A Model for Teaching Large Classes: Facilitating a "Small Class Feel"

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Abstract

This paper presents a model for teaching large classes that facilitates a "small class feel" to counteract the distance, anonymity, and formality that often characterize large lecture-style courses in higher education. One author (E.P.) has been teaching a 300-student general education critical thinking course for ten years, and the other (R.L.) has assisted in the administration and instruction of said course for four years. Detailed here is an instructional model, developed over a period of ten years, for teaching large classes that is more active, conversational, and characterized by stronger relationships between students and instructors than is typically found in large courses offered in higher education. This model relies on the role of teaching assistants and graders, small group work, instructor presence, writing skills support, student mentoring, and large class discussion, among others.

Keywords: Large class teaching, Performance teaching, Teaching assistants, Small group discussions

1. Introduction

1.1 The Rise in Large Class Teaching in Higher Education

The increasing access of higher education around the world is generally dealt with by academicians as an instructional and administrative problem because it adds a variety of challenges to classroom teaching that are absent in traditionally sized courses. While we may consider this massification an unfortunate trend in academic discourse, it is a reality we must face in the current political climate characterized by increasing threats to cut higher education funding. As faculty, it is our responsibility to examine and prepare for these changes in our field by experimenting with new and innovative teaching methodologies for the large classes many faculty are likely to be teaching in the years to come (and that some of us are already teaching).

In our experience, large lecture courses (over 70 students) in colleges and universities produce a general sentiment of dread among many students and professors. Although many typical university courses seat somewhere between 15-30 students, we are most concerned with classes exceeding 70 students and suggest that the difficulties experienced in large classes generally tend to increase in proportion to class size. We (the authors) teach one of the largest courses offered at our university, seating up to 300 students in a large multi-level auditorium, but we are aware that classes of up to 500 students are offered at other universities. Students concerned about the quality of their education may find that these large classes cheapen the "product" on which they are spending thousands of dollars each year, as their learning is often reduced to content memorization, and they have fewer opportunities to connect with their instructors and peers. Similarly, professors tasked with teaching these courses may experience frustration over fewer learning outcomes they feel they can effectively achieve as well as restrictions on the kinds of learning activities they are able to facilitate (Gibbs, 1992). In addition, large classes are often characterized by less intimacy and trust between students and faculty, with weaker student engagement (Gibbs, 1992). In this discussion of large class teaching, we cite examples from our own extensive experience that may be of use to others teaching such classes.

1.2 Problems with Large Classes

There are countless complaints lodged against large classes and their failure to provide effective instruction, many of which have been documented by researchers. Among the most popular are the following:

- Faculty/student interaction suffers as classes increase in size, resulting in passivity among students (Biggs, 1999).
- Students do not get to know each other well, and absenteeism increases (Gibbs, 1992).

- Lack of student engagement with course content results in less class participation and increases student anonymity (Gibbs, 1992).

- Students note a lack of structure in large classes, and little or no chance to discuss class material or interact with their classmates (Carbone & Greenberg, 1998).

- First year students (especially) are unprepared to deal with large class structure and procedures, and find themselves confused and uncomfortable (Ward & Jenkins, 1992).

- Some students respond to the anonymity and impersonal nature of large groups by becoming passive or "acting out in class," unlike they might in a small class setting (Carbone, 1999).

- Students may arrive late for class or leave early, exhibit less individual accountability, and engage in other disruptive behavior (Wulff, Nyquist, & Abbott, 1987).

- Faculty have a difficult time being able to relate to such a large number of students and the demands made by them (Gibbs, 1992).

- Large classes mostly foreclose on informal exchanges between faculty and students (Biggs, 1999).

- Class discussion may be brief and superficial and acoustics, visibility, and attention may become communication issues. Such a lack of communication may make it difficult for faculty to determine if students understand course material (Gibbs, 1992).

Certainly, anyone who has taken, or taught, a large class could easily add to this list: student inquiries overwhelming faculty email and office hours; students tuning out, texting or using laptops, sleeping, skipping, missing readings or fudging assignments; and an overreliance on classroom technologies to capture and maintain students' attention. This paper will offer methodologies that may encourage faculty to rethink the structure of their large classes in order to minimize these undesirable effects.

1.3 The Authors' Approach to Large Class Teaching

In our large class, we make it a point not to rely on intrusive classroom technologies to teach or assess our students. While some faculty responsible for teaching large classes have adopted the use of highly choreographed PowerPoints, clicker-dependent activities, Twitter- or text message-based feedback, and routine online quizzes to encourage student engagement—perhaps assuming this is the only available course of action to make up for personal contact and discussion—we have opted to ground our classroom experience in human connection and informality. Large and small group discussions occupy a central role in the course as an important means of facilitating critical thinking skills development. This means that we do not need to use learning management systems like Canvas or other platforms to facilitate discussion.

While we do not necessarily mean to suggest that instruction in a large class can equal the effectiveness of a smaller class, we offer here a description of large class teaching techniques that preserve many of the characteristics enjoyed by students and faculty alike in smaller classes. These characteristics include, but are not limited to, the following: increased familiarity among students; greater accessibility to the instructor; more frequent in-class discussions; personalized feedback; formative assessment; critical thinking and writing skills development opportunities; and small group work. Should an instructor choose to implement the model described in this paper (which incorporates many of these instructional features) student outcomes and feedback from our course have indicated that the practices and structures we have developed can help minimize some of the least desirable characteristics of large classes.

