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Teaching Statement

Critical reflection is a social method of processing an experience through independent analysis and discussion. This transferable method is a generative teaching practice which can be implemented at any level of instruction. **In the following paragraphs, I describe how my teaching practices develop organically by applying critical reflection to my experiences as an instructor of record, undergraduate research advisor, and graduate student mentor. I further discuss how I develop this skill within my students, advisees, and fellow instructors.**

I apply critical reflection as an instructor of record to develop my teaching practices and to actively engage students with the curriculum. However, this was not always the case. As a novice instructor I made the mistake of not frequently assessing my students needs. It was the Fall semester of 2015 and it was my first semester teaching pre-calculus. I was familiar with the curricular trajectory of the Calculus sequence, as I had previously served as a teaching assistant for two different Calculus courses at the university. In preparation for the semester, I set out teaching practices which I thought would best prepare my students for their future studies. I discovered that these teaching practices were not benefiting my students as I had predicted, so I reflected on these practices and examined each one critically. How was I applying these practices? How were the students perceiving these practices? How are these practices affecting my students learning process? I realized that my students could answer these questions, albeit indirectly, by utilizing formative assessment within the classroom. Employing consistent formative assessment through survey questions allowed me to gauge student opinion and measure student understanding. It further provided me instant feedback on the effectiveness of my teaching practices. I used this feedback to develop my lessons organically to better enable student learning. I further incorporated this reflective process into my presentation of the material as a way to actively engage students in the lesson. This paradigm was a catalyst for student success as evidenced by my students classroom performance and reviews. I found that my reflective approach to engaging students with course material was transferable to engaging undergraduate students with research mathematics.

I utilize critical reflection as an undergraduate research advisor to teach research methods and encourage higher levels of cognition among my pupils. I have advised six students over the course of two projects. The first project considered a generalization of the Dinitz Conjecture to Sudoku boards and took place throughout an academic year. The second project investigated questions concerning additive bases of the integers which was implemented as an REU-style summer project. Each participant composed a poster of their results and presented their work at a local research symposium. *For a project description, summary of results, sample of student work, and open questions please visit my website (gregjclark.com).* I employed a similar regiment on both projects that centered on critical reflection. Each session began with advisees leading content driven discussions: presenting original proofs, stating clear questions, and explaining abstract concepts. Through these practices my advisees worked and communicated at higher levels of cognition by analyzing, synthesizing, and evaluating mathematical ideas. I have applied these skills in the classroom as a way to similarly engage students at higher levels

of cognition. This has been particularly impactful when teaching service-learning courses as students can enroll in the course without understanding the prerequisite material. Modifying teaching practices to accommodate student background is difficult, especially for novice instructors, and is a challenge they face at the University of South Carolina. I found that sharing my experiences with other instructors helped us grow as educators by co-developing our teaching practices. I was given the opportunity to perform this function in a formal setting through an NSF EAGER grant for innovative research.

I apply critical reflection as a graduate student mentor to conduct objective pedagogical discourse of teaching methods with novice instructors and to cultivate an inclusive teaching focused community amongst instructors. Dr. Sean Yee, an education professional with the College of Education at the University of South Carolina, selected me to participate in a program to mentor novice graduate student instructors funded by an NSF EAGER grant for innovative research. I began my two-year tenure with the program by participating in over twenty hours of training to facilitate constructive discourse concerning teaching practices with novice graduate instructors. Each semester I mentored four graduate students, conducted three classroom observations for each mentee, and held bimonthly group meetings. My responsibilities for the program included recording graduate instructors within the classroom, compiling observations of their lesson, and holding a post-observation with the instructor. Post-observations are focused on the motivation, application, and reception of teaching practices that occurred during the observation. The purpose of the bimonthly meetings was to share and reflect on individual experiences as an instructor within a group setting. When properly directed, a collective of novice instructors can form an invaluable educational resource. I found that leadership is particularly important in these discussions because graduate students can be defensive, or in some cases combative, about their teaching beliefs.

I mentored a graduate student who was combative in post-observations and group discussions. This particular novice began to antagonize the group after an observation in which I witnessed them violate university policy several times. As a result of my training, I was able to properly handle the situation and alert the necessary administrators before the situation developed further. This instructor later confronted me individually, and as part of a group discussion, about the invasive nature of these observations. I was able to respond to their concerns in a calm and exact way which deescalated the situation and put the other participants at ease. While this experience was alarming it is important to discuss it with other mentors because novice instructors may consider aggressive students an impossibility. I have found that the communication skills needed to handle confrontational students are invaluable and are best developed cooperatively.

Critical reflection is a generative teaching practice and a transferable skill. I have reflected on my teaching experiences to demonstrate how my teaching philosophy develops organically. I am eager to share these experiences with fellow instructors and continue to develop my teaching practices.