Equity Panel: Matt Voigt

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One of the reasons I’m up here talking is not because I’m an expert in equity; I don’t claim to be. But, I have a vested interest in equity and in active learning from both personal experience as a first-generation college student and as a queer student. Overcoming those obstacles has provided unique lessons for me, as well as being invested in active learning techniques. I want to share with you the research that we’ve been doing as part of the SEMINAL project. If you’re not familiar with the general project, it’s an NSF-funded project looking at how math departments incorporate active learning in Pre-Calculus to Calculus II. We have three pillars of active learning: deep engagement in mathematical reasoning, peer-to-peer interactions, and instructor inquiry into student thinking. That is how we’re broadly defining active learning. And how we’re conceiving, or, how I’m conceiving of equity, is I’m reusing this often-shared image, below.

Figure 1. Visual depiction of the difference between equality and equity.

It’s a pretty common image, but I think it helps us frame how we think about teaching. We can’t just teach the same to all of our students, because it’s not going to lead to equal outcomes. We have to privilege certain students, we have to give voice to other students, and empower students who are extraordinarily marginalized, and that’s demonstrated in this second picture. And I think the third picture, with that chain link fence, says we need to remove systemic barriers that are prohibiting students from achieving.

How are we defining success? How are we defining what types of classrooms we have? Rethinking those is all part of how we’re thinking about equity and trying to challenge those notions. There’s been some research on the intersection of equity and active learning. The Freeman report (Freeman et. al., 2014) basically came out and said “yes, active learning is great, leads to student success.” And I think we buy that, because we have a RAC invested in active learning. But that report was, basically, general. It didn’t identify any types of students. It just said, overall, if we lump all students together, there are performance increases. So in a larger sense, we had investigations saying that women basically have an equal playing field now when we use active learning (Laursen, Hassi, Kogan, & Weston, 2014). Indigo-Esmonde (2009) has really shown that cooperative learning can help with identity development. There’s some indication that active learning does promote equity, but not to the point where I think people are assuming that it’s just a standard. We can’t just say active learning is going to solve equity, because it’s not.

As part of the SEMINAL project, we said, “OK, we’re going to go into these classrooms, and we’re going to do observations. How can we observe equity?” We wanted to observe live, real-time, active learning, so we decided to use the MCOP2 (Gleason, Livers, & Zelkowski, 2017). We also said, “We need a little few additions to those, just pile them up, see what maybe we aren’t observing through the MCOP2.” One of the things we added was making sure that we have that the instructor has high expectations for achievement. We know from Robert Moses that having high expectations of students is critical to students succeeding. We have to believe in the students if we really think that they’re going to succeed. We had a scale for expectations and high achievement, and also wanted to know, just overall, what percentage of students were participating in the discussions. And we really had to account for large lectures of 150 students all the way down to 30 students in a discussion section. We had to be adaptable for what we were doing, so they were just broad. We wanted to get a sense for: what could we observe equitably?

We also asked, “What are equitable practices that teachers can do, that would be observable?” We sort of take it as a standard that equity doesn’t just happen, doesn’t have to be actual actions that are occurring in the classroom to achieve it. We drew an indicator, culled literature, and came up with some observable practices. Teachers calling students by name promotes equity and promotes achievement. Using randomized response strategies, since everyone has implicit bias of whom they call on, whom they’re privileging in their classroom, then using a computer to remove some of that bias, to randomly call on students, is a technique to eliminate some of that bias. Using heritage language, acknowledging students’ current knowledge before instruction, is getting those students privilege to engage in the discussion, since you are acknowledging that they are there, they have something to contribute, and then moving forward from that point.

We also focus a lot on mathematics. We want to build mathematics, but also team-building, social team-building. For first-generation college students, for commuter students, not having a sense of support among their peers is detrimental. So, are teachers doing activities that promote team-building? Using cooperative groups? And are teachers using and encouraging positive self-talk? So if somebody couldn’t come to a right answer, it’s “wow, look at that method that you tried. You know that doesn’t work. That’s great. So now what other methods do we know about?” Those are actions or things that can encourage equity. It leads to the observation protocol to say “OK, how many of these were occurring and which ones were occurring?” And then after this, we’re going to kind of analyze “well, can they be grouped? Which ones are actually occurring in university Pre-Calculus to Calculus II sections?”
Figure 2. List of observable equitable classroom practices.

Then we asked, “How can we measure equity in these courses?” We are administering surveys to all of the students and the instructors. First, we drew on the scale from the WHIC, which is “what’s happening in the classroom?” and we modified that to rate “do you think you’re getting as much opportunity to answer questions in class at the same as other students, less than other students, or more than other students (see Figure 3)?” There’s self-identification for how much of a part of the community they are and how much opportunity they have in relation to their peer. We added this sort of component largely based on equity. And we also wanted to triangulate these observations that we were doing (see Figure 4). We’re going in, we’re observing, we’re keeping track of all these, and then we want to say, “What do the students actually think?” We asked the students: is there a sense of community? Do you think your instructor knows your name? And we added this scale, because these are important elements to whether a student actually feels that there’s a sense of community.

Figure 3. Adapted student survey questions from WIHIC related to perceived equity.
We developed the demographics section of our survey next, which took a very long time, just in terms of getting the right wording. I’ll just go through a few points. If you’re going to do some survey work, don’t use the term “other,” just put “not listed.” We’re going to allow multiple sections, even in gender, even in race, so that people can identify whatever they identify with. If you’re including gender, have a gender-fluid or non-binary option. Race/ethnicity was hard for us to identify what sort of continuum we wanted, so we based it off the U.S. Census but then expanded that based on our pilot data. For example, we know Middle Eastern is not something that is on the census data, but in our pilots people were putting that quite frequently, so we decided that we needed to include that. Sexual orientation we included, partly because it’s part of my research area, but we got pushback from the IRB saying, “why are you asking for this information?” And we said this is as relevant, just as much as race and gender are and you’re not pushing back on that. It’s accounting for different student identities. What are other populations may we be missing? First-generation students, student athletes?

Here is our very preliminary analysis. We have a lot more work to do, but these are some of the original things that have been coming out of these reports. There are 3,000 students who have filled out our survey across courses that are always in active learning. So, we think “OK, these are generally good courses. We should be seeing some equitable achievement.” But what we see is that women are reporting that, in comparison to their peers, it’s less equitable. They’re getting less time, less feedback from the instructor, so that’s troubling. But, they are recording that they work more in small groups so that may mean active learning is one component to getting students to engage. On the belief that the instructor calls on a wide range of students, women report that less than non-women in this class. And then women also statistically miss more class, which is not surprising if you’re reporting that “I don’t feel as equitable treatment and I’m not enjoying this class.” You’re going to be less likely to want to go. Again, queer students anticipate lower grades and report less of a sense of community. If we look at Hispanic or Latin students, overall, again, they report less equitable classroom experiences. If we look at white students, they report a greater sense of community among them. They believe their instructor knows their name. They report missing less class. And then if we look at special populations, commuter students and first-generation students report overall less equitable classroom experiences, while international students report a greater sense of equitable treatments.

We want to do a deeper analysis and then look at multiple-marginalized. What are the experiences of women of color, what are the experiences of queer black men? These are issues that we want to engage in, not just at a general level. Sandra Larsen’s work is saying “Women do better in active learning” and we want to ask which women? It’s about delving down into the multiple identities and then seeing if the reports show any
correlation between what the instructor is reporting that they do in the classroom and what the students and the different populations of students also report.

References