Indeed, we will advance that several of these practices can help accentuate and emphasize the potential strengths of large classes over smaller classes (such as a diversity of viewpoints, multiplicity of relatable authority figures, superior resources and facilities, and growth potential through student participation). Kathryne McConnell, senior director for research and assessment at the Association of American Colleges & Universities, suggests just that approach—to focus on experimenting with methodologies that can highlight what is only possible when teaching at a larger scale—given that economic constraints mean "the large classroom is not going away" anytime soon (qtd. in Mangan, 2016).

Over the years, we have received countless compliments from students noting how they felt more engaged and appreciated the opportunity to share their thoughts with their peers despite the large class setting. Many former students have written follow-up emails to E.P. thanking him for teaching them valuable thinking skills through the course. The course's end-of-term student evaluations consistently fall above the average ratings for general education courses, despite its size and the fact that we do not inflate grades (the average grade remains close to a 75). As well,

we find that in our spring semester course, over 60% of the students enrolled based on a recommendation from a friend or roommate, even though the course has a reputation for being difficult (despite not involving any tests or quizzes). We find that this positive feedback indicates that the model we have slowly developed over years of experimentation successfully delivers a challenging and engaging learning experience to students, which they enjoy far more than a conventional large lecture class that relies on standardized assessment methods. Three successful research studies have been conducted as to the effectiveness of this model (Pappas, 2011; Pappas & Pappas, 2011; Pappas, 2012). These articles address 1) the effectiveness of a cognitive behavior change methodology supporting the growth of critical thinking skills; 2) the use of cognitive dissonance to encourage a change in thinking skills; and 3) the role of progressive instructional methodologies for teaching critical thinking and other higher order thinking skills.

The principle objective of this paper is to describe, in some detail, the model we have developed over the past ten years and the benefits it may offer to both faculty and students. Some elements of our model may be familiar to faculty members, while others may strike our readers as controversial, or perhaps undesirable, additions to large class teaching. Until now, however, a description that would allow an instructor to adopt this model (or parts of it) was not available. We hope our readers will consider experimenting with the way they currently conduct large classes in order to develop a variety of instructional practices and policies for providing an engaging and flexible student-centered learning environment.

1.4 Relevant Literature on Large Class Teaching in Higher Education

Hornsby and Osman (2014) provide a useful overview of the debate about whether large class environments are "a problem for student learning and quality education" (p.711). Not all scholars criticize the massification of higher education, and some have noted the positive role this trend plays in terms of the democratization of higher education—that higher education is "a public good offering the means of breaking down elite power structures, and that increasing access to higher education is a matter of social justice" (p.715).

Embracing this trend toward larger classes insofar as it represents the democratization of higher education—not to mention that we as faculty often have little choice in the matter of class sizes—our concern is how best to deliver this "public good" to larger audiences without compromising on its quality. The brief review of the literature below supports our approach to teaching large classes. It would be difficult—and generally off topic for this paper—to simply cite researchers' excellent ideas for teaching large classes. For that reason, we note only those which relate well to our large class model and which address some of the common problems of large classes, noted above.

1.4.1 Large Class Teaching Methodology

Given the short attention span of college students (Bunce, Flens, & Neiles, 2010), breaking up a traditional lecture into smaller segments and incorporating active learning activities is helpful in maintaining overall engagement in course material. Research indicates that students experience fewer lapses in attention during "student-centered" activities such as demonstrations and opportunities to ask questions compared to a lecture, and that this improved attention carries through a lecture segment when such student-centered activities precede it, compared to *vice versa* (Briggs, 2014). Briggs also suggests switching up activities "every 15 minutes or so" as a rule of thumb.

In a study of students' emotional responses to feedback from instructors among first-year university students, Shields (2015) noted the prevalence of anxiety and blows to confidence in students when faced with negative feedback from faculty, and how this can act as a barrier to class performance. To address this threat to student engagement, the author recommends supplying students with ample opportunities to practice writing skills in low-stakes assignments and offering timely feedback that indicates whether students are on the right track—in other words, to incorporate more formative assessment measures in a course.

Winestone and Millard (2012) propose that introducing active learning and formative assessment in large classes can be beneficial for both students and teachers in terms of their engagement and development. The authors define active learning as "meaningful learning activities that require higher-order thinking and the development of skills over the mere transfer of information" (p. 34) and refer to formative assessment as "information communicated to a learner that is intended to modify his or her thinking or behaviour for the purpose of improving learning" (p. 32). Their findings indicate that these methodologies can result in improved student 1) engagement, 2) retention of material, 3) consolidation of understanding, and 4) motivation. Weaver and Qi (2005) refer to the value of "active participation" in the college classroom being dependent upon student participation.

In parallel to this research, an analysis of 50 large first year classes conducted by Prosser and Trigwell (2014) indicated that students are "more likely to adopt surface approaches to study if their teachers are adopting less of a

conceptual change and student-focused approach to teaching" (p.791). Thus, Hornby and Osman (2014) argue that a conceptual change and student-focused model is superior to an information transmission and teacher-focused model when it comes to "challenging students to think deeply, critically and creatively in large classes" (p. 716).

In research conducted in the large class described in this article, Pappas & Pappas (2011) and Pappas (2011) found that their large class instructional approaches supported the behavioral foundations for developing metacognitive awareness, intentionality, and individual well-being.

