REFLECTING ON CREATING COMMUNITY WITHIN AN UNDERGRADUATE FORENSIC SCIENCE COURSE

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ABSTRACT

This article provides an example of a university faculty member's reflective practice on how a sense of community was developed within undergraduate college forensic science classrooms. Through reflective practice, I describe a heartwarming situation I experienced and compare it to the literature to help me better understand my contribution to developing a sense of community amongst my students. After identifying and evaluating possible explanations, I decide a positive learning environment is the main contributing factor and provide recommendations for future practice to help other faculty who are interested in creating a similar environment within their own courses.

Keywords: *community, community development, science, forensic science, reflective practice, student engagement, sense of community*

INTRODUCTION

As a university instructor and program director for an undergraduate forensic science program, I strive to make the classroom experience as much about joy as it is about learning content. Because of this, I constantly aspire for my classrooms to have a close sense of community. I desired to reflect on what I had done to generate an environment that promotes community building to improve my future practice and hopefully guide others toward a similar outcome.

Reflective practice is vital to the success of the college professor, as this is how one grows as an educator and becomes increasingly effective in passing on knowledge to today's students. Fuentealba Jara and Russell (2023) believe that learning from experience is at the center of reflective practice. This is because it is challenging for a professor to identify any underlying assumptions that influence their actions as an educator and then determine if their adopted theories consistently align with their practices. However, when this alignment is analyzed, the renewed perspective can then be further investigated by making changes and assessing the outcomes (Fuentealba Jara & Russell, 2023).

When an educator is new to reflective practice, it can be helpful to consider the theoretical perspective from which to assess performance. John Dewey's work, based on the thoughts of early educators and philosophers, is considered seminal in the area of reflective practice (Sellars, 2017). Dewey (1933) believed reflective practice is a cognitive process, defining it as "the active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (p. 9). This is far different from everyday thoughts, as it requires deliberate thinking and a rational analysis of the problem, where many ideas are considered, examined, and linked together. Preconceived notions, assumptions, and beliefs are evaluated in light of the considered ideas before arriving at a solution, using evidence to support said solution (Dewey, 1933). As this process is prompted by practical events that have instilled a sense of wonder, confusion, or otherwise inquiry into its cause, the goal of reflective thinking is to identify these causes so the instructor can repeat (or not repeat) these intelligent actions. This aligns with the scientific method, making this process of reflective practice almost more of a scientific inquiry (Sellars, 2017).

Researchers Fuentealba Jara and Russell (2023) stated that it is important to reflect on teaching with what they refer to as a "critical friend." Costa and Kallick (1993) define a "critical friend" as a trustworthy person who will ask thought-provoking questions, provide another lens through which to view experiences, and offer critiques of the other person's work and actions with the intent of advocating for success. By engaging in reflective practice with a critical friend, instructors feel more encouraged to make changes, take risks, and experiment with new techniques within the classroom (Fuentealba Jara & Russell, 2023). Through this reflective analysis, I hope to act as a critical friend to other instructors seeking to modify their classrooms that will have a lasting impact on their students.

PROBLEM

I had the pleasure of witnessing the fruits of my labor in generating a strong sense of community within one of my undergraduate forensic science courses at my university. When a student was in need during a hands-on assessment, other students immediately came to her aid to offer moral support, guidance, and motivation. They helped her get organized and work through her stress. They also continued to check in with her throughout the remainder of the class to ensure she was still on track to finish within the allotted time. I was amazed at how quickly these students stopped what they were doing, put aside their own work, and worked together to help one struggling person. I never expected my students to sacrifice their own time on a graded assignment to help a peer.

This experience unexpectedly made me reflect on my time as a student and helped to clarify the importance of climate within the classroom. During my college education, there were times I had instructors who were prone to angry outbursts or displayed aggressive behaviors, and I was less likely to raise my hand to answer questions. I specifically remember my calculus instructor screaming at the class when we did not understand one of his explanations, angrily beating his piece of sidewalk chalk against the blackboard while attempting to reiterate his point. He went through at least two pieces of chalk each class session. Moreover, if he thought you were not paying attention, you had a good chance of getting struck with an eraser (which is why I purposefully sat outside his throwing range). As a result, students preferred to sit alone to not interact with someone and risk having to dodge an eraser. It is no surprise that this negatively impacted how I felt about the course and the instructor.

