Teaching Tips (COVID)

Building a Sense of Community Online: Rapport Building Activities for a Remote Learning Environment

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CHALLENGE STATEMENT

In addition to enthusing students early in their program about emergent areas of bioengineering, building community is a critical component of the introductory bioengineering course at University of the Pacific. Sense of belonging, particularly for students from marginalized groups, is found to encourage student success and retention in college and STEM major programs. Activities that support interpersonal, peer interactions further students’ sense of belonging.

Significant effort has been made to construct a course structure and environment to enhance the community building experience. Collaborative activities, including discussions of readings, problem sets, brainstorming activities, and peer reviews, are used to promote peer to peer learning. Small groups are formed randomly and switched regularly to provide opportunities for students to work with many different classmates and get to know each other. While this structure promotes some rapport building, observation of past in-person classes suggests that interactions occurring outside of class are also powerful for students to connect and build friendships. These support networks burgeon from unstructured, impromptu conversations that occur across campus in the cafeteria, in the hallways, in the library, and at their desks before or after class.

Due to the COVID-19 pandemic and closure of campus in March 2020, our students were learning remotely from their homes in virtual classrooms and their conversations were mediated through technology. Spontaneous social interactions across campus were absent from their current college experience. Even conversation before and after class in our virtual space was minimal because it occurred in front of everyone. Thus, the challenge for shifting the introductory bioengineering course to a remote learning environment was to transform the collaborative activities of the course to encourage virtual peer interaction and to augment the course with rapport and community building activities to compensate for the loss of social interactions that would have occurred if we were on campus.

In a review of the literature, Rovai summarizes building community in a traditional classroom in terms of four dimensions: (i) spirit or the friendship or bond between classmates, (ii) trust or the willingness and confidence to rely on classmates, (iii) interaction among classmates, and (iv) commitment to the common expectation of learning. Rovai expounds on seven components to cultivate these dimensions for online classrooms. These are: (a) transactional distance, (b) social presence, (c) social equality, (d) small group activities, (e) group facilitation, (f) teaching style and learning stage, and (g) community size. Transactional distance for online learning is a construct that describes the psychological and communications gap of the learner with the online learning environment. The distance is reduced with enhanced instructional immediacy interactions occurring between student to instructor, student to student, student to content, and student to instructional interface. Social presence is the awareness of participants in the classroom with each other. In a survey conducted by Vesely et al., students indicated that instructor presence through ongoing interaction was the most significant factor in promoting community in online learning environments.

Social equality can be sustained in written online communication using the connected voice emphasizing...
relationships and cooperation, rather than the separate voice which can sometimes be authoritative and threaten inclusivity. Small group interactions enrich community through engaged, collaborative learning. This is further enhanced with group facilitation to keep the group on track and functioning well together. Alignment of teaching style to learning stage also supports sense of community. In online settings, this may require the instructor to modulate for individual students depending on their stage of learning. Finally, a smaller community size (or class size) encourages sense of community.

In addition to taking the introductory bioengineering course, first-year bioengineering students are also enrolled together into the same biology lecture section, to create a cohort-based learning community (LC) experience. LC structures have been found to promote retention, student success, and feelings of connection to the campus community. The biology course has large enrollment (400–450 students) and is split into many lecture sections of 30–80 students. The bioengineering cohort has a different instructor each year, each utilizing varying levels of active learning. This creates an unpredictable learning environment for its contribution to the LC experience. As a result, the bioengineering course (20–30 students) is the opportunity in the LC to ensure engaging, collaborative learning practices that promote a sense of belonging to the bioengineering community.

Additionally, there are a few new transfers and internal transfers from other majors on campus taking the course. While they do not participate in the LC, the planned activities in class aim to promote their sense of belonging.

**NOVEL INITIATIVE**

A combination of new and adapted rapport and community building interventions—shared expectations, virtual social interactions, and group activities—customized for a remote learning environment were used in this class. These interventions integrated some of the components to foster online classroom community discussed in Rovai and summarized in the previous section.

As previously noted, small group activities have regularly been used in this class to promote peer learning. Reflection on my in-person teaching revealed considerable reliance on continual monitoring of groups to support group facilitation. I could scan small group progress simultaneously and identify when I should facilitate by asking probing questions, encouraging discussion from quiet group members, or adding complexity to problems if a group’s efforts appeared to lull. I audited their work during class rather than having them turn in low-stakes assignments.

The dispersed nature of virtual breakout rooms does not permit concurrent observation of all groups or efficient review of collaboration. As such, it was clear that to ensure that the interpersonal, peer interactions that are vital to developing students’ sense of belonging occurred in the breakout rooms, well-defined deliverables and expectations for peer interactions would be necessary for class activities to reduce the transactional distance, enhance social presence, and support group facilitation.