1.4.2 Personal Technology Use in the Classroom

Cheong, Shuter, and Suwinyattichaiporn (2016) report faculty's concerns that large class proxemics—or spatial configurations—make it much more challenging to manage students' digital distractions. The authors highlighted that physical distance between instructors and their students made it harder to monitor students' digital device use, and "created a barrier to instructor-student rapport, which faculty prioritized over managing technology use" (p. 281). In a series of interviews with 65 faculty members across two universities, the researchers found that 49 instructors included a codified policy targeting technology/personal device use in their classrooms, though only ten instituted a moratorium on all personal device use. Their findings suggest that faculty face the difficult decision of wanting to ban extra-curricular technology use in the classroom but not wanting to alienate their students, or tarnish their "rapport."

Aagaard (2015) notes that students' addiction to their electronic devices undermines their learning in the classroom more than it serves as a learning tool. "Cyberslacking" is the term Taneja, Fiore, and Fischer (2015) use to describe unrestricted student technology use in the classroom. The authors suggest that the resulting lack of attention is shaped by changes in "intrinsic and extrinsic motivation, class engagement, and apathy towards course material" (p. 1).

1.4.3 Performance Teaching

A teacher's personality and style are central to keeping students' attention in any class, and this is never more so than in large classes, where teaching can be more like performance. We note here the connections between performance and teaching—*teaching presence*—as well as the practical issues of experimenting with integrating performance teaching methodologies into large classes. Dawe (1984) suggests that "the educational establishment has obscured the true nature of the art of teaching" (p. 552). To address this dilemma, it is possible to integrate some characteristics of performance into teaching style and methodologies.

Konstantin Stanislavski (1965) explained early in the description of his classic acting methodology: "When an actor is inspired, he is in the same natural and spontaneous state that is our life…in such a state, the actor has the greatest power to affect the minds and feelings of his audience" (p. 4). It is this state of mind that allows an instructor to take advantage of what psychologist Carl Rogers (1969) calls "being real" in class. Stanislavski suggests the same…the actor's mind, will, and emotions are responsible for creating a "live" human being on stage, or in our case, in the classroom. Joseph Chaikin (1984) presents a similar philosophy: "The stage performance informs the life performance and is informed by it" (p. 6). Beyond breaking down some personal barriers in the class or on stage, the effective actor, Chaikin suggests, creates an environment in which her acting is convincing. He continues, emphasizing that "When actors try to repeat what they did the night before, the theater stops being art because it stops being alive" (p. 15). As teachers, we have to opportunity to continue to recreate ourselves and our classes, ideally, day-to-day, as a way to stimulate and inspire our students.

Timpson and Burgoyne (2002) suggest that teachers can prepare for teaching large classes using warm-up exercises; assuming roles; as well as using props, lighting, blocking, energy, concentration, and other techniques applicable to good theatre and good teaching. Others (Freitas, Myers, & Avtgis, 1998; Banbury & Hebert, 1992) address nonverbal components of powerful classroom expression such as the following: Loudness of voice, fluency of spoken words, eye contact, facial expression, body expression, and distance from the person with whom one is interacting.

1.4.4 Peer Learning

Peer Learning in higher education is not new, but it is controversial in some instances, mostly due to the variability in the application of instructional strategies. Peer learning is not a single, undifferentiated educational methodology. According to Boud, Cohen, and Sampson (2014), "Peer learning suggests a two-way reciprocal learning activity" that is "mutually beneficial and involves the sharing of knowledge, ideas and experience between the participants" (p. 3). Topping (2005) notes that cognitive gains, as well "transferable social and communication skills" (p. 635) characterize peer learning assignments and projects, especially in situations in which students explain or defend ideas. Cortright, Collins, and DiCarlo (2005) note that working in groups of three to four enhances problem solving

abilities of all group members, noting that their research participants scored significantly higher on novel problem solving tests than students working alone. Similarly, Damon (1984) stressed that peer discussions that fostered "cognitive conflict" yielded results beyond what was possible individually and built trust among those in the discussion.

Our peer learning applications extend beyond the members of the class, and include graders and teaching assistants, all of whom are engaged in critical thinking activities in the class.

2. A Model for Facilitating a "Small Class Feel" in Large Classes

We have implemented the following strategies in our 300-person class and experienced a considerable degree of success. We continue to refine these strategies and experiment with others. In some cases, our strategies have been under revision and evolution for several years, and we would caution our readers against radically altering their courses in favor of slow, incremental additions and modifications (in order to maintain instructional control over your classes).

2.1 Instructional Staff

The success of this large class greatly depends upon a sizeable team of undergraduate students to help the professor with both administration and, to some extent, instruction. This includes an undergraduate teaching assistant, typically the oldest and most experienced member of this team, as well as 10-15 graders, depending upon the class size each semester.

2.1.1 Teaching Assistant

The teaching assistant (T.A.) plays an important role in class instruction, and is more visible, vocal, and accessible than typically seen in many undergraduate classes that employ teaching assistants. According to Peter Doolittle, Assistant Provost of Teaching and Learning at Virginia Tech, "Undergraduate TAs provide extra eyes and voices…they're sources of energy, working with groups and helping keep discussions on track" (qtd. in Mangan, 2016). Ten Cate and Durning (2007) add that "Peer teachers may benefit from teaching, as it may stimulate high level processing of information during the phase of preparation as well as at the delivering of education (p. 546). Throughout the course of the semester, the teaching assistant takes part in instruction from the front of the auditorium (as opposed to primarily sitting on the sidelines). This "help[s] to break down barriers between the professor and the undergraduates both by helping to translate the professor's ideas to the students and by helping the professor understand the students' experience and perspective" (Fingerson & Culley 2001, p. 301). The T.A. sometimes addresses the class alongside the professor, reinforcing his teachings from a student's perspective, which many students find to be a helpful addition to the course (see student comments below). She might take a seat and give the professor the floor during one of his monologues or when he wants to elaborate on a point made in class; but in some instances, she may take the lead on explaining homework assignments or leading the class in a discussion on course material. At times, both the professor and teaching assistant will co-facilitate a conversation with students, taking turns calling on students for comments and interjecting with a response or example when they feel it appropriate.