Comparing my experience as a student to my experience as an instructor caused me to consider what specific characteristics I exhibited that led to creating a community environment in which students were willing to help struggling peers. While I was excited that students jumped at the opportunity to help one another, I never expected they would to this extent. This began my quest to better understand how community is created in the college classroom and reflect on my actions that help create such a nurturing environment.

READINESS

Before beginning any reflective practice, it is important to ensure one is ready for the process. While a person may have the intent and drive to engage in such practice, doing so without preparation can result in an incomplete reflection. According to Greenberger and Or (2022), an instructor is ready to engage effectively in the process when they have the proper attitude, as Dewey (1933) identified. These Deweyan attitudes are open-mindedness, wholeheartedness, and responsibility (Dewey, 1933; Greenberger & Or, 2022).

As a forensic scientist, open-mindedness is the cornerstone of our work, regardless of the discipline. While generating a hypothesis is central to the scientific method, keeping an open mind while assessing evidence about the hypothesis allows for a holistic analysis of all evidence. Keeping an open mind also aids in preventing multiple forms of bias, including confirmational bias, which occurs when data that supports a hypothesis is sought out instead of looking for data that may falsify it (Giannelli, 2010). As a former forensic scientist and current professor and program director of an undergraduate and graduate program in forensic science, I am well-versed in the importance of maintaining open-mindedness and the negative outcomes that accompany a lack of impartiality. I keep an open mind each day I enter the laboratory and ensure my students also practice this. As a result, I am confident that I can keep an open mind while engaging in this reflective practice.

As Greenberger and Or (2022) explain, wholeheartedness entails immersing oneself in the topic with focus and enthusiasm while avoiding distractions and obstacles that may prevent one from thinking deeply. A high level of curiosity and love of learning must exist within the individual in order to wholeheartedly engage in the reflective practice (Greenberger & Or, 2022). A love of learning and the ability to stay focused and driven amidst distractions are some of the traits a productive forensic scientist should have. Continuing education—research into new and novel techniques and interesting case studies—drives my love of learning, advances my understanding of the evolution of forensic science, and keeps my classes relevant. My ability to immerse myself in work while avoiding distractions has helped me in many areas of my life, from completing casework ahead of schedule to completing my doctoral dissertation. The thought of learning something new has always been exciting to me.

Responsibility is full acceptance of the outcome of the reflection, including any changes in thinking and beliefs and taking action as a result of these changes. It also includes considering and accepting any consequences that may be discovered and blending them with one's own practices to make a necessary change. Possessing responsibility allows one to constantly review their goals and make changes in light of new information in order to meet those goals (Greenberger & Or, 2022). As a college instructor dedicated to student success, I display responsibility by asking my students for feedback on the course mid-semester. I use their feedback to make changes to our class in order to increase student buy-in and show them they have a voice. I recognize that this comes with potential consequences and, therefore, approach the feedback provided by each class with an open mind. Expressing responsibility is a habit that I engage in regularly, and consequently, I am self-assured in my ability to apply this to my reflective practice.

Through this reflective practice, my objective was to learn which attributes I bring into my classroom to foster community amongst my students. Identifying these specific attributes can allow me to better understand how community is created and nurtured and guide other faculty who also desire to create this environment. After reviewing my objective and disposition about Dewey's (1933) principles on readiness, I was adequately prepared to effectively engage in this reflective practice.

WORKING IDEAS

As a faculty member who has taught at the college level for over 12 years in a variety of modalities (asynchronous online, synchronous online, traditional ground, blended, and flipped models), I can look back on my experience to determine possible reasons I was able to create such a strong community within my classes. The first thought that came to mind was my use of student active engagement by incorporating activities that promoted student interaction. Teaching style may also play a role in fostering community. Lastly, creating a positive learning environment could also be a contributing factor. In the spirit of the reflective practice process, I thoroughly considered each of these as plausible foundations for building an in-class community.

Student Active Engagement

While students sit and listen during the standard lecture, active engagement requires students to discuss and engage with others to work through material and solve problems. At my university, a small number of points is allocated toward each class meeting that students can earn based on their level of participation in in-class activities. The instructor determines what students must complete each day to earn these participation points, contributing to a small percentage of their final course grade. I utilize a variety of active engagement techniques for this participation requirement, such as pair-share (pose a question, give students two minutes to discuss their answers with those around them, and then report back to the class), worksheets to help work through and reinforce the material, and various hands-on activities that put theory into practice. These activities help break up class time by separating any required lecture time with opportunities to engage with other students and further expand their knowledge of the material. Students can also leave class with immediate feedback on their thoughts and work product, helping to eliminate the sense of wondering if they truly understand the material.