**Shared Expectations**

The first intervention was to develop shared expectations as a collaborative activity to build community. The objective was for students to jointly set the expectations of the course, themselves, the instructor, and their classmates. This allowed students to design the ground rules for the class on the behaviors they mutually felt would enable a safe, supportive, collaborative classroom environment; student-generated ground rules may encourage engagement and investment in the class. Idea generation occurred during of the first session (~30 min) and then two subsequent sessions (~20 to 30 min each) were devoted to agreeing on the areas of expectations. The shared expectations were posted to the course’s homepage on the learning management system. After six weeks, we reflected on the list and students had the opportunity to add or modify them as well as provide any comments. A detailed description on the implementation is included in Online Resource 1.

**Virtual Social Interactions**

New activities were added to encourage virtual social interactions. The first activity was student introductions and responses to a check-in question. These occurred at the start of nearly every class in the first half of the semester. The class was split randomly into groups of 8-10 students and sent to breakout rooms for five minutes to introduce themselves and answer the question in a word or short phrase. Examples of questions are:

What’s one thing you’re doing or planning to do to take care of yourself this week? What’s the hardest part about learning virtually for you? The best part?

One random student in each group was designated the group leader/timekeeper and their role was to be the first to share and to ensure that each classmate has
the opportunity to contribute during the time allotted. After the group leader/timekeeper completes their introduction and response to the question, they invite another student to go next. This continues until everyone has participated. On the first instance, time was devoted to fully explain the deliverables and interaction expectations, but after a couple rounds students were familiar with the format and that was no longer needed. Finally, if later in the class there was group work, the teams were formed from subgroups of this activity for continuity and further rapport building.

During the second half of the semester, a related activity was conducted where students responded to a check-in question in the chat at the start of class. I also participated in this activity reading out loud my response and the student responses as they came in. I frequently observed head nods and smiles signaling agreement with commonly shared feelings and responses. More examples of questions are provided in Online Resource 2.

**Group Activities**

Active learning group activities that promote social interaction through problem-based and cooperative learning that were included in-person were adapted for virtual learning. In-person, I could monitor progress, listen to group conversations, and invite some groups to share when we reconvened as a class. Virtual classroom logistics require groups to complete the group activity in breakout rooms with a time limit. To ensure that students were accountable during class time for problem-based work or group design project work, they were required to complete a worksheet deliverable (group or individual) summarizing their problem solution or documenting aspects of the development of their design idea completed during the class session, respectively. This was counted in their class participation score.

A final activity updated to encourage peer interaction and learning was brief group discussions. In some sessions, prompts are interspersed in the lecture for small group discussion. A group leader/timekeeper was assigned for this activity. Their role was to be the spokesperson for the group summarizing their answers to the prompts and also to ensure that everyone in the group contributes to the discussion. As with other group work, teams were randomly formed and the group leader randomly selected.

A summary of the activities including the frequency, deliverables, related community building component, expectations for peer interactions and implementation can be found in Table 1.

**REFLECTION**

Creation of shared expectations was a useful activity that I plan to continue following the COVID-19 pandemic when teaching in-person. It emphasizes the third component of successful LCs described by Tinto, shared responsibility, or the responsibility to each other in the learning process. Shared responsibility had not been made an explicit part of the LC until now. The two other components, shared knowledge and shared knowing, had previously been incorporated in the LC with students taking courses together along a theme and through social and academic interactions to promote learning together, respectively.

Student responses on shared expectations illuminated that building friendships was important to them as was ensuring a supportive collaborative environment. In addition, it was also beneficial to understand their expectations of me to be encouraging and approachable and establish a classroom environment that promotes learning and growth.

I also used the shared expectations as a tool to revisit their mutually established expectations of collaboration at the 6-week mark. This was done as a response to feedback that some interactions during group work were not fulfilling the expectation of being supportive and respectful. We dedicated class time to review and update our expectations and provide comments. I also included instruction on giving feedback that challenges their peers to improve while also being supportive. Student comments during this review affirmed that the class was engaging, interactive, and fun and provided them opportunity to explore their interests. Students also requested that they be permitted to select their group members for some activities, which indicated that some had already built a rapport with classmates.

Identifying deliverables and defining expectations for peer interactions for the new and updated community building activities (introduction and check-in question, check-in questions in chat, small group discussion, small group activities, and group design project activities) was essential. The structure provided clear direction to groups and enabled efficient and effective use of class time. And if groups came across questions in their breakout room, they still had the option to request help. A similar structure, particularly to identify group leader/timekeeper would be useful in-person as well. The interactions with peers that occur in these activities have been identified as important factors that support STEM LC students’ academic development.

