

## **Stepping into a Family Math Night: Reflections on Vulnerability**

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There is something unique about the vulnerability we experience as teachers, and it may be that no subject surfaces vulnerability quite like mathematics. This paper is a reflection on our experiences at a Family Math Night (FMN) as a preservice teacher and as a university instructor, where each of us witnessed and confronted expressions of vulnerability from parents, children, and from each other. In February 2023, the chair of a local area elementary school's Parent School Support Committee (PSSC) reached out to Julianne about assisting with a FMN. The school was trying to improve students' fluency with basic computations, also known as 'math facts', and they were looking for community support to help with the event. After agreeing, Julianne decided to extend the invitation to Bachelor of Education students who took the elementary mathematics methods course with her in the fall. Two students expressed interest and joined the table, one of whom is the first author of this paper.

We will begin by sharing a brief overview of FMNs before sharing how we turned this invitation into a small research project. Following an overview of our methods, we highlight the three themes that emerged from the data: feeling like a fraud, getting it right, and entering 'the sphere'. We conclude by sharing our lessons learned, our lingering questions, and the implications of our analysis.

### **Family Math Nights**

Family math nights are parent-oriented events that foster partnerships between home and school in support of mathematics education. These events "provide ways of support to parents or guardians in creating a foundation for children's mathematical development in the home environment" (Kurz, 2011, p. 227). Hall and Acri (1995) shared how FMNs "underscore the importance of the subject to one's everyday life" (p. 8) through fun. There are a variety of goals for FMNs, including improving student test scores, increasing a sense of community among participants (Kurz, 2011), supporting marginalized students (Lopez & Donovan, 2009), and suggesting mathematics as an opportunity for family fun (Schussheim, 2004). Family math nights have also been used to challenge pre-service teachers who might otherwise equate mathematics learning with the lecture-based format they experienced as students (Kurz, 2011; Kurz & Kokoc, 2011). Moreover, FMNs have been used to challenge pre-service teachers' assumptions about parental involvement and attitudes towards mathematics learning (Jacobbe et al., 2012).

The FMN that we attended was organized by the PSSC and took place on a weeknight in March 2023. Each classroom hosted a different mathematics activity, and families had the opportunity to choose which activities they wanted to explore. These classroom stations were organized by volunteer teachers and members of the PSSC. Our station was located in the gymnasium, where community partners set up interactive tables and displays that connected mathematics to science, technology, and society. We brought a variety of popular games that activate mathematical thinking, including chess boards, Pokemon cards, and Risk. We also provided personal whiteboards and markers, low-floor high-ceiling problems to solve, and a container of tessellation tiles for creative play.

### **Methods**

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Following our participation in a FMN at a local elementary school, we got together over MS Teams to debrief our thoughts about the event. Our conversation centered around the idea of vulnerability, so Julianne suggested that we try journaling about our experience how it related to feeling vulnerable. We drew from Castleberry and Nolen's (2018) five steps of thematic analysis, which involves compiling, disassembling, reassembling, interpreting, and concluding. We read and reread the six journal entries "to become intimately familiar" with the data (Castleberry & Nolen, 2018, p. 808) before disassembling each entry through meaningful groupings, or emergent codes. Our subsequent collaborative data analysis aligns with what Cornish et al. (2014) described as a "joint focus and dialogue among two or more researchers regarding a shared body of data, to produce an agreed interpretation" (p. 79). This collaborative approach made for rich discussion and meaningful negotiation as we interpreted the data together. In an effort to playfully explore the impact of embracing the roles that we are currently performing in the field of education, we will refer to ourselves as 'the teacher' and 'the professor,' fully acknowledging that neither one of us is officially titled as such.

### Findings

Our collaborative analysis resulted in the identification of three themes: feeling like a fraud; getting it right; and entering "the sphere."

#### Theme 1: Feeling like a fraud

The theme that came out most strongly in the teacher's journal were feelings of being a fraud. She reported that her lack of experience was making her feel "almost like I wasn't qualified to talk to parents because I haven't received my certificate yet." She went on to describe how the event made her feel a lack of belonging:

While participating in this event, I did feel like it wasn't my place to be there, I felt that teachers who have been teaching longer should be there and that I didn't have much to offer. It was a vulnerable experience, feeling like I don't know anything but then looked to when someone has a question and needed help. I felt inadequate, I felt like I didn't know much and that I was a bit of a fraud.

The teacher went on to describe the FMN as "a vulnerable experience, feeling like I don't know anything but then looked to when someone has a question and needed help." She felt "inadequate" and "a bit of a fraud." In every journal entry, the teacher reported how the event made her feel like an outsider:

When I walked in the building, I immediately felt out of place, I was greeted by a person who looked official, I had asked for directions, they had asked why I was there. I again, didn't feel like I was supposed to be there.