Having two authority figures in front of the class is beneficial in a number of ways. It creates a more dynamic learning environment that helps with student engagement because the exchange between a professor and teaching assistant helps capture and maintain attention during instruction. It adds to the diversity of perspectives and invites students to contribute to the class conversations when they see an undergraduate teaching assistant model participation from a student's perspective. It also helps break down barriers for students who may struggle to talk in class or approach the professor one-on-one, which is especially beneficial if a female teaching assistant is paired with a male professor, or vice versa. As compensation for his or her work, the teaching assistant can be paid an honorarium or awarded course credit.

2.1.1.1 Student Comments on the Role of the Teaching Assistant

Below are a few recent comments from students following one author's (R.L.) second semester (Spring 2016) as the class' teaching assistant. These were collected from a survey question soliciting voluntary feedback on the course at the end of the semester:

> I found Rosie to be a positive contribution to the class in that I found it helpful to relate to the TA as a student who had taken the class already.

> I enjoyed having Rosie up there asking questions and contributing to the conversation. I feel as though if it were just one teacher, the conversation would get too repetitive and there would be no change of pace. Rosie did great good job leading conversations and giving her own input.

> I think that Rosie was a good addition to the class because she was another voice to contribute to the conversation and discussion in class time, and it was good to have a male and a female in the teaching role because it was interesting to see contrasting ideas between genders. It was also nice to have a female to relate to.

> It made students feel more comfortable contributing in such a large lecture class because they were seen as equals, and Rosie's presence reinforced this.

2.1.1.2 Selection Process and Training for the Teaching Assistant

Sharing your classroom with an undergraduate teaching assistant to this degree cannot only appear threatening to a professor's existing authority, it can also be downright risky if the individual of choice is not adequately prepared to conduct herself confidently and effectively before a group of peers. The criteria for a strong candidate includes earning one of the handful of As in the course, demonstrating high interest in the course material-vocalized during class discussion but often extending to contact outside of the classroom-and possessing strong communication skills. Even with these qualities, a candidate can be tested and trained over time by working in different roles with increasing pressure and responsibility: In our case, she might serve one or two semesters as a grader in the course, then spend a semester working as a T.A. in a smaller, similar course (usually with 15-25 students) also taught by E.P., where she would be responsible for facilitating class discussions both with a small group of 3-4 students and with the entire class. This experience helps to prime a student for the role of teaching assistant in a large class; however, training can be easily provided if a student is to take on the T.A. role with less prior experience.

2.1.2 Graders

Trained undergraduate graders do more than simply grade papers for the course; the role has evolved over time to be a peer learning strategy with students who contribute not only to grading, but also to mentoring. While grading narrative homework assignments, graders are encouraged to cater to the instructional needs of their students by taking on the role of a mentor, giving personalized feedback on assignments, and coaching during projects. Thus, graders' work is integral to lending the course a "small class feel," where students are able to develop personal relationships with a member of the instructional staff and consequently invest more in their learning.

As mentioned above, the course typically requires 10-15 graders to administer a class of up to 300. Each grader typically works with 18-22 students throughout the semester, and is expected to stay in regular contact with them both in class and outside of the classroom via email. Graders must attend all class meetings, arrive early to check-in students for attendance records, collect homework assignments, and turn back graded work. Each week, they grade at least one narrative assignment per student with whom they work. They have to offer weekly feedback to students based on their performance, and keep track of both grade sheets and attendance records for their cadre of students. Upon hiring graders, we distribute binders and expandable file folders to organize their students' work and administrative records. Graders can be awarded course credit or be paid for their time and effort. We do not suggest T.A.s or graders be hired as volunteers, as some credit or remuneration greatly increases motivation and recognition.

2.1.2.1 Student Feedback on the Role of their Graders

Below are a few comments from students concerning how their graders contributed to their learning experience in the course. These were voluntary responses to a survey question at the end of the semester.

> The part of the class that was most beneficial to me was the beginning when you met your grader, and when we got into little groups for discussion. This is because the class is so big and with big classes it's hard to develop any kind of relationship with anyone because in big classes people are just ready to get through the lecture and leave. By seeing my grader every day I was able to develop a friendly relationship with him which made me more comfortable and enjoy the class more. Same thing goes with the small groups, you develop a relationship not only with the grader but with everyone else in your small group making the class seem not as big and everyone just enjoying the people around them in conversation.

> She [the student's grader] left very detailed and constructive comments with great feedback that helped me do better on future assignments. She was very kind to me. Every time I signed into class, she always had a smile on her face and even knew my name. She gave me that small comfortable and informal feel even in a class filled with over 200 students.

> The most beneficial part of this class for me was probably the fact that it was challenging. I liked the idea of the graders not taking bullshit analysis responses. It really helped me tap into the whole other side of my brain that I

haven't been exposed to for a while. It felt great to work hard for something and be graded on the quality of your thoughts and not how well you can remember things.