Teaching Style

The second potential contributor to creating classroom community could be considered related to the first. I run my forensic science courses using the flipped-classroom model. This requires stu-

dents to prepare for class by engaging with the material through lecture videos and textbook readings. This provides ample time during our face-to-face meetings to engage in high-level cognitive and reflective activities, including problem-solving and peer interactions. Students are required to submit questions regarding the pre-class material so any questions or unclear content can be clarified during our time together. While this does require additional time for class preparation each week, I have found that I enjoy my time in the classroom much more than when I previously taught a standard lecture course. This is partly because many of the questions submitted by students show that they are engaging with the material at a higher cognitive level and connecting new information to concepts learned earlier in the semester or perhaps another course altogether. As an instructor, it excites me to see students want to know more about all of the different aspects of forensic science. My increased enjoyment of the material is readily apparent to students through my use of humor to keep students engaged during class.

Positive Learning Environment

In my opinion, it is important that instructors create an open, comfortable, and engaging classroom environment. Learning new material can put students in a vulnerable position—sometimes, they need to be wrong in order to learn what is correct. Moreover, to be wrong in front of a group of their peers can feel especially daunting. However, when the instructor cultivates an environment where students can be open with their thoughts and ideas and freely be wrong so everyone can learn what is right, this level of established comfort makes learning enjoyable. Moreover, in my experience, students are more likely to retain the information when they enjoy what they are learning. One method I use in my courses is encouraging students to be wrong. While it may sound strange, it not only gets students talking to each other (and the instructor), but it also provides a common ground for everyone—we might not know the correct answer, but we certainly know what it is not. For example, if students have difficulty answering a question in class, I have everyone come together to state all the wrong answers *and* explain why the answer is wrong. Often, as a class, we cannot list all the possible wrong answers because hearing the explanations may trigger a memory in a student who is willing to speak up and answer the initial question correctly. Another way I try to make students more comfortable with being wrong is to be supportive when they *are* wrong. One policy I have for myself is that when a student provides a wrong answer, I always answer with some level of feedback or encouragement that motivates them to keep participating. I will say things such as, "I like the way you are thinking!" or, "You are headed in the right direction!" I never respond with a simple "No" or any other response that could be discouraging.

In addition, I also set the expectation with my students that I will always listen to their concerns about the course, and I am willing to make changes if these positively support the students on their academic journey. Allowing students a voice in how their classroom experience unfolds makes them more invested in the course and more likely to engage during class. Many students are surprised to see me make course changes based on their feedback, indicating they feel that most instructors are not very invested in the course or student outcomes. When students notice I am putting forth the effort to help them succeed, it seems to encourage them to increase their effort.

REFLECTIVE NARRATIVE

I possess a Bachelor of Science in Molecular, Cellular, and Developmental Biology, a Master of Science in Forensic Science, a Ph.D. in Psychology with an emphasis in Cognition & Instruction, and almost 10 years of analytical laboratory experience. I left a private forensic DNA and serology laboratory to work at my university and oversee the brand-new Bachelor of Science in Forensic Science program in 2011, and I have been teaching there for 13 years. This private university in the southwestern United States has over 25,000 students on its ground campus. Faculty are required to have a masters or terminal degree in their respective fields, and obtaining professional work experience is preferred before stepping into the classroom. The largest class sizes at my university are generally between 100-120 seats, and in 2021, the average class size was 27 students. Courses within the forensic science program are generally capped between 12-100 students, and as students progress through the program, class sizes decrease significantly. Lab courses have the lowest enrollment

capacities, with no more than 12-24 seats in each section. This allows students to get hands-on with equipment that most other universities only allow for use by graduate students and professors.