These efforts to update peer to peer learning activities for the virtual classroom and the addition of numerous rapport and community building activities
TABLE 1. Community building activities including the frequency, deliverables, community building component, expectations for peer interactions and implementation included in remote learning experience.

| Activity                                      | Adapted or new activity | Frequency                      | Deliverable                                                      | Community building component | Expectations for peer interactions<sup>a</sup> | Implementation                                                                 |
|-----------------------------------------------|-------------------------|--------------------------------|-----------------------------------------------------------------|------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------|
| Development of shared expectations for the class | New                     | First 3 classes and then revisited after 6 weeks | Contribution to shared electronic document | Social presence              | –                                             | Everyone lists their expectations of the course, themselves, the instructor, and their classmates in a group document. Common responses are aggregated and agreed upon by the class. The shared expectations are reviewed later to recommend updates or modifications. |
| Introduction and check-in question            | New                     | Start of most classes in first half of semester | Provide name and response to question | Transactional distance; social presence | One student speaks at a time and others listen actively | The instructor selects a question prompt to have students share something about themselves in groups of 8–10. Once in the breakout room, the group leader/timekeeper introduces themselves, provides their response to the question, and invites a classmate to go next. That continues until everyone has contributed. |
| Check-in question in chat                      | New                     | Start of most classes in second half of semester | Respond in a short phrase in the chat | Transactional distance; social presence | –                                             | The instructor selects a question prompt to have students share something about themselves in the chat. Instructor reads responses as they come in. |
| In-class small group discussion                | Adapted                 | Occasionally                     | Group leader presents ideas of group during class discussion. | Transactional distance; social presence; small group activity | All members share their ideas in breakout room. Group leader ensures everyone participates. | Groups of 3–4 students briefly discuss a prompt from the lecture in breakout rooms. A group leader/timekeeper is assigned randomly to facilitate work of the group in the breakout room. |
| In-class small group activities                | Adapted                 | Nearly half the classes          | Completion of a worksheet (group or individual) | Transactional distance; social presence; small group activity; group facilitation | –                                             | Groups of 3–4 students complete in-class activities, such as discussions of readings, problem sets, brainstorming activities, peer reviews in breakout rooms. Deliverable ensures students are accountable during class time. If completed introduction and check-in earlier in class, then break those into smaller groups for these activities. |
| In-class group design project activities       | Adapted                 | 2 classes                       | Completion of a worksheet (group) | Transactional distance; social presence; small group activity; group facilitation | –                                             | Project teams develop their design idea in breakout rooms during class. Deliverable ensures teams were accountable during class time. |

<sup>a</sup>These expectations are in addition to those defined by students in the shared expectations activity.
were intended to influence students’ sense of belonging. Unfortunately, this was not measured directly with a validated instrument such as the Classroom Community Scale (CCS) survey. However, a few takeaways from the remote class are encouraging. First, the very high attendance (nearly all sessions had 100% attendance, excluding excused absences) may be an indicator, albeit indirect, of the community feeling of the course. Additionally, students were provided the option to enroll as a bioengineering cohort in the same section of the second semester biology course in spring. Despite the early start time, 80% of students (n = 15) indicated that they wanted to take the course together. The previous year’s cohort taught in person also had the option to take the second semester course together at the early time. Most of the students indicated they did not want to take the course together at that time, so a cohort section was not formed.

Additionally, a survey was conducted at the end of the semester. The students in the remote LC (n = 14) were asked to rate their agreement with the following statements on a Likert scale: “I have developed good relationships with other students in Bioengineering” and “I feel a sense of belonging to the Bioengineering community at Pacific.” In response to whether they developed good relationships with other bioengineering students, 79% either agreed or strongly agreed and the remaining 21% responded neutral. This was lower than the previous year’s in-person cohort (n = 16) where 87.5% agreed or strongly agreed and 12.5% were neutral or disagreed. In response to whether they felt a sense of belonging to the bioengineering community, 79% either agreed or strongly agreed and the remaining 21% were neutral or disagreed. This was higher than the previous year’s cohort where 69% agreed or strongly agreed and 31% were neutral or disagreed. Open-ended questions were also included in the survey and offer insights into the sense of community. Some student responses to the question, “Do you have any additional comments about your experience taking BIOL 51 with your Bioengineering peers?” were:

“I enjoyed taking BIO 051 with my [bioengineering] peers, and it allowed us to become better friends and bond over common experiences.”

“It was nice to have someone with me who is also a bioengineering major.”

A couple of student responses to “Do you have any recommendations for improving the learning experience in these courses?” were:

“None. I feel that my [bioengineering] peers and I were able to work well in supporting one another.”

“If all the bioengineering [students] took a Tuesday lab together that would be super helpful. I often felt alone and isolated in lab because I didn’t know anyone.”

While these survey results are encouraging, use of the CCS survey, a validated instrument to measure sense of community in classrooms, would provide a more robust assessment of connectedness and learning in the LC. The CCS survey will be used in the future.

The one-year retention rate of 72% for this remote learning cohort in bioengineering is also favorable. None of the students switched majors. This is especially promising in light of the disrupted academic environment produced by the COVID-19 pandemic. The previous in-person cohort had a 53% retention rate within bioengineering and an 82% retention rate in a STEM major. In the future, the graduation rate of this remote cohort within the Bioengineering program and STEM will be evaluated.

Developing shared expectations, virtual social interactions, and collaborative activities with deliverables and defined expectations for peer interactions may be useful classroom techniques to cultivate feelings of belonging to a class. Together with a LC structure, this may nurture an inclusive and welcoming environment for students to a major program and the university.

SUPPLEMENTARY INFORMATION

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Not applicable

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Not applicable

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