2.1.2.2 Selection Process and Training

As with the teaching assistant, the grader has some responsibility for student success in the course, and is selected with care by the professor. Graders are chosen from among the best students who received As in class, had excellent performance on the final paper, demonstrated high interest in the course material, and who were recommended by his or her grader as someone who was up to the task.

A lot of training and monitoring goes into ensuring that graders are on top of their course-related responsibilities. All graders are required to attend weekly meetings on Sunday nights where they report on student performance and any problems with student absences or late assignments. The professor and the teaching assistant participate in planning for classes in the upcoming week and support graders in how to grade incoming assignments. This is also a time to confer with fellow graders on how they graded the previous week's assignments, for which we have developed a rotating system for graders to present their grading process to the rest of the group, taking turns each week to exemplify a strong and a weak paper, and how they would offer constructive feedback to their students. At the beginning of the semester, we offer an in-depth workshop on facilitation skills, led by a veteran grader or T.A., with an associated handout detailing tips and strategies for guiding group discussion. When small group discussions are planned for the coming week, we also take this time to prepare by developing questions graders can use to prompt responses as well as practice techniques for encouraging open discussion and dealing with negative responses from students.

2.1.2.3 Head Grader

Each semester, we select one of the graders to serve as the "Head Grader." This title is usually reserved for a grader who has returned to the position two or more semesters, and her role is to oversee and support the rest of the grading staff, with particular attention paid to mentoring new hires. The Head Grader coordinates supplemental communications with the grading staff (this past semester, GroupMe, a group messaging application, was selected for this purpose) to facilitate quick conversations and clarifications when it came to mentoring, and clarifying due dates, class policies, and grading expectations.

We find that during most semesters many of the graders get to know each other socially as well as coordinate times to get together and grade their respective papers, which helps strengthen comradery and cohesion within our team.

2.1.2.4 Graders' Feedback on their Participation in the Class.

Below are a few comments from graders when anonymously surveyed mid-semester about their experiences and motivation working as a member of the courses' instructional team. Graders overwhelmingly report that their involvement is a rewarding and growth-producing experience, despite the great deal of time and effort they devote to their duties:

> I gain the perspective of other students and how they write. I learn multiple ways of teaching students which helps me figure out learning tactics for myself. I enjoy being someone students can look up to and feel comfortable to discuss homework with.

> I enjoy gaining new perspectives as well as becoming a better writer and reader from grading so many papers. I also enjoy the reinforcement of ideals taught in the class.

> I gain knowledge of how the classroom works. I work on my professionalism skills, by working with other graders and the professor. I work on public speaking when interacting with the students, especially in small groups. Gives me [*sic*] the opportunity to know a network of people. This is important because I get to interact with these people 3 times a week. It is intellectually stimulating and something that I care about. As well, I get to help push the students in a positive direction the way that I was. I love that this keeps me thinking about my values and the things I learned in this class instead of forgetting about them and being lazy.

> I continue to grade each semester because each time I take the class I always seem to learn something new. Taking the class again is always a nice reminder of the steps I should be taking to better myself and the world around me. I enjoy getting to share my experience that I had in the class with hundreds of students on my school's campus.

2.2 Narrative Assignments, Grading, and Formative Assessment

Employing graders allows us to provide more in-depth feedback and formative assessment to students on their homework than if the instructors were responsible for grading all coursework. It also means we do not need to rely on multiple choice quizzes and exams to assess student performance, opening up the opportunity to use narrative assignments to encourage student growth in critical thinking, writing, and reflective skills.

2.2.1 Narrative Assignments ─ Writing as Thinking

All the assignments in our class are narratives. This approach requires students to practice using writing as a tool for thinking critically. Over a semester, students submit over 50 pages of written and revised work, mostly in the form of short homework assignments (and three more lengthy papers) that demonstrate effective critical thinking in a variety of forms (e.g., creating and assessing arguments, analyzing controversies, understanding ideas, clarifying values). Graders take care to coach their students on how to expand their writing skills beyond summary and description to well-thought-out analyses over the course of the semester.

Low stakes formative assessment of this kind (short weekly papers) gives students the opportunity to practice skills and experiment with ideas that will be instrumental to their later success on projects and the final paper (which the professor alone evaluates for 30% of students' final grade). This approach provides the instructor with an idea of students' progress in order to best address their instructional needs, and the feedback students receive will outline how they should focus on their continued skill development without the tension-producing effects of performing poorly on a major assessment.

2.2.1.1 Grading Process

While graders are directed to evaluate the quality of thinking in assignments, they also note poor writing style or organization, especially in situations in which the poor writing detracts from students' meaning. We use a simplified grading scale for all assignments that undergraduate graders are responsible for evaluating, ranging from zero to three points. With this grading system, it is relatively easy for graders to determine whether the submission in question meets the expectations we have outlined during our weekly meetings (warranting two points), exceeds those expectations (warranting three points, which are awarded less often*),* or falls short of adequately synthesizing and expanding upon class topics (warranting one or zero points). In addition to in-text comments and markings, graders offer personalized feedback on each student's paper, with a minimum of two to three sentences of constructive comments, including what the student did well, and how he or she could improve.

At the beginning of each semester, we send out a note, *Paper Submission Guidelines,* to all students, and also review it during class time. It includes requirements for length, font, and spacing, and also specifies a standard heading that we require all students to use on every paper they submit. These requirements make it easier to keep track of all assignments students turn in, and easily get papers to the appropriate grader should they get misplaced or are turned in under unusual circumstances (i.e. the student's grader is absent, or the student has a friend hand in an assignment for him or her). We instruct graders to strictly enforce these parameters, and deduct a point from assignments that fail to follow them after a grace period of a few weeks at the beginning of the semester.