The Body Fluid and DNA Analysis course I teach is a 400-level class that has a maximum seat count of 20 students—although it is rare to run this course at full capacity. Students in this course are required to have successfully completed Genetics and Biochemistry courses before and usually take my course during the spring semester of their senior year. Most students consider this to be an intense course, as there are not many assignments, and the class as a whole relies heavily on lab work and practical assessments that constantly require students to use their critical thinking skills. The first assignment in this course is a serology hands-on practical exam in which students are provided three swatches of fabric and must complete various laboratory tests to identify which body fluid (blood, semen, or saliva) is present on each swatch. It is an individual assignment, although students are allowed and encouraged to discuss the testing process and results with each other in the spirit of peer review and to build confidence in conducting laboratory tests. I was in the middle of administering this exam when I heard the sound I dread—muffled crying. I looked up to see a student who had been struggling with the material for the past four weeks finally reach her breaking point. My heart dropped. While I strive to ensure my classrooms are as free of stressors as possible, sometimes it is unavoidable—forensic science courses are inherently rigorous.

I worked with this student in other courses over the past two years, during which she was especially quiet and rarely asked questions. While she interacted with other students during class time, it was always initiated by those sitting around her. However, before and after class, I frequently observed her speaking with these other students, which gave me the impression that they were friends. She also struggled with the material in my previous courses, and I was concerned about her ability to pass the current course and graduate on time. In the past, she was always able to improve her performance by the end and pass the course, so I was hopeful she could do it again one last time. This is why hearing the sounds of her crying hit me especially hard.

As I turned and began to make my way toward the student, suddenly, other students working near her—eight in total—rushed to her workstation. In all of my courses, I always encourage my students to go to each other with questions, as I believe they not only learn more from their peers, but it also allows for the reinforcement of concepts between both parties. At this point, I paused, observing how the students handled their fellow learner in her time of need. All eight of them worked together to help the upset student regain composure and reorganize her workstation. Four students pulled her aside to help calm her down and regain her composure, two worked to clean up her workstation and clear out used testing supplies, and the remaining two reviewed her notes to see where she was in the testing process. After a few minutes, the two pairs of students convened to discuss what the upset student had completed in the testing and her results. After that conversation, all eight students walked their comrade through what she needed to do moving forward in the practical exam. Once everyone was assured she understood the next steps, they all returned to their workstations and continued working on their exams. While still visibly upset, the troubled student slowly developed a sense of confidence due to the additional support. Throughout the practical exam, each of those eight students took turns checking on her and her progress. It was amazing to watch the impact caring classmates had on the upset student, as her poise improved with each test and each result. What was once a student who had her head down and kept to herself soon became one who held her head high as she moved around the classroom and approached others with questions. Ultimately, she completed the assessment on time with a passing score. I am confident it was the support and guidance of her fellow students, who took time away from their own practical exam to offer assistance, that helped this one student successfully complete the assessment.

Choosing a scientific field of study as a major is highly challenging, and walking this path alone can make it a more harrowing journey. As a student, it is easy to feel isolated when others seem to "just get" the material. This is especially true for those who attend class in large lecture halls with sometimes hundreds of fellow students, all listening to the same professor yet feeling like they are the only ones not understanding a word. Add in

the competitive nature injected into some science majors, and the learning process becomes even more isolating. As a result, attending class can be an anxiety-inducing event. Students in these cut-throat programs may be less eager to help others learn and understand the material because of the perceived advantage—with fewer students at the top, it is easier to stand out amongst the crowd and set the curve. Competition does not promote holistic learning.

This is what made my observations during my laboratory practical exam so unexpected. While I would have hoped one or two students would step up to help their classmates, I never had imagined that half of my class would so willingly jump at the opportunity to assist. I was interested in identifying what I did in my courses to foster an encouraging learning environment where students felt well-supported inside the classroom to ensure I continued to utilize these methods.

EVALUATION OF IDEAS

Upon reflection on the possible reasons for the successful creation of a sense of community within my forensic science courses, I performed a literature search on my ideas for contributing factors to evaluate the validity of my thoughts. Greenberger (2020) indicates this is the next step in reflective practice, as it can provide me with the necessary information to determine the factor that creates community within the classroom.

Student Active Engagement

Student active engagement encompasses the use of active learning techniques, which were initially defined by Bonwell and Eison (1991) as "Instructional activities involving students in doing things and thinking about what they are doing" (piii). Higher education has been trending toward using active learning in larger classes (over 50 students) due to improved outcomes in student learning (Hushman & Knottenbelt, 2022). Much of this is due to an increased understanding of the significance of the student learning experience (Cavanagh et al., 2016). One reason students tend to perform better on assessments in courses that utilize active learning is due to the sense of connectedness they feel with other students. The ability to move about the classroom, interact with peers from diverse backgrounds, and use technology to connect with ideas outside the classroom makes learning more authentic. This sense of connectedness could be highly beneficial for students from underrepresented backgrounds within STEM fields as it can aid in lessening achievement gaps (Hushman & Knottenbelt, 2022). Feeling like they have more resources could lead students to be more invested in the course.

