up for. As such, we arranged for CSE-PACE to have a credit-bearing component, with the associated course listed in the registrar's schedule of classes.

Rest areas. In students' hectic first year on campus, it was important to offer an supportive, engaging, and meaningful atmosphere.

Inclusive program structure In our pre-launch summer team-building sessions, one of the Lead Peer Mentors shared a guiding principle that became the program's running motto: "Make space, take space". At every weekly session, we reminded students of the importance of being attentive to who is contributing ideas, and to also step up and share their voice. We intentionally de-prioritized using meeting times for "getting ahead". The leadership team practiced modeling to student participants that (perhaps somewhat performative) ambition can be deflected and should not necessarily be celebrated in every context. For example, we designed scripts for responding to students who referred to courses as "too easy," with the phrase "I know you didn't mean this but..." as a lead-in to explaining the effects that kind of comment can have on the room.

Design principle	Implementation strategy
Multiple on-ramps	Proactive recruitment
	Ongoing personalized recruitment
	Snowball recruitment
	Passive recruitment: course catalog
Rest areas	Inclusive program structure
	Targeted recruiting into a program for all
	Prioritizing student well-being
	Content-ful (but not stress-ful) sessions
	Peer mentors reflecting student experiences
	Professional development for peer mentors
Lane changes	Success >> Attendance
	Social mixing
	Varied programming in sessions
	Beyond the classroom

Figure 3: Design principles for the year-long peer-led academic cohort program for incoming computing students

Targeted recruiting into a program for all This program was open to all incoming computing students. We were inspired by the Cultural Competence in Computing efforts [27] to work to bring identity-inclusive curricular efforts for *all* students. We saw a higher representation of students with identities that are not well-represented in the CSE population in our program (see Section 4). We believe this is a result of targeted recruiting, inclusive and welcoming practices, and active mentorship. In our early conceptions of CSE-PACE, we hypothesized students in the program might find it useful to organize into identity-based groups as part of weekly sessions. In practice, structuring the cohorts based on identity faced several complexities: requesting students to divulge these identities presented a challenge, especially in balancing early organization with the critical time needed to foster a psychologically safe community. Moreover, this approach posed additional logistical and scheduling challenges.

Prioritizing student well-being Our program's emphasis on community-building, group dynamics, and supporting student needs (both academically, socially, and with food) was recognized and appreciated by students. In a campus interview unrelated to our program, one of our student participants was asked about meaningful experiences they had had on campus; their response was to refer to our program, saying "CSE-PACE has been such a benefit towards my mental health. Being able to relax, meet new people, and talk about topics that are interesting brings joy to my day."[2]

Content-ful (but not stress-ful) sessions Students who are just starting out with programming face the frustrations of compiler errors and hours of debugging, sometimes with seemingly little connection to their overall goals for entering the computing field. Our first-year experience connected the content from initial courses

[2]https://jacobsschoolofengineering.blogspot.com/2023/02/joshua-kave-servicenow-scholar.html?m=1

with students' professional ambitions. Contemporary technology (like large language models) and topics like biases in computing were explored through activities and news stories. This approach facilitated inclusive and meaningful discussions about computing, as students with a broad range of backgrounds and skill sets could engage in low-stakes, meaningful, relevant computing discourse.

Peer mentors reflecting student experiences By intentionally recruiting peer mentors who contribute to and lead the computing and campus community in different ways, this program recognizes and empowers multiple models of success. The Lead Peer Mentors ranged from sophomores to graduating seniors; some of who had served as undergraduate tutors and others who had not; some interested in computing research, others in software engineering industry, others in medical school, and others still exploring. Ongoing weekly professional development for the Lead Peer Mentors empowered them to customize the weekly mini-workshops to their students' and their own interests. As the year unfolded, we saw (and encouraged) Lead Peer Mentors teaming up to co-lead sessions that drew on multiple mentors' strengths and perspectives.

Students saw and appreciated the diversity reflected in the team, with one sharing with us: "I actually noticed that the [program staff] members were all very diverse, coming from different backgrounds, different races, and different identities. I assume that this was intentional, and it was very encouraging for me. In my [other campus computing experiences], I was either the only girl or one of 2 girls out of a team of 6 people. Seeing that the [program] staff was split pretty evenly was refreshing."