2.2.1.2 Recordkeeping.

Graders maintain their respective grade books throughout the semester, but are expected to enter them into an electronic spreadsheet at least four times per semester, through a system monitored by the instructor and T.A. For the past three semesters, Google Sheets has been a useful tool for this. Grade sheets and rosters are prepared for each grader's range of students by the T.A., for which each grader receives a "tab" to enter all homework grades for his or her students.

2.3 Class Policies

Several class policies we enforce help ensure that we create an atmosphere that encourages accountability and participation, the both of which are vital to creating a "small class feel."

2.3.1 Attendance

While some students will inevitably complain, our mandatory attendance policy plays an important role in the successful administration of our course. We understand many professors will opt to forgo attendance-taking in a class of 100+ students as it can become an adminstrative nightmare, but we utilize our large grading staff to create check-in stations for students around the perimeter of the auditorium. Graders assume their positions starting about 10-15 minutes before the class' official start time, which allows students to report to their respective graders as they

trickle in, where they either sign in with their initials or graders' check them off on their rosters, and students collect whatever graded assignments are being returned and drop off those that are currently due.

We grant students leniency to miss three classes over the course of the semester before their grade will suffer as a result of absences. We specify when reviewing this policy that we *do not* need to see doctors' notes or receive detailed emails concerning the reason for a student's absences because we offer three no-strings-attached absences, which saves us from processing dozens, even hundreds, of emails and in-person excuses for said absences. We do, however, encourage students to contact the instructor in the case of prolonged absences or extenuating circumstances.

2.3.2 Personal Technology/Digital Device Ban

We institute a strict policy against the use of personal electronic devices in our class. We have duplicated below the policy from a note we send out to all students the week prior to each semester:

> Be sure to turn off your cell phones before you enter the auditorium, and certainly don't be so rude as to text during class. If you feel you cannot stay off your phone twice a week for 75 minutes, please drop the class. **Using cell phones (including texting and game playing) or any electronic devices (including computers and ipods) is strictly prohibited in class. If you are caught using any electronic device in the auditorium, you will receive an "F" in this course**. If you need to use one of these devices, please exit the auditorium to do so. Anytime you are in the auditorium, your electronic devices should be shut off and put away. Talk to a classmate instead.

This policy is also clearly stated on the course syllabus, and we review it several times during the first two weeks of the course so that there is no question about our policy, should a student violate it. We have several reasons for instating this policy, but of foremost interest to this discussion is how it eliminates a physical and psychological barrier to student learning and engagement in the course. Unfortunately, no matter how engaging a professor makes her class, some students will still opt to distract themselves mid-lesson to text their friends, check their emails, or surf the internet. As noted above, this policy also encourages students to get to know their fellow classmates, and we find every semester that our students enjoy a much more personable and friendly learning atmosphere because they are talking to their neighbors before and after class, instead of staring at screens.

2.4 Student Engagement

Students enjoy informal contact with their graders daily, when they sign in for attendance and turn in assignments, and students engage the instructors and each other during regular small-group and large-group discussions.

2.4.1 In-class Discussions

Every class meeting incorporates some discussion with the entire class participating. Common topics include homework assignments or projects students have completed, or responses to a short video shown in class. Many students are intimidated to answer questions or share their thoughts and ideas in a group of 300 peers, yet we know how important having open peer-to-peer dialogue can be to encourage student engagement in large classes. To address this problem, we implemented a structure to incentivize class discussions.

2.4.1.1 Incentivizing In-class Participation

Instead of requiring student participation as part of their final grades— which we found in previous years to horrify shy students and stifle the overall quality of conversations— we now offer a few additional final grade points at the end of the semester to students who comment regularly (and substantively) during class. At the beginning of the semester, we distribute cardstock and instruct each student to make a name card with his or her first name and last initial on it. The name tags permit the T.A. to tally students' comments on a roster while sitting in the front of the auditorium, and also allows the instructor to add a degree of familiarity to the discussion by calling on students by their first name when they raise a hand to participate.

2.4.1.2 Good Practices for Facilitating Large Class Discussions.

A common hurdle to effective discussions with groups over 100 is the inability to hear each other's comments. To facilitate a conversation among such a large group of students, the professor or T.A. employs the practice of summarizing a student's comment back to the group, for the benefit of those who may have had difficulty hearing it, before asking a follow-up question to the student or inviting a response from someone else. Students are encouraged to respond to one another's comments, and the T.A. and professor make an effort to make sure the conversation is not dominated by a handful of students. Several times during the semester, we will announce that we would like to hear only "new voices" for the remainder of the class period, inviting students who have never spoken up in class

before to share their thoughts. We also emphasize that students need not echo the viewpoints of instructors during these discussions. We invite dissenting opinions and negative feedback on particular assignments, and take time during classes to address controversial topics, which often solicit the most enthusiastic participation and critical thought from a variety of students. As another means of keeping conversation compelling and dynamic, we often co-facilitate discussions, switching back and forth between the professor and T.A., who take turns calling on, and responding to, students.

