

Work-In-Progress – Holistic Peer Mentoring: A Transformational Tool for Success in Engineering

Ida Jamshidi and Emily Sandvall

Baylor University, Ida_Jamshidi@baylor.edu, Emily_Sandvall@baylor.edu

Abstract - Higher education institutions utilize peer mentoring to facilitate connections among students and commitment to an academic program, but what does it look like to create a *culture* of mentoring? Throughout the last decade, The School of Engineering and Computer Science at Baylor University has worked to create, implement, and assess multiple formats of peer mentoring to address the development and retention of new students through the various stages of their first year. By intentionally analyzing the needs of new students at specific checkpoints during their first year, staff can recruit and train upper-division students to walk alongside and mentor first-year students. Focusing on the new student journey from various perspectives – academic, spiritual, social, etc. – allows staff to take a holistic approach to retaining and supporting first-year students. This philosophy also allows for the intentional development of upper-division students as they become competent, influential, and prestigious leaders within the academic community. Holistic peer mentoring has been a transformational tool for Baylor’s School of Engineering and Computer Science in an effort to increase student retention, success, and satisfaction.

Index Terms – Peer mentoring, new student experience, student leader training, holistic development

BACKGROUND

Many universities have incorporated peer mentoring into their STEM programs as a method for engaging and retaining first-year students. Successful upper-division students can model healthy habits for new college students and guide them on effective strategies for student involvement [1], academic achievement [2], and commitment to the major [3]. Utilizing a peer mentoring program to bring together these different aspects of support can be an effective strategy for encouraging persistence [4]. In addition to the support that this type of structure brings to first-year students, it benefits the upper-division students by providing opportunities to enhance their interpersonal and leadership skills [5-6]. Upper-division students that participate as peer mentors gain valuable experience working with others, interacting with different personality types, and navigating potentially challenging situations, all of which can prepare them for real-world experiences in internships and jobs. The peer mentoring model serves both mentors and mentees and provides differing benefits for all those involved.

Within the School of Engineering & Computer Science (ECS) at Baylor University, there is a structure for peer mentors to serve first-year students in a variety of capacities. While each individual mentoring opportunity seeks to provide a meaningful developmental experience for new students, the ultimate goal in ECS is to create a comprehensive system of holistic development in which upperclassmen are empowered to serve as the vessels for delivering support.

INSTITUTIONAL HISTORY OF PEER MENTORING

The peer mentoring model has been utilized in the School of Engineering and Computer Science since 2008 through the vehicle of the new student experience. A primary reason for initiating a peer mentoring structure was to address the retention concerns in the School; the first-to-second-year retention percentage of the 2007 freshmen cohort of ECS students was 78.9%.

In the early years of implementation, current students were recruited in the spring semester to serve during the following fall when new students began their Baylor experience. At that time, ECS utilized a collaborative model for acquainting incoming students with the culture and expectations of the School of Engineering and Computer Science. Peer Leaders, coined Delta Leaders, were utilized to build connections both in and outside of the classroom during Welcome Week, the formal programming designed for students the first few days before the start of the academic year, and the new student experience course. During the new student experience course, ECS 1095, Delta Leaders assisted in the classroom setting by connecting with individual students, leading small group discussions, and assisting with the logistics of the course. Because of the number of new students enrolled in ECS 1095, Delta Leaders became essential to help the classroom seem smaller and more intimate.

As enrollment increased, there became a desire for each department within ECS to lay a major-specific foundation for the new students coming into the different departments. In 2014, ECS launched individualized new student experience courses by major. This shift impacted the way Peer Leaders were recruited, the way Welcome Week groups were formed, and the way incoming students registered for their new student experience courses. In addition to the course change, this new individualized model allowed ECS to enhance the Peer Leader role in the classroom. Because of the more discipline-specific shift, Peer Leaders were able to speak more intentionally into the

academic journeys of their students. After the Welcome Week experience, first-year ECS students were enrolled in one of three different new student experience courses based on their incoming major – EGR 1095, CSI 1095, or BINF 1095, corresponding with Pre-Engineering, Computer Science, and Bioinformatics majors, respectively. Welcome Week Leaders with majors in these specific disciplines shifted to Peer Leaders in the classroom and became teaching assistants or co-instructors with the faculty teaching these courses. Instead of assuming a support role, as they were in the past in the Delta Leader model, Peer Leaders were placed at the front of the classroom and helped to deliver the course curriculum. In addition to the co-teaching role, Peer Leaders helped to foster the relationships between students in the class by serving as a supporter and a facilitator. This dual role helped students feel connected to the upperclassmen in their major and also fostered a sense of belonging during the critical first weeks of the semester.