Professional development for peer mentors A key goal of CSE-PACE was developing a broader set of student leaders. Lead Peer Mentors were guided in reflection and leadership practice in weekly team meetings, where faculty leadership offered specific and actionable advice to scenarios that arose in the program.

To ensure inclusive access to the LPM role (and to recognize its importance), it was important that lead peer mentors received financial recognition. In this pilot year of CSE-PACE, we learned that the way in which this money is paid is important: paying an hourly wage can limit the hours of other on-campus work available to a student; on the other hand, fellowships and stipends sometimes impact a student's overall financial aid package. Proactively working with our institution's fund managers, we designed pay structures for lead peer mentors that aligned with the collective needs of the student leaders we recruited. We recognize that local institutional rules and norms about student pay will impact the "right" types of compensations at each school; it took us a few iterations to finalize the model that worked best for our program.

Lane changes. Our year-long program was more than just the weekly sessions. Achieving success took various forms for different students: some found support in transitioning to other programs on campus, others received recognition for academic milestones and advancement, and for some navigating challenges, we offered guidance and coaching to help them find their path.

Success >> Attendance We saw many students benefit from the program by attending regularly every week. Others benefited from it by attending for a few weeks, meeting peers who became their study group or finding a student organization that matched their interests, and no longer finding added value in the weekly program

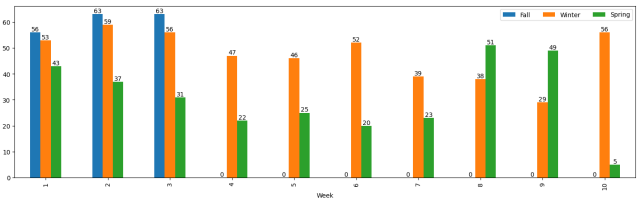

Figure 4: Number of students attending weekly sessions each quarter; where leftmost (blue) bars are Fall quarter, middle (orange) bars are Winter, and rightmost (green) bars are Spring. Data collection pipelines were not fully in place in Fall quarter so data is incomplete for that term.

session. Yet others came to CSE-PACE and connected with a lead peer mentor or faculty member, had 1-1 conversations with them during the session, and used the weekly sessions as dedicated study time (with food) to help juggle all their responsibilities during the week. Success of the program is thus not necessarily (only) measured by participants continuing to attend regularly.

Social mixing Since student attendance fluctuated, groups in the weekly mini-workshops varied week to week. Additionally, students were encouraged to switch groups at their discretion, allowing them to join friends or a mentor with whom they had a strong connection. We were surprised by this departure from our original vision of a rigid cohort structure. However, it had a silver lining: by mixing the group compositions regularly, students had more opportunities to expand their social networks.

Varied programming in sessions The content of weekly programming changed throughout the year. Sessions were more content-ful at the start of the year, with focus on professional norm-setting, group building, and contextualizing computing. Even then, lead peer mentors customized their mini-workshops based on their students' interests and prior experiences. In Winter, students chose "deep dive" topics and explored those in their cohorts for two or three weeks. Spring term sessions were almost exclusively designed by lead peer mentors, in response to their students' goals.

Beyond the classroom Our first-year program gave a space for incoming computing students to meet and connect outside large lecture halls or time-pressured queues for lab assistance for programming assignments. The groupings in our program were primarily determined by scheduling, which meant that often we had groups with students taking many different CSE classes (based on whether they had AP credits from high school, transferred from a community college, took courses in summer school, etc.). During mini-workshops and over lunch, our lead peer mentors emphasized that there's no "better" course to start in and that there's no "right" pace to progress through the degree program. Through participating in our program, incoming computing students build a broader network of peers beyond just those in their classes, and the multiple paths that students take in their education become normalized.

4 PROGRAM OUTCOMES

4.1 Who participated?

A total of 149 unique students completed check-ins over the course of the year. At the start of the pilot program, we focused recruitment

only on incoming first-year students directly admitted from high school into CSE majors. The 93 directly admitted CSE majors who participated in the pilot year of CSE-PACE represented nearly a third of the incoming class of 292 directly admitted CSE majors. As we calibrated our available resources, we slowly opened enrollment in CSE-PACE to transfer students in their first year on our campus and to students in related computing (but non-CSE) majors.