2.4.2 Small Group Discussions

Periodically throughout the semester, we break up class with small group discussions, led by the graders. Each grader typically works with 18-22 students, so we have students meet in groups of that size throughout the three-storied auditorium, making good use of perimeter of the room. These groups either sit in a circular fashion on the floor or in clusters on the top of desks, due to the inconvenience of our classrooms' bolt-in-place seating. These peer learning sessions typically last 10-15 minutes, depending upon the topic of discussion and point of time in the semester (we start out with shorter sessions at the beginning of the semester so students and graders can adjust). Many students report feeling more comfortable sharing their experiences or ideas with peers in these smaller settings. We normally assign a topic that is controversial or requires critical thinking so that students get the most from the peer learning format.

2.4.3 Turn-around Group Exercises

Another peer learning technique for breaking up class activities is to task students with short, "Turn-around" group exercises (students turn to talk to three or four nearby classmates). These exercises can be planned around a certain point in the lesson, or be done on the spur of the moment if students appear confused or exhibit low interest. In other cases where students discuss an issue, it is important to assign a short, written deliverable to ensure they stay on task. They can be accounted for in a "group work" category in final grades, and merely graded for completion, if desired.

As students often create *de facto* assigned seating in large classrooms after just a few class meetings, we sometimes ask students to switch up where they sit to give them the opportunity to get to know and work with different classmates.

2.4.4 Student Feedback on the Role of Discussions in the Course

Below are a few comments from students concerning the courses' structure and heavy emphasis on discussion. These are responses to a survey given at the end of the semester. It is important to note that not all students reported in-class discussions as the most beneficial element of the course; Others described how they appreciated the discussions but would have preferred to listen to more monologues from the professor. Students offered the following:

> Discussions and papers in place of tests and quizzes gave a less stressful environment in and out of the classroom. This also helped me enjoy participating instead of dreading or feeling nervous about going to class like some of my other professors make the class environment feel.

> With the small group discussions with our graders, it helped make such a large class feel more approachable.

> The part of the class that was most beneficial to me was how it felt like a small, discussion-based class. I was never scared to share my opinions or discuss any challenges that the assignments were giving me. The discussions made me feel comfortable in knowing that I was not the only one being challenged.

> I honestly preferred the small group discussions with my grader over the large group discussions. The atmosphere was much more personal feeling and I felt more comfortable sharing my experiences.

> This was the largest class I have ever been in; I think that was the most beneficial part. There was a lot of diversity in conversation due to the amount of people. I feel as though I grew immensely intellectually from discussing the projects and assignments with my fellow students in class discussions. Discussing the assignments in class helped me to consider a number of opinions that I would not consider in a smaller class. The assignments became more interesting and beneficial when I started mentally preparing for the discussions we would have in class.

2.5 Other Teaching Methodologies

In our experience, the greatest challenges to teaching large classes in higher education are not related to how many students you must track or how many papers you must grade, but to how you can reach and relate to such a large audience. The physical proximity and informality afforded by smaller classes helps instructors bridge the distance

between them and their students, whereas large classes often end up leaving instructors distant and dehumanized, resulting in their students feeling alienated and frustrated. The practices outlined below serve to minimize these effects by capturing the attention and affection of students.

2.5.1 Strategies for Connecting with Students

The perennial concern of students and professors alike in large classes is that students can feel like they are "just another number" in the classroom, and miss out on personal connections with their instructor. It should be our goal as educators to foster a feeling of ownership in students regarding their education. Here are a few simple practices that can make instructors accessible and more invested in their students' performance:

2.5.1.1 Arrive up to 15 Minutes Early and Stay 15 Minutes after Class Ends Each Day to Field Student Questions or be Available if Students Want to Continue the Conversation on Class Topics.

We find that students in large classes are often too intimidated to arrange for a meeting outside of class to spark a casual conversation—they believe faculty to be *too busy* to meet on non-urgent matters. This simple practice can also clear up a lot of your time spent in the office, as most student inquiries take fewer than 5 minutes and do not require a formal meeting. When you dismiss class, invite students to come down to ask additional questions, which gives you an opportunity to build closer relationships with them and better identify those who are excelling (to hire as assistants, for instance).

2.5.1.2 When You Arrive to Class Early, "Make the Rounds" by Visiting Students already in Their Seats.

Strike up conversations with individual students or small groups, by asking them questions such as "What do you think about the class so far?" "How was your weekend?" and "What did you think about [X topic] from last week?" Some students may be petrified that you are talking to them one-on-one, but you will find that many appreciate these attempts to build connection. It is necessary to chat with each group for only a few minutes, and to talk with different people each class period, if possible.

2.5.1.3 Ask for Honest Feedback from Time to Time, Either during a Class Discussion or Anonymously via Written Submissions.

This simple gesture tends to empower students by signaling that you are listening to their concerns and taking them seriously (and not just once a semester after student evaluations). Consider adjusting your lesson plans ─ either for the current class or the next semester's class ─ based on their input. Be sure to let students know when you do make an adjustment to the course or material because of their recommendations (they will appreciate it and feel empowered).

2.5.1.4 Spark Controversy by Connecting Course Material to Current Issues or Students' Lives.

This is an excellent way to get students interested and enjoy their time spent in—and maybe even *look forward* to—your class. We recognize tying in controversial topics may feel more natural in the humanities and social sciences, but instructors in the hard sciences and technical disciplines can attempt this as well. What are the controversies in your field? Can you tie them to issues of interest to your students, perhaps in politics, education, or even popular film or their personal relationships? Raise a controversial issue—you need not present it as *your* opinion either way—and ask for student input to start a lively conversation. They will remember the material much better and likely continue the conversation with their friends after class. Consider showing a video or introducing a short article that raises a debate if you do not want to be entirely responsible for a controversial topic.

