MathChat
Because pictures say more

There are multiple options out there for instructors who want instant feedback from a large class of students, when calling on a single raised hand just doesn’t do. There are iClickers or other remote-control-type devices that students or departments buy in order to punch in multiple choice answers. Online services like Poll Everywhere or Socrative take advantage of the increasing ubiquity of mobile technology, replacing proprietary clicker systems with students’ own cell phones, tablets, and laptops. Some of these apps allow for deeper feedback, as students can submit longer written answers instead of just multiple choice, but very few of these work well for easily sharing graphical feedback.

A tool called Math Chat kicks it up a notch by allowing students to give visual responses to classroom questions, through an iPad app or by accessing Math Chat on their laptops. Its marketing shows a narrow focus: Students snap a picture of a math problem, can draw on it and type out text and math symbols, and then send it to a classmate for help. The classmate can add their own annotations, text, and chat comments to help solve the problem.

But there is absolutely no reason to limit this to math. Annotate art, lab results, athletes in action… anything that is photographable. Plus, teachers can set up class groups for easier sharing.

What’s so good about this? In some subjects, it is hard to get on-the-spot representations of students’ ideas, especially if the class is large and it isn’t feasible to have each student walk up to the board to draw their predictions of what a graphed equation should look like. With Math Chat, more students are forced to write down an answer for the instructor’s immediate review, making each of them accountable for every question posed. And sharing of students’ efforts, both correct and incorrect, can make a more meaningful, student-centered lesson that addresses their understandings and misunderstandings before it’s time for the real assessment.

Handy Resource of the Month:
I attended the Assistive Technology Industry Association international conference in Orlando at the end of January (don’t get too jealous, Kansas was warmer most days). Among many tidbits, ideas, and tools shared was the simple concept of Universal Design for Learning (UDL), as expressed through this comic (click to enlarge):

I’ve worked with UDL before, but the idea was reinforced: Make content, navigation, and the whole educational process accessible for those who need the most assistance, and the rest of the students also get those benefits.

Colorado State University’s Access Project has many great resources, but to save you some searching, here is a link to a handy table that outlines simple improvements that can be made to instruction, from Objectives to Assessments, to improve everyone’s learning experience.
Interventions for First-Generation Students

Changing the cultural mismatch

The rich traditions touted by colleges and universities through mottos like New York University’s “To Persevere and to Excel,” or Bowdoin College’s. “As an eagle towards the sky,” are predominantly based on the middle-class ideal that a determined individual effort is the key to a successful life. Academia’s message to inspire the next generation of innovators and leaders has built a culture that showcases our self-reliant, self-driven thinkers as the model students. Not that we shouldn’t hold these traits in high esteem, given the frontier-taming, industry-revolutionizing era in which most of these universities were created. While a lot has changed since those days, and most universities follow vision statements devoted to actual students, rather than to conquering mountains, the traditional image of universities and how to succeed in them persists. College is a middle-class dream that starts with independence from family, proceeds by keeping a nose to the grindstone, and ends with an independent career to lead to bigger and better things.

While this independent culture is a great motivator and a great fit for upwardly-mobile middle-class students, many potential innovators and leaders are not motivated by goals of being deemed The Best Independent Thinker. A 2012 study titled, Unseen Disadvantage: How American Universities’ Focus on Independence Undermines the Academic Performance of First-Generation College Students, examined several studies dealing with the cultural rift between higher education and students whose parents did not earn college degrees. First-gen students do not tend to come from a culture that encourages individual endeavor and personal independence. This is not to say that these students are unmotivated to do well; they are simply motivated by something different. More of these students report being driven by ideals like giving back to the community. “For the common good,” you might say. They come from and intend to return to a place where close relationships are developed for mutual support, and personal gain is less important.

What does this mean for first-gen students, who make up 20% of the U.S. college population? The study’s authors found that most first-gen students experience a cultural clash between higher education’s focus on independence and their personal culture of interdependence. Even when controlling for race and SAT scores, the study found that interdependent first-gen students struggled on a variety of academic measures. These students report being less likely to understand how to be a good college student, even when otherwise academically capable. The result is that many students with great potential simply drop out because they feel like a bad fit for college. Responding to this by saying, “Well, they just couldn’t hack it,” may be technically correct, and that may be the case, academically, for many of these students. But if we are providing all students with an equal opportunity to learn, how much extra “hacking” should we require 20% of our best and brightest to struggle through because of our culture, rather than because of our academic rigor?

The solution is not to lower our standards or to have a free-for-all of group work, hand-holding, and sing-alongs throughout the semester, but to acknowledge that building courses that feel like a race to the top only motivates and supports one type of student (the one who needs the least motivation or support). While it is important to develop individually-capable graduates, we should pause and consider how often the outcomes of our jobs depend on individual effort and how much they depend on a team, from planning, to implementing, to supporting and sustaining.

The Unseen Disadvantage study suggests a few interventions, and ESU’s small-college culture has already allowed us to implement some of these, but there is always room for improvement.

- **Build relationships.** First-gen students are used to family and peer support. The faculty, staff, and classmates serve these roles now, so include opportunities for students to develop these relationships. This could mean including more group work at the beginning of a semester and working toward completely independence and accountability later.
- **Give guidance.** From these relationships, learn what students need to be successful. If students aren’t aware of the support services available through ESU’s TRIO Program, let them know.
- **Show students that there is more than one way to be a “good” student.** #iamahornet. Encourage study practices and student activities for both individuals or groups. Let them see both individual and group successes.
- **Re-frame independent study.** When students take on independent research projects, they aren’t really alone. Even if the research team is just one student and one professor, a Research “Team” or “Partnership” would be more appealing to someone who is interdependently motivated and wary of such a daunting feat of personal initiative.

In addition to simply helping first-gen students academically, all students benefit from the team atmosphere that can be produced. And when have you last heard an employer say, “We have too many people who are good at their jobs while also being good team players. When will colleges start producing more lone wolves? Ooh, or better yet, soaring eagles?”