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Mediated Field Experiences During Worldwide Pandemic: Adjusting Pedagogies to a Changing Climate

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Abstract

This paper explores the use of a mediated field experience (MFE) for teacher candidates in a middle school setting, a small laboratory school. This work focuses on adjustments made for the MFE to function in an online environment during remote instruction caused by a worldwide pandemic. Teacher candidates completed a learning cycle focused on experiencing mathematics as a learner, planning for mathematics instruction, implementing mathematics instruction, and analyzing teaching episodes alongside a mathematics teacher who is also the mathematics teacher educator for a methods course. Teacher candidates reflected on this experience positively, noting the benefits of learning how to teach effectively online in a safe and supportive environment. This paper will share the highlights and challenges for the mathematics teacher educator regarding the shifting of pedagogy to meet the current educational climate.

Introduction

Clinical field experiences have been a key tenet of teacher education for decades. The frequency and structure for clinical field experiences have adapted and become more sophisticated over time to better suit both K-12 partners and institutions of higher education. In many fields such as medicine, or even sports, practice is an essential component of preparation to show expertise in the field. This is especially true in teacher education. Teacher educators continue to advocate for avenues of enactment for teacher candidates to connect theory and practice through engaging in the act of teaching (e.g., Grossman et al., 2009; McDonald et al., 2013). According to the American Association for Colleges of Teacher Education (AACTE, 2018), clinical practice is defined with an emphasis on authentic setting and opportunities for candidates to engage with pedagogical practices. Embedding university courses within K-12 schools where teacher candidates have opportunities to genuinely engage in clinical experiences with the support of a mathematics teacher educator (MTE) is one model to support the development of both pedagogy and content knowledge. In this paper I describe the intersection of clinical experience intertwined with university coursework as "mediated field experience" (MFE) (Horn & Campbell, 2015). An MFE is a structured approach to provide teacher candidates the opportunity to engage with targeted instructional practices in real classrooms with the support of an MTE. This provides an authentic but scaffolded experience for teacher candidates to connect research and theory to classroom practice.

Challenges of MFE's During a Pandemic in Fall 2020

The spring of 2020 created a multitude of hardships related to school experiences, both for students in the K-12 arena as well as college students. When Coronavirus (COVID) started to spike in the United States, most schools completely shut their doors and shifted to remote instruction. This had a domino effect for all stakeholders. College students finished their student teaching experiences from home while everyone learned how to manage instruction online. As educators prepped for the fall 2020 semester, it was clear that university partners would need to make some compromises to address constraints within school districts, many of which began their semesters fully online, while others tackled an entirely new structure--hybrid teaching. The foundation of mediated field experience includes authentic engagement with students. While this can certainly be accomplished in an online setting, a new skill set had to be derived by all stakeholders to do so meaningfully. The first challenge of creating mediated field experiences during the pandemic was to recognize the skills needed to effectively teach online and for teachers, teacher candidates, and for K-12 students to adapt to this form of instruction.

Access has also been a difficult challenge to overcome in order to offer any clinical experiences for teacher candidates during the pandemic. Understandably so, local school districts have put significant constraints on who is allowed to be in schools that are functioning in a hybrid format, and other districts have chosen to protect their teachers by eliminating clinical experiences for teacher candidates. These challenges vary from school district to school district and have proven to be a logistical obstacle to overcome in order to work with willing partners. Additionally, even when school districts are willing to work with university partners, there are additional logistical challenges in providing online access for teacher candidates through Zoom, Google Classroom, Canvas, etc. All of these steps take time and effort from both sides to overcome. This paper describes the experience of one teacher educator transitioning an MFE to a completely online experience and the reflections of teacher candidates about their MFE model.