A component essential to reaping the benefits of active learning is student buy-in, which describes the students' thoughts regarding new ways of thinking and learning. Important components of student buy-in are persuasion that active learning is beneficial to their education, the ability to identify an activity that aligns with their preferred way of learning, and student commitment to engaging in the active learning activity. The higher the level of buy-in a student has, the increased likelihood that students engage in self-regulated learning, which has been linked to improved student outcomes (Cavanagh et al., 2016). Buy-in is increased when students can also directly see the benefits of active learning. Braxton et al. (2008) argue that the more students are aware of their faculty members using active learning strategies, the more likely these students perceive that their academic institution is committed to student welfare. This study also shows that while active learning does not increase student interaction between students, the more students believe their university is committed to their welfare, the more positive interactions take place between students. This increases student's commitment to the university, thereby increasing university retention. This shows that active learning not only supports students in their academic endeavors but also benefits the university as a whole.

These thoughts on active learning echo how I model my classroom and feedback from students in my classes. I work hard to gain student buy-in when it comes to using active engagement strategies by sharing my increasing trend in student performance as a result of using these activities. Many students have told me that while active engagement activities are a little difficult at the beginning of the semester, the ability to move around the classroom and choose their work partners resulted in an increase in their desire to participate. They also indicated that they felt they could learn and retain more information, increasing their confidence in the course and the material. They feel that I am

highly invested in their success, and as a result, it drives them to continue to work hard, even in the face of frustration.

Teaching Style

The general model for structuring a flipped classroom requires students to take charge of their learning through activities conducted before, during, and after each class. After the initial exposure to the material before class, students engage in various activities and discussions in class to help reinforce and process information. Post-class activities provide the opportunity to connect new information to previously learned concepts and strengthen connections (Al-Samarraie et al., 2020). Some features necessary for the successful implementation of a flipped classroom include guidance on how students approach the course, a clear course structure, consistent activities for pre-class preparation, and in-class interactions. Feedback is another necessary component, as its benefits are twofold: learning is more student-directed to help increase their higher-order cognitive skills, and students become more motivated with support from their instructor. This must occur within an open and safe atmosphere to give students more courage to participate, with instructors playing a large role in fostering this welcoming environment (Sointu et al., 2023).

One important aspect of a flipped classroom is that the instructor's role transitions away from a rote lecturer and moves toward the role of a guide (Sointu et al., 2023; Wang & Liu, 2023). Through the review of material prior to class, students can self-identify difficult concepts for which they would like more guidance. Instructors can summarize the material in class and provide additional explanations to facilitate understanding. This guided learning turns students into leaders, allowing courses to become more student-centered while simultaneously allowing for more independent learning. Positive interactions between students and instructors help increase student enthusiasm for the material, thereby improving retention (Wang & Liu, 2023).

Using the flipped model for a science class may be increasingly advantageous, as many students find the mere thought of taking a science-based course daunting. Concepts may seem abstract and irrelevant, and learning materials tend to use complex scientific jargon. When a flipped classroom approach is taken to most science courses, students are shown to engage with the material more while also feeling more positive toward science in general because the at-home learning component combined with complex problem-solving in class helped to alleviate some frustration and anxiety (Doğan et al., 2023). While not all science courses in studies show the same amount of impact of the flipped classroom approach (physics and chemistry experienced a higher influence on student scores than biology courses), student achievement in any science course is likely to increase when this approach is applied to coursework (Doğan et al., 2023). Jeong et al. (2016) show that students also have a positive perception of flipped science courses and not only consider them to provide a valuable learning experience but also enjoy the increased interactions these types of courses allow. This results in students being more eager to have flipped classes for future semesters.