2.5.1.5 Present Yourself as a "Real Person."

Some academicians laughed at Carl Rogers when he wrote to faculty in his classic 1968 work, *Freedom to Learn,* to "be real" in the classroom. Being intentional about how you present yourself to your students becomes all the more important when teaching a large class because of the physical distance and formality that tend to characterize such classes. These alienating factors can be counteracted by cultivating a more informal learning environment for your students, which depends greatly upon your ability to show your less serious side and demonstrate that you have a life—and history—outside of the classroom. Students tend to appreciate when their professors make an aside to lament about a trivial matter affecting them outside of class (a pet, a hobby, a friend, or even the weather) or excitedly share news about the status of a personal project or a family happening. These short interludes in the day's formal lesson give students a moment to take a break from concentrating on the material, but more importantly, it puts them at ease because they see that their professor has a dynamic set of priorities and responsibilities that extend beyond her work, just as students have lives apart from their studies. Informal disclosure like this can help to build

trust as students come to feel as if they "know" their professor and perhaps share other interests or beliefs beyond what they exchange in terms of course material.

2.5.1.6 Incorporate Other Elements of Performance Teaching and Experiment with Delivery

Among the simple non-verbal strategies to be considered are vocal expression and volume, fluency of spoken words, eye contact, facial expression, body expression, and distance from the person with whom one is interacting. While simply rethinking one's typical delivery style to be more expansive can be effective, consider role playing, play acting, "owning and controlling" the physical space, and taking advantage of the entire space—making the room or auditorium your stage. As well, experimenting with enhanced and "larger" physical gestures are often attractive to large audiences, as are more dramatic team teaching practices. While experimenting with performance teaching strategies requires practice and some risk taking, teaching to a class that is more engaged, interested, and participative is invigorating for both faculty and students.

2.5.1.7 Create a Degree of Informality in the Classroom.

An effective way to make yourself accessible to your students is to experiment with mirroring the language they use (within reason). Students are likely to shut down or tune out a professor who frequently relies on highbrow vocabulary that they struggle to understand. Instead, use these terms sparingly to highlight ideas that are most important to their understanding of the material, and take care to introduce them in a way that welcomes student questions or requests for clarification. We also recommend adopting a more informal tone when addressing students, at least during portions of each lesson. The beginning and end of class time, as well as transitions in between lectures/activities, can be used to establish a more relaxing atmosphere for students by cracking a joke, commenting on a current event, or checking in with their lives (e.g., How are mid-terms going? Who's got exciting plans for spring break? Is everyone taking care of themselves?).

It is worth noting here that we set a firm expectation for the instructor, T.A., and graders in our classroom to dress professionally during every class period. Other faculty may fear appearing *too* informal by letting their guard down or joking around with their students, but we have found that dressing more formally than our students (business casual) on a regular basis helps to maintain the position of authority of the course's undergraduate assistants while allowing them to develop closer relationships with their respective students.

2.5.1.8 Change up the Learning Activities during Each Class Period to Maintain A Dynamic Classroom Experience.

Without seeming to deny the usefulness of compelling lectures and monologues as highly effective teaching tools in higher education (we support their use and employ them regularly in our course), it is important to emphasize the need for diversifying learning activities—especially in large courses—to maintain student interest. During a typical 75-minute class meeting, we offer a variety of activities to our students to establish a dynamic pace and provide opportunities for students with different learning styles to engage in course material. For example, we might start class with an "observation of the day," briefly tying course topics to a current event in the news or a recent experience of the instructor or T.A. (as well as giving students time to begin focusing on the class). Next, we may show a two to five minute video related to our unit which presents the same material from a new perspective. After discussing the video content briefly, we will shift to a review of the most recent homework assignments, during which time the T.A. will invite student comments and reflections on what they learned during this work outside of the classroom. After 10 or 15 minutes of this large-group discussion, the professor will synthesize the learning objectives built into the homework assignments, then launch into a 20 to 30 minute monologue that bridges this material with a new topic we will begin studying in the course. During these monologues, students are expected to practice active listening and are invited to take notes, but must hold their comments until the end, when the instructor and T.A. co-facilitate an analytical discussion on the material. Other days, students will be instructed to reflect on this material in groups of 2-4, or explore it in a small group discussion guided by their graders.

3. Conclusion

If it is true that teaching a greater number of large classes will be the future of higher education, we may well want to experiment with new instructional methodologies and class policies in order to prepare for this continuing trend. So far, innovation in large class teaching has relied mainly on technological innovation (like the use of "clickers," in-class anonymous feedback via text messaging, hybrid courses with asynchronous online discussion boards, and technology-rich classrooms with multiple projection points). While these innovations represent some change, our instructional efforts need to encompass a greater breadth of practice to ensure student learning potential is maximized in large class settings. We need not be limited by what we already know or practice.

Overall, there has been relatively little experimentation with teaching large classes since our approach has most often been *tolerating* them, rather than embracing them as we have other challenges in academia. We may be underestimating ourselves and our students by simply characterizing large class instruction by its perceived weaknesses…and thinking students can prosper and learn well only in small class settings.

In this paper, we have presented the results of a careful process of experimentation over ten years. We have learned that no one new method will transform a class, but experimenting with a combination of new teaching strategies and methodologies, and class policies and procedures that suit disciplinary content and the character of students in a class, can improve instruction as well as student satisfaction.

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