School Context

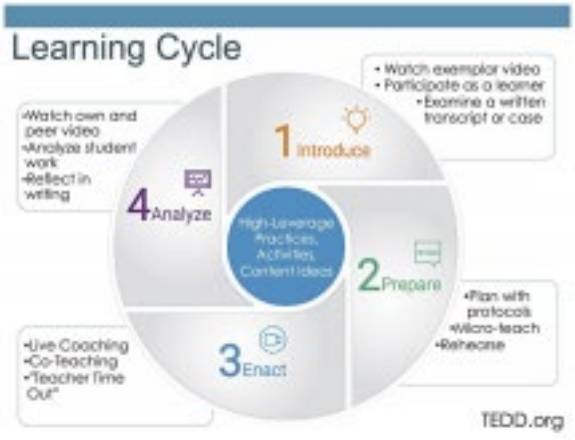
The context of this work is situated in a small laboratory school that is owned and operated by the university in partnership with the local school district. The school serves just under sixty students in grades 6-8 who have not been successful in the traditional school context. As an Associate Professor of Math Education, I serve in three roles: mathematics teacher educator (MTE), the instructional liaison for the laboratory school, and the teacher of record for the Math 1 course (a high school level course offered to any eighth grader who is interested). For this particular semester, during COVID, there are four middle school students in the Math 1 course (8th graders), and nine teacher candidates in the mathematics methods course (first semester juniors). This setting is unique in multiple ways. First, access is somewhat less of a challenge as the university is directly involved in the day-to-day workings of the laboratory school. That said, the laboratory school works in partnership with the local district and therefore must comply with district policies. For the fall 2020 semester, this meant that only interns in their final student teaching year were given permission to be face-to-face at school, while all other early field experiences from the university were canceled. Because I serve as both the MTE and the teacher of record, there was no need to build a partnership from scratch.

The Typical MFE Model

This is the fourth year of this MFE model. The model aims to complete the essential components of the learning cycle (McDonald et al., 2013) as seen in Figure 1.

Figure 1

Learning Cycle (McDonald et al., 2013, p. 382)



Teacher candidates are introduced to content and pedagogy first as a learner in their methods course. In my role as MTE, I model the exploration of a task utilizing the NCTM effective teaching practices that teacher candidates have been engaging with through readings and course assignments. After participating in the task as a learner, candidates debrief with me and shift into one of two directions. Early in the semester candidates would then watch me teach the exact same lesson to Math 1 students. Later in the semester, after debriefing the task, candidates would start planning and rehearsing how they would implement the task with students. Typically, the semester follows a scaffolded gradual release of responsibility for teacher candidates, following the learning cycle in several iterations. The teacher candidates spend the first third of the semester observing me teach the Math 1 class, debriefing afterwards to discuss and highlight particular instructional moves and missed opportunities. This course uses the NCTM Principles to Actions (2014) effective teaching practices as a framework for these discussions. The eight practices emphasized include:

- establish math goals to focus learning,
- implement tasks that promote reasoning and problem solving,
- use and connect mathematical representations,
- facilitate meaningful mathematical discourse,
- pose purposeful questions,
- build procedural fluency from conceptual understanding,
- support productive struggle in learning mathematics,
- and elicit and use evidence of student thinking (NCTM, 2014).

While all of these effective teaching practices are discussed and utilized in the course, we spend a more substantial amount of time focused on implementing tasks that promote reasoning and problem solving, facilitate meaningful mathematical discourse, pose purposeful questions, and elicit and use evidence of student thinking. After candidates have observed me for several weeks, they are given the opportunity as a team to implement a task that has been rehearsed in class. The rehearsal of the task can take many forms. Most often, candidates explore the math

task as a learner first, then we often watch a video of the task being implemented in another classroom, and then we deconstruct the mathematics and the pedagogy to make an implementation plan. Regardless of whether candidates observed or taught a task themselves, a key feature of the learning cycle is the analysis where candidates debrief with me to analyze the teaching experience. This is done through both a whole group verbal debrief and then a written reflection.

MFE Model during COVID

While this learning cycle is usually navigated in a face-to-face setting with teacher candidates working in the classroom, constraints of the school district caused everything to move to Zoom for the fall 2020 semester. The laboratory school initially started the school year in a fully remote setting. One of the largest constraints of this work is scheduling. Despite my multiple roles, it took great efforts to ensure that the Math 1 course in the laboratory school coincided with the teacher candidates schedule of classes on campus. In fact, ultimately several teacher candidates had to rearrange schedules to be available during the Math 1 teaching time, which is less than ideal. About midway through the semester the laboratory school transitioned to a hybrid setting. Unfortunately, no early field experiences were allowed to be conducted at the laboratory school site, so teacher candidates could still only join via Zoom. Despite this, teacher candidates had multiple opportunities to teach full lessons both as teams and as individuals utilizing technology tools such as Desmos and GoFormative (described below). In some ways the remote setting offered some advantages in that there was never an overwhelming number of candidates present in the classroom at one time, lessening the social pressure of middle school students.