Although it didn't come up as frequently in her journal entries, the professor also reported imposter-like feelings in her role at the event: "I guess I represented academia, which feels a bit funny given that I still feel about 50% doctoral student, 25% classroom teacher and 25% professor. I suppose that's 75% academic, so maybe that designation fits." She also reported the ways that the FMN made her feel unexpectedly vulnerable:

I felt vulnerable stepping into an unfamiliar school. I felt vulnerable knowing that two of my students would be joining me. I felt vulnerable when it occurred to me that I would need to be interacting with parents, who are far more intimidating than any 8-10 year-old could ever be.

## **Theme 2: Getting it right**

We both described feeling the need to get things right in the instrumental sense. The professor admitted “I still worry about whether I get the [math] question right or if I’ve understood it correctly” and “I still feel the pressure when someone is looking over my shoulder.” She wrote about how many parents announced their insecurities about mathematics by saying they aren’t math people, which she likened to donning “a suit of armour.” The teacher described how she used humour to help:

During the night I was scared that someone would ask me a question and I’d look silly for not being able to answer their question. I kept making jokes that I teach kindergarten math right now, as if that was supposed to be my excuse for not getting math questions correct.

Another reason we wanted to get things right related to our responsibilities to the children who approached our table:

I was scared all night that a child who hated math would approach the table, interact with me, I would ask them a question and intimidate them and they would run away crying forever living with a damaged relationship with math.

## **Theme 3: Entering “the sphere”**

The third theme that came up in both our journals was the idea of entering “the sphere,” an unfamiliar and unpredictable space. The professor talked about how shifting roles led to uncertainty:

By being in a school building, we were in that place. Capital P Place. Then the notion of being in that space outside of school hours leads to more uncertainty. Who is in charge? Who has the authority? Is it the teachers? The parents? I wonder whether in this Place, it was the students who had more power than they are used to, whether we are talking about the classroom (school hours) or the home (after school). No wonder parents and teachers alike might feel more vulnerability in this context. The rules are flipped. And we spend so little time in this space that there is no time to really get a good sense of what those rules might be. Maybe it was a bit disorienting for everyone involved.

For the teacher, this new space/place opened up new possibilities for her practice as a classroom teacher:

Participating in this event was thrilling. I, as a new teacher have had lots of concerns about interacting with parents. But not just parents, parents when their children are present. I feel like there is this idea, that when a teacher talks to parents, their child should not be present, especially when the teacher is bringing up difficult topics. I want to change that. I want to always include my students in the conversations that we are having. Whether it be positive or negative. I feel like this event introduced me to the sphere of interacting with parents and students.

## **Discussion**

Family math nights are commonly used to strengthen the ties between home and school in the development of mathematical competencies. When we agreed to support this event, we did not expect to be thinking about professional identity, self-efficacy, and the influence of place/space. We both felt what McIntosh (1985) described as ‘feeling like a fraud’, which is a

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feeling of illegitimacy in doing or appearing as something in public life. McIntosh noted that this feeling is especially common in an institution with a deeply embedded hierarchical assumption. No matter how progressive our ideas, how student-centered our approaches, we have both been formed in an education system with a pyramid-shaped hierarchy. Moreover, as a teacher candidate and as a university instructor, we are both particularly vulnerable to worries about whether we are getting things right.

Our experience at the FMN surfaced deeply held assumptions about power and its relationship to learning/doing mathematics: do the same power dynamics apply when an event occurs outside of school hours? We were unexpectedly disoriented and filled with questions related to identity: were we teachers, adults, or something else that evening? Did we interact with children or students that evening? And what are the impacts of these distinctions? We have tentatively agreed that whereas we interact with students in a mathematics classroom during instructional hours, it was a gymnasium filled with children who interacted with us that evening. Perhaps FMNs are for children, whereas the preoccupation with raising test scores is about students. In this space, we noticed how confidence was wrapped up in feelings of professional competence, something that might not be expressed in the classroom like it is expressed in an unstructured gymnasium. And in subsequent discussion about what this means for our future practices as educators, we wondered whether the ‘other’ might in fact be found in the families and children who were not represented at the event. The easiest parents to speak with were those who confidently approached our table: what does this mean about interacting with caregivers who could not, would not, and ultimately did not attend this event?

### Conclusion

Although this experience left us with many unanswered questions, we have also identified several important implications for our future practices as educators. Firstly, a FMN can be successful in creating a positive atmosphere for students and parents to playfully engage with mathematics, which opens possibilities for reimagining positive lifelong relationships with the dreaded subject. Though this possibility weighed heavily on our need to ‘get it right,’ it speaks to the importance of our roles as educators. Another implication that emerged in our discussions was the relationship between educators and caregivers. The FMN we attended had hundreds of participants, and organizers described it as a great success. But we worry about defining success as bodies in buildings, as too often the students and families who most need a reimagined relationship with school mathematics are the least likely ones to attend. While this event was intended to increase math scores within the school, maybe we could imagine FMNs as a venue for reimagining a different relationship with mathematics.

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