As enhancements were made to the peer mentoring program and increased attention was placed on creating a more effective structure, ECS also experienced an increase in freshman-to-sophomore retention within the academic unit. The percentage of freshmen retained from the 2014 cohort into their sophomore year was 87.5%, which is 8.6% higher than 2007 when peer mentoring was not utilized.

CURRENT APPLICATIONS OF PEER MENTORING

The current model of peer mentoring in the School of Engineering & Computer Science involves four different applications: EGR 1095 (Engineering First-Year Seminar), Welcome Week, Baylor Line Camp, and *The Power of Two* Mentoring Program at the Learning Resource Center.

As a new student experience course, EGR 1095 provides an overview of student success topics to support students as they transition to the university. EGR 1095 is connected to EGR 1301, Introduction to Engineering, to create continuity in the first-year experience and to build community in the class. EGR 1095 and EGR 1301 instructors work together to ensure collaboration between the courses and to provide another layer of support for students through seamless messaging between instructors. Because the Peer Leaders are serving alongside the faculty teaching EGR 1095, this model allows the Peer Leader to speak into the importance of the curriculum and share specific stories of successes/failures that shaped his or her incoming year. Because of the connection between the two courses, Peer Leaders have been essential in helping students connect with each other by facilitating the creation of study groups, group text messages, and other methods of accountability among the students.

Baylor Line Camp and Welcome Week give incoming students the opportunity to learn more about Baylor's traditions and culture while developing connections with faculty, staff, upperclassmen and fellow incoming students. The Department of New Student Programs facilitates these two large-scale programs and

empowers leaders in academic units to create formative experiences specific to their students. During the summer, new students can elect to attend an extended orientation experience, Baylor Line Camp. New Student Programs has allowed ECS to host a session of Line Camp geared directly toward incoming ECS majors. This experience allows for relationship building to begin very early on between students, faculty, and staff within the school. This common experience lays a relational foundation between students, which is helpful when they come back to campus to start the academic semester. Baylor Line Camp Leaders, upper-division ECS students, help to facilitate the program and lead small group discussions throughout the week. This smaller, focused session of Line Camp has suited ECS students well. By helping to facilitate these initial friendships, Leaders help to create study and accountability partners for the upcoming semester and beyond. After move-in day, all new students participate in Welcome Week, four days of intentional programming that help acquaint students to their new home. New Student Programs has allowed ECS to recruit major-specific Welcome Week Leaders to host small groups of students during the four-day program. Connecting new ECS students with an upper-division student in this context allows for that mentorship process to begin. The Welcome Week small groups then turn into EGR 1095 and EGR 1301 classmates. Several of the Welcome Week Leaders then also transition into Peer Leaders who continue to serve students through EGR 1095.

This past year, ECS piloted a new success initiative, the Learning Resource Center (LRC). This resource for students was created after analyzing the retention data of students not living in the ECS living-learning program. Students who never lived in the ECS living-learning program were retaining in the major at a much lower rate than those students who elected to live in that program [7]. The LRC is strategically located in the heart of many of the first-year residence halls on campus and is a place where students can study, receive free tutoring, utilize a computer lab connected to the ECS network, and take advantage of programming designed specifically to engage first-year ECS students. One of those programs is *The Power of Two* (TPOT) Mentoring Program. This mentoring experience connects an upper-division student mentor to a first-year ECS student living outside of the ECS living-learning program. These yearlong connections begin in the fall semester and continue through the student's first academic year. Mentors are encouraged to meet with their mentees twice a month individually in addition to attending larger programs that engage all TPOT participants. Large-scale events include faculty dinners, study sessions, and tutoring events. The TPOT program allows for individual connections to be made between students, faculty, and other important success resources on campus.