Due to COVID and the shift to remote instruction, I felt challenged as the MTE to showcase the NCTM effective teaching practices through an avenue I wasn't fully comfortable with. Instead of being in the classroom with small groups huddled around tables drawing out solution pathways on whiteboards with the ability to move around the room and engage in rich discourse with each group, I was now navigating annotating mathematical thinking using the mousepad of my laptop, attempting to get students to share mathematical thinking in breakout rooms or with whiteboard annotations, and attempting to find ways for students to show their problem solving processes via a tech tool such as Desmos or GoFormative. Finding and utilizing both Desmos and GoFormative became instrumental to my instruction. While I had utilized these tools in the past to do a quick exit ticket or to implement a formative assessment with students, I found their capacities to be quite strong in combating some of the remote instruction pitfalls. One major pitfall of remote instruction is not being able to see students, their computer screens, or anything they may be writing down. This impacts student accountability, but it also impacts the level of support I can give a student just by being present in the room. Oftentimes students choose not to show their video screen, which takes away another incredibly simple aspect we rely as instructors on which is students' body language. I found that by designing and utilizing Desmos and/or GoFormatives to move along side by side with my presentation slides I was better able to gauge student progress and understanding as there was more built-in accountability for students to engage with tasks. This also gave a record of student thinking that I could utilize with the teacher candidates during our debriefing session where we could target our analysis to specific student needs. Essentially all of the basic teaching strategies I had always relied on had to be modified to the online environment, and the teaching candidates were watching me navigate that learning curve as it was happening. This provided a unique opportunity for all involved to think collaboratively about effective teaching practices in a flexible manner.

The Teacher Candidates' Experience

Teacher candidates took part in a survey at the end of the semester to reflect on their MFE experience. The survey initially asked the candidates what their expectations related to field experiences were as they entered the semester. Students generally reported that they had low expectations of any opportunities to engage with students this semester due to COVID restrictions. One student stated, "I wasn't really sure what field experience was going to look like this semester. I'm glad that we were able to have some interaction with students this semester rather than just watching videos." It was clear that candidates were grateful for any level of interaction with students, even if it was accomplished remotely.

In response to the survey, teacher candidates were asked "to what extent was it helpful to learn pedagogy through seeing mathematics teaching during Zoom observations?". One student responded, "Being able to see math being taught live was very important for me. Being a math concentration, it was important to see how lessons can be effectively implemented in person as well as online platforms such as Zoom." Another student focused her response toward the opportunity to teach a lesson, "I recently was able to teach in the online format and that was amazing. I loved how it helped me mentally start preparing because Zoom sessions and classes are not going away anytime soon. So, to be able to have the opportunity to start learning now, in a safe place, is really encouraging."

Teacher candidates are realizing that pedagogy is shifting and that even once the pandemic has passed, there are elements of our teaching that may have permanently shifted. This experience allowed teacher candidates to authentically learn strategies that can be utilized in their future teaching. Teacher candidates also reflected on the use of debriefing lessons. This seemed to be valuable to the overall experience for candidates and it is recognized as an important component of the learning cycle. Our class debriefs had a general structure of reflecting on what went well in the lesson (referencing high-leverage practices that we explored in class), what challenges there were in the lesson (both for the teacher and also the students), and what modifications could be made to strengthen the practice. One teacher candidate reflected on the debriefing experience stating, "This was important to me as a math concentration because I was able to see how someone who has been teaching math implements their lesson plans and reflects on what went well or not in their lessons. This gave me an extra insight into the processes that go on in education and what I may want to do (or not do)."

As the MTE, I aim to genuinely model being a reflective practitioner for teacher candidates to highlight the iterative cycle of teaching. It is important to learn and grow from every lesson taught to then become stronger in planning developmentally responsive instruction. Another teacher candidate also focused her response on this reflective practice, "I loved having the debriefing sessions because it gave us time to talk and gather information about why [the teacher] made the choices she did and how that will impact her other lessons. I also like them because, while [the teacher] is an amazing teacher, she allows us to question her methods and suggest changes and give her criticism because she genuinely wants to be a better teacher."

Conclusion

Successful educators are flexible, adaptable, and resilient. The experience of orchestrating a MFE model during a worldwide pandemic highlighted all three of these attributes. Both the group of middle school students and the cohort of teacher candidates showed resilience throughout the semester by continually showing up with a positive attitude and a work ethic towards success. As the MTE, I was able to work flexibly with the teacher candidates, and we were able to work flexibly and continually adapt instruction *together* across the semester utilizing the complete McDonald, et al. (2013) learning cycle. While we made many

compromises in order to work within the given constraints, the experience this semester proves that an authentic MFE experience is attainable in a virtual setting.

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