The vast majority of the courses within my forensic science program run using the flipped model, and in doing so, I have seen an increase in assessment scores and an increased course pass rate. This information is passed on to students to increase buy-in for this type of course, and students have reported that they feel they learn more information this way. By running my courses with the flipped model, I am provided with more in-class time to address questions, engage in various activities to enhance learning and interact with my students in a way that a rote lecture simply does not allow. I always end each class with an exit ticket that allows students to ask additional follow-up questions or identify concepts that are still confusing. I begin the following class period by providing additional clarification on these topics.

Positive Learning Environment

In order to perform well, students must think of their class in a positive way and have a positive attitude (Marzano, 1992). While instructors and students should work together to create an environment that will promote student engagement, there are actions instructors can take to create an environment conducive to learning. Some of these include making expectations clear, holding students to a high standard, and thoughtfully presenting information in class in an interesting way (Dickinson & Kreitmair, 2021). According

to Dickinson and Kreitmair (2021), one of the most important factors is that students feel their instructor cares for them as an individual. Their research shows that students who feel cared for put more effort into learning the material, spend more time reviewing material, participate more in in-class activities, and are more likely to attend instructor office hours. As a result, these students feel like they learn more in class than those who do not feel the same level of care. Student connectedness can also partially mediate between self-regulated learning and student participation in class, leading to positive learning outcomes (Sidelinger et al., 2011).

Shan et al. (2014) show that a positive classroom environment, receiving praise from faculty, and effective communication all play an important role in student learning performance. Regarding the classroom environment, they showed a significant correlation between a positive classroom environment and increased learning, as shown through performance on assessments. This positive environment can be achieved through warm, cheerful, and enthusiastic interactions between instructors and students, as well as allowing students to interact with each other. Instructors can naturally encourage this by providing students with a sense of comfort within the classroom and creating a welcoming environment (Sointu et al., 2023). Creating a community within the classroom leads to students who are more enthusiastic about learning, more engaged in the course and the material, and perform better on assessments (Shan et al., 2014).

In an effort to identify common behaviors amongst successful teachers, Roberts et al. (2012) assessed the teaching behaviors of five college teachers through lecture observations and one-on-one interviews. One of the behaviors they focused on was how the teachers interacted with their students, also called rapport. All instructors exhibited far more positive verbal and nonverbal behaviors with their students than negative behaviors. All displayed high levels of sensitivity, which means they were highly receptive to student needs and, therefore, better able to provide students with necessary support and guidance. Instructors who are prone to angry outbursts or display aggressive behaviors will likely have a decrease in student participation (Myers et al., 2007), and this can negatively influence how students feel about a course as well as the instructor (McPherson et al., 2006; Slidelinger et al., 2011).

In my reflection as an instructor, I realized my current practices align with the above recommendations. My main goal is that my students know I care about them both as a student and person. I ensure students are clear on the expectations for each assessment, and I strive to present information in an interesting and creative way by using humor, engaging activities, and various resources readily available to students. I am warm, caring, and enthusiastic at each class meeting, and if I ever enter the classroom feeling down, my students have a way of pulling me back up, and I always leave class in a better mood. By creating a positive and welcoming environment in my classes, my students and I are able to feed off of each other's positive energy. In my mid-semester survey, I ask students how they feel about coming to class, and I have yet to have a student indicate they do not like attending.