STUDENT LEADER TRAINING

Student leaders applying to serve as Peer Leaders for EGR 1095, small group leaders for Welcome Week and Line Camp, or mentors in *The Power of Two* Mentoring Program participate in an intensive selection process, followed by a comprehensive training.

In order to utilize current students in these vital capacities, adequate training and preparation has been critical for success. Baylor Line Camp Leaders, Welcome Week Leaders, and Peer Leaders for EGR 1095 are recruited during the spring semester to serve during the summer and fall semester. Faculty and past leader nominations are important tools to help build a quality applicant pool for these positions. After an application, group interview, and individual interview process, leaders for these positions are selected.

Baylor Line Camp Leaders, Welcome Week Leaders and Peer Leaders come back to campus early for training before their respective programs. Leaders spend several days attending sessions that will help equip them for their leadership experience. Sessions include tips and tricks for public speaking, a detailed review of the program curriculum, real-time training on group facilitation, bystander intervention, programmatic expectations, and more. In the midst of each program, touch points are created with leadership, whether that is a staff member or faculty member, to allow for continued development and accountability of the leaders. Similarly, TPOT mentors are trained before the beginning of their leadership experience and are provided with opportunities to check in and discuss student issues and reflect on their leadership experience while in progress.

QUALITATIVE ASSESSMENT

Gathering qualitative feedback from both the student leaders and mentees in these programs has been helpful to shape meaningful leadership experiences for upper-division students and an intentional environment for first-year students. Each year, as programs are being evaluated, careful attention is paid to the feedback of these constituent groups as future experiences are being crafted for both incoming and continuing students.

When asked about what motivated them to serve, one student answered *"I remember how hard it was for me to successfully transition into college. I was a first generation, I had a different perspective. Having felt this, I wanted to do what I could to show the freshmen what they are capable of and what resources they have available to them here at Baylor."* Another student leader noted, *"During my freshman year, I had an incredible transition to college largely due to upperclassmen and faculty who invested in me and helped me along the way, so I wanted to try to be a part of a similar environment for the incoming class."*

Reading the qualitative feedback from the new students confirmed these sentiments from the leaders. One

mentee from the *Power of Two* program mentioned that her relationship with her mentor was a *"great way to form connections and get to know other people in the field."* Another mentee mentioned that his mentor gave him *"advice on how to study and what was useful when [he] was studying."* In the EGR 1095 course, one student said *"the Peer Leader was always personable in class"* which fostered an environment that felt comfortable to help ease the college transition in the academic environment.

The motivation for the student leaders and the feedback from the new students about the use of peer leaders supports the use of these helping relationships in the new student experience. Upper-division students can draw on their experiences as first-year students to guide and support new students through the transition. Drawing upon the positive (and sometimes negative experiences) of students in their first year of college can inspire leadership through these programs in the future. That cyclical idea of "giving back" helps to support these programs as upper-division students inspire the newest generation of students.

FUTURE PLANS

ECS is continuing to explore ways to incorporate peer mentoring, and academic advising is a potential application for the future. Bringing in upperclassmen as mentors through the course scheduling process would allow incoming students to feel yet another connection to the community of students they are joining. Facilitating this interaction during Orientation advising would allow for mentoring to occur even before any of the aforementioned programs begin. In addition to providing valuable guidance for the scheduling process, new students and their parents will be exposed to the culture of support present in ECS and begin to understand the value in peer mentoring.

Because of the success of *The Power of Two* Mentoring Program, the Department of Computer Science has decided to alter its new student experience course requirement to a peer-mentoring model. This fall, each new incoming computer science student will be placed in a group led by an upper-division Peer Leader. Each Peer Leader will be charged to meet with his/her students twice a month, much like the TPOT program, to cover a new student experience curriculum designed to fit this more informal model. In addition to the individual meetings with students, Peer Leaders will work with a Faculty Mentor to create spaces (meals, programs, etc.) in which first-year students and the Faculty Mentor can interact. The hope is that this yearlong experience will help computer science majors feel a greater sense of community and a stronger connection to the major.

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AUTHOR INFORMATION

Ida Jamshidi Director of Academic Advising, School of Engineering and Computer Science, Baylor University, Ida_Jamshidi@baylor.edu

Emily Sandvall Associate Director for Undergraduate Programs, School of Engineering and Computer Science, Baylor University, Emily_Sandvall@baylor.edu