Students with some identities under-represented in the CSE population (compared to the overall campus population) were over-represented in this program. Of the 149 students who attended, 43 (29%) self-reported their gender as female, 1 self-reported nonbinary (<1%), and 5 did not self-report their gender (3%), compared to 399 of the 1731 (23%) of the CSE major self-reporting their gender as female, 5 (1%) self-reporting nonbinary, and 39 (2%) not self-reporting gender. A greater proportion of the students in CSE-PACE were Hispanic/Latino(a) (17 of 149 students, 11%), compared to (183 of 1731, 10.5%) of CSE major students, and a greater proportion of students in CSE-PACE were Black and African American (8 of 149 students, 5%), compared to (20 of 1731, 1%) of CSE majors.

To evaluate the recruitment strategies ("on-ramps") to CSE-PACE, we asked students how they heard about it. Most students included **friends** among the ways they heard it (76/149, 51%); the second most frequent way was **email** (57/149 students, 38%). Other ways people reported advertising (social media, flyers, etc.) (28/149 students, 19%), announcements in CSE programs and classes (18/149 students, 12%), and seeing the associated course in the campus course catalog (11/149 students, 7%). Each of the recruitment strategies we tried reached at least some students, and we see that the snowball recruitment method [18] was particularly impactful.

Attendance in weekly sessions peaked at the start of each quarter and generally declined towards the end of each quarter, as well as over the course of the year (see Figure 4). Average weekly attendance decreased from 60 students in Fall quarter to 48 and 33 in Winter and Spring (respectively). This was expected, as CSE-PACE (1) does not *require* weekly attendance and (2) is intentionally designed as a transition program to connect students to other campus organizations and resources. In end of term surveys in Winter and Spring quarters, we asked students what reasons led them to miss weekly sessions that term. The three most common student responses were: (1) "Wanted to spend the time working on classes" (33 in Winter, 43 in Spring), (2) scheduling conflicts (30 in Winter, 46 in Spring), or (3) illness (13 in Winter, 21 in Spring). There were also a number of term-specific reasons, like poor weather during the Winter quarter, or finding another community in the Spring. Students were also more likely to report sleeping in during Spring.

4.2 Student-reported impacts

End of term surveys in Winter and Spring quarters asked the students "What was your impression of CSE-PACE this quarter/year?". Preliminary analysis of the open-ended student responses, indicates that 69 of the 70 Winter quarter responses included positive impressions and 65 out of the 65 Spring quarter responses included positive impressions. A full qualitative analysis of these responses will be future work; a sample student response is: "I really enjoyed CSE-PACE. I thought that that the LPMs were excellent and were all super super friendly and helpful. Their insight and advice, whether it be on modern news topics or [campus] tips, was super helpful and much appreciated. I thought that creating an inclusive and safe space to discuss computer science topics and their potential impacts with like-minded peers and supportive teachings staff was super beneficial to my learning."

4.3 Lead peer mentor-reported impacts

At the end of the year, the lead peer mentors reflected on the program as a group. One mentor shared that a favorite memory for them was: "Getting to know my cohort members more and more and seeing them learning new/interesting things in the cohorts. I'm also happy to see they keep coming/bringing new friends." The mentors compared their role in this program to other leadership experiences they have, for example: "I feel more connected with the students as an LPM compared with other tutoring roles, since in those cases the interactions are almost fully academic. But as an LPM we can talk about all kinds of things happening in each other's lives. This can be more helpful because academic support is only part of the support students need in college and I'm happy we can bring those to the students when they need them" and "We had a lot of choice of what we wanted to do with our group and flexibility to adjust to better fit our students. I think this along with the extended timeline (not being restricted to just a quarter) made it empowering and an opportunity for us to really grow as leaders."

5 CONCLUSION AND NEXT STEPS

We built a year-long experience for incoming first year undergraduate computing students at a large public university, intended to build social connections and introduce students to professional, academic, and campus resources. Student response to CSE-PACE was overwhelmingly positive, and we were particularly struck by the significant role that lead peer mentors grew into.

In future years, we plan to continue building on this program, with a focus on (1) reaching more of the incoming computing student population (intentionally including both students directly admitted from high school and those transferring from other higher education institutions), and (2) more formal integration with existing CSE courses through the undergraduate teaching assistant structures. Using design principles to inform the myriad of logistical and day-to-day choices of the program helped us achieve our goals of fostering student community, engagement, and support.

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