DECISION

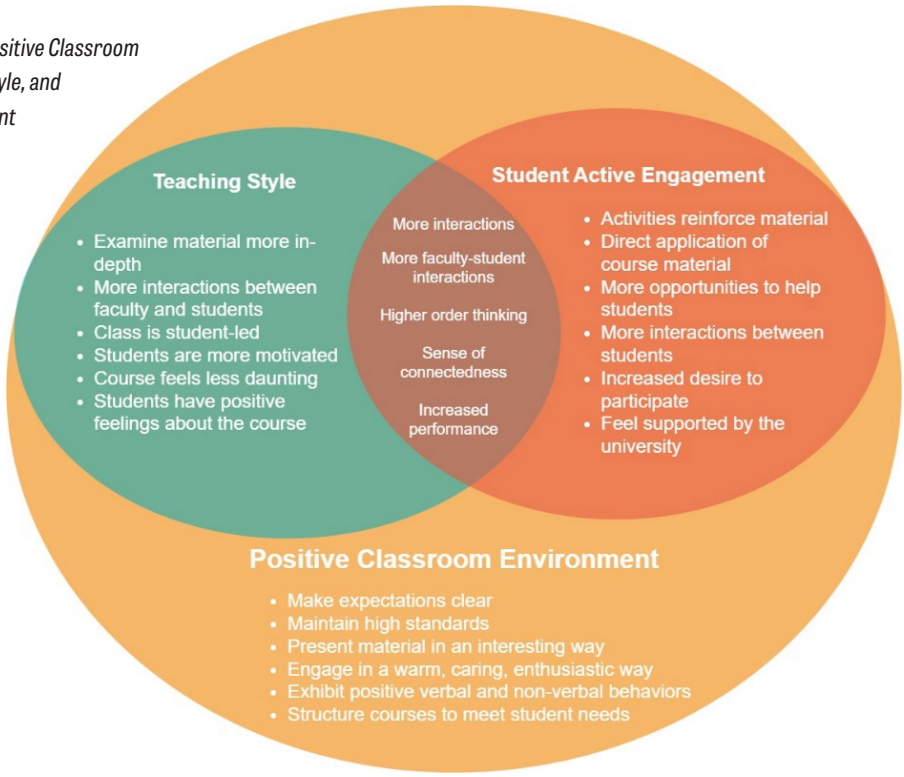
After comparing my experience to the associated literature, I can appreciate that numerous facets contribute to creating a sense of community within the college classroom. A review of the literature underscores the notion that, like me, faculty have undertaken many actions to bring students together in a positive way to promote learning and engagement, which in turn promotes community. The literature also highlights the connectedness between teaching style, student active engagement, and creating a positive learning environment. Figure 1 shows these connections as determined by my analysis of the literature. A positive classroom environment provides the overarching theme in which teaching style and student active engagement play a direct role in creating and nurturing a positive environment. This model aligns with my personal experience and the outcome of this reflection. While all three have worked together to help me create community within the classroom, I believe the positive classroom environment is the most significant contributing factor.

Interconnectedness of Positive Classroom Environment, Teaching Style, and Student Active Engagement

While many faculty members likely had a college experience that included hours of static

Figure 1.

Interconnectedness of Positive Classroom Environment, Teaching Style, and Student Active Engagement



lectures and copious note-taking, the increasing focus on improving student outcomes has shifted pedagogy toward more of a student-centered experience (Cavanagh et al., 2016). Student active engagement allows instructors to move away from that stagnant lecture environment and toward one that promotes student engagement. When students are provided the opportunity to interact with other students, it not only aids in reinforcing course material but also allows them to connect with others who can explain the topics in ways that are different from the instructor. While starting a new semester in an active learning classroom can be anxiety-inducing (Cooper et al., 2018; Downing et al., 2020), it can also provide students with the opportunity to meet new people and establish relationships that could be advantageous to their education. My student active engagement practices include allowing students to choose whomever they would like to work with, not limiting them to the students sitting near them. This choice and ability to move about the classroom follows the successful active learning components identified by Cooper et al. (2018) and Hushman and Knottenbelt (2022). In alignment with Braxton et al. (2008), while introducing the course on the first day of class, I discuss how I flip my class and use active learning. I also share the benefits I have seen firsthand since implementing these methods. This includes an increase in the course pass rate and an increase in the class average on assessments.

This review of the literature demonstrated a deep connection between the flipped classroom model and student active engagement. In the flipped model, students review material at home and self-identify areas of confusion or contention, which they are encouraged to communicate with the instructor. This allows the instructor an opportunity to clarify these concepts (Wang & Liu, 2023) and create an activity to help reinforce the material. By working alongside students, instructors can guide them in the right direction (Sointu et al., 2023; Wang & Liu, 2023). This leads to increased motivation (Sointu et al., 2023) and plays a role in turning our students into leaders (Wang & Liu, 2023). As a forensic science professor, I find it encouraging that the flipped model has been shown to make science classes less daunting and that student achievement increases in this discipline specifically (Doğan et al., 2023). In my experience,

I found that I am able to build a deeper connection with students since transitioning my teaching style to the flipped model. This morphed my role in the classroom from a lecturer to a guide, as indicated by Sointu et al. (2023) and Wang and Liu (2023), allowing me to interact with students and the course material at a deeper level. Since making this transition, I have seen student questions evolve from simplistic to those that demonstrate they engage with the material on a deeper level and use higher-order cognitive processes. Based on the verbs associated with the various levels in Bloom's Taxonomy (Newton et al., 2020), this demonstrates that the flipped model helps my students shift from lower levels to higher levels of thinking, and they are beginning to develop expertise in the subject.

It is difficult for students to fully engage in active learning exercises and maximize the benefits of a flipped class if they feel physically uncomfortable. Experiencing stress, anxiety, or feeling a sense of dread at the mere thought of being in the same room as the instructor limits the amount of learning that can take place. The single most important thing an instructor can do to promote student comfort is to show they care about the student as a person. This has a significant impact on the student experience because not only do they perform better academically, but they also feel like they learned more information (Dickinson & Kreitmair, 2021). Other actions an instructor can take to increase their rapport with students and increase comfortability are to give students praise (Shan et al., 2014) using both verbal and nonverbal cues (Roberts et al., 2012), make expectations clear (Dickinson & Kreitmair, 2021; Shan et al., 2014), and hold students to a high standard (Dickinson & Kreitmair, 2021).

I have concluded that teaching style, student active engagement, and a positive learning environment all contribute to creating a sense of community within the classroom. However, out of these three factors, I believe a positive learning environment plays a larger role. How students feel about a class directly impacts their dedication to learning and retaining the material.

REFLECTIVE CRITIQUE

The process of reflective practice is important in bringing to light the underlying causes for observations and actions to better understand their origins and foundations. This allows for developing new ideas, expanding knowledge, improving decision-making abilities, and making sound changes to actions and belief systems (Dewey, 1933; Greenberger, 2020; Sellars, 2017). As a university instructor, reflective practice supports the goals of improving student learning and the student experience. The goal of this veteran faculty member is to develop reflective practice skills to become more effective in the classroom and positively impact the student college experience.

Through reflective practice, I was able to assess my experience developing community within the classroom and evaluate it in light of what other instructors have experienced. As an instructor for over 12 years, my teaching style began as a rote lecturer and evolved into flipped classes that utilized student active engagement techniques. My transition started when I was presented with the benefits of flipped classes and active engagement techniques separately in various faculty development seminars and trainings. I began experimenting with these techniques, then fully converted to the flipped class model occurring due to the COVID-19 pandemic's requirement for universities to transition to online learning. After returning to the physical classroom, I was able to examine assessment metrics and fully realize the student benefit from this change. At the same time, I also noticed unexpectedly that students developed a strong sense of community in my classes. Providing time for students to engage with each other and work together to process and reinforce class material while providing a positive and safe atmosphere in which to do it brought students together in a way that I never could have predicted. In considering the actions that could have contributed to community building and from reviewing the literature, it is now clear that the flipped model provides additional class time to participate in active engagement techniques, which gives instructors time to interact with their students in a positive manner to facilitate learning.

When reflecting on my experience in light of this literature review, if I could only choose one component of my teaching that I think is the most significant, it would be ensuring my students know I care about them. There are numerous tips within the literature to support instructors interested in ensuring their students share this experience. Shan

et al. (2014) suggest that instructors know what students need, encourage them, and praise them for a job well done while also avoiding criticism in the wake of mistakes. Instructors should be welcoming, sincere, and kind when interacting with students. Roberts et al. (2012) recommended using more positive verbal and nonverbal behaviors during class. Positive verbal behaviors include using examples from personal experiences, addressing students by name, and offering praise. Positive nonverbal behaviors include smiling and using many facial expressions, moving around the classroom, and using hand gestures and vocal expressions (Roberts et al., 2012). Students are attracted to an instructor's personality, indicating that being accessible, approachable, and helpful are additional ways to show students that instructors care about them (Dickinson & Kreitmair, 2021).

Since many university classes have high seat counts, it would be beneficial if future research identified how an instructor can show students they are cared for as people through the eyes of students. This sentiment is echoed by Dickinson and Kreitmair (2021), who suggest that defining and measuring what components of an instructor's personality show students they care. Working with students directly through interviews, open-ended data collection tools, and focus groups will provide more insight into specific personality traits instructors can demonstrate to support their students.

Providing students with opportunities and support to interact with each other and their instructor is central to developing a sense of community within the classroom. This could be as simple as directly telling students you care about them (Dickinson & Kreitmair, 2021). Regardless, putting forth the effort to improve the student in-class experience is evidence enough that the instructor cares for their students. This is a summary of my reflective practice in generating a sense of community, which is something I continually strive to expand along with my methodology for improving my teaching strategy and professional development.

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