AM I A MATHEMATICS TEACHER WHO TEACHES MIDDLE GRADES OR A MIDDLE GRADES TEACHER WHO TEACHES MATHEMATICS? Untangling the Multiple Identities of Preservice Teachers

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This article reports on a qualitative study that investigated the identities of preservice middle grades teachers preparing to teach mathematics as one of their chosen content areas. Data were collected using open response reflective prompts questionnaires with 68 preservice middle grades teachers at 3 south-central universities. Findings indicate the identities of the prospective teachers ranged from those strongly identifying as mathematics teachers with little or no calling to teach in the middle grades, to those strongly identifying as middle grades teachers who chose mathematics because it represented the least objectionable option. These findings indicate several important areas of consideration for teacher educators preparing future middle grades mathematics teachers.

> Many [middle grades mathematics] teachers hold elementary school generalist certification, which typically involves little specific preparation in mathematics. Yet teachers in the middle grades need to know much more mathematics than is required in most elementary school teacher-certification programs. Some middle grades mathematics teachers hold secondary school mathematics-specialist certification. But middle grades teachers need to know much more about adolescent development, pedagogical alternatives, and interdisciplinary approaches to teaching than most secondary school teacher-certification programs require. (National Council of Teachers of Mathematics, 2001, p. 213)

The above quotation represents the state of teacher certification as it existed over a decade ago. Currently, all but four states in the United

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States include an option for mathematics teaching certification or licensure specifically at the middle grades level (Conference Board of the Mathematical Sciences, 2012). Despite this change in certification and licensure practices, the difficulty of addressing the dual goals of adequately preparing middle grades teachers to teach thoughtful and engaging mathematics while helping them learn to meet the needs of early adolescents remains. This challenge is potentially further exacerbated by the long standing tradition that "elementary teachers teach children and secondary teachers teach subjects" (Gay, 1997, p. 157) which may leave the teacher of middle grades students feeling pulled in multiple directions based on who or what they are supposed to teach.

This study sought to begin a conversation about preparing middle grades mathematics teachers to be both passionate facilitators of mathematics learning and effective teachers for their middle grades students. To this end, the purpose of our study was to examine middle grades mathematics preservice teachers reported motivations in order to better understand how they saw themselves as future middle level mathematics teachers. We used identity as a lens to view the rationales the preservice teachers described for choosing to be a mathematics teacher at the middle level. We focused on identity because we, along with others, contend that "the nature and substance of preservice teachers' learning is influenced by, and part of, their emerging identities as mathematics teachers (Skott, 2001, 2004; Spillane, 2000)" (Lloyd, 2006, p. 58). Our goal was to shed light on the varying aspects of identity that middle grades mathematics preservice teachers bring to their teacher preparation programs in hope that this information might serve to support the continued improvement of middle grades teacher preparation programs.

THEORETICAL PERSPECTIVE AND RELATED RESEARCH

The theoretical frame we used to guide our inquiry was identity. Current literature focusing on identity suggests that identity is communicated through various discursive actions that describe a person's relationships to and within the different contexts they encounter (Cobb, Gresalfi & Hodge, 2009; Gee, 2001; Norton, 1997; Sfard & Prusak 2005; Wenger, 1998); identity formation is as an ongoing process (Beauchamp & Thomas, 2009; Beijaard, Meijer, & Verloop, 2004; Bishop, 2012; Chong & Low, 2009; Connelly & Clandinin, 1999; Gee, 2001; Norton, 1997; Wenger, 1998); and identity is dependent on the context in which it is formed (Beijaard et al., 2004; Connelly & Clandinin, 1999; Gee, 2001; Wenger, 1998).

One of the challenging aspects of studying identity is that it is not possible to point to a physical attribute, object, or empirical deduction and recognize it as a person's identity. Some researchers contend that discourse is the medium in which identities can be seen (e.g., Bishop, 2012; Cobb et al., 2009). Sfard and Prusak (2005) take this one step further in an attempt to operationalize the definition of identity by choosing to view a particular type of discourse, the narrative, as identity itself. Lutovac and Kaasila (2011) used a narrative approach not only to define the identity of a preservice teacher in their study, but also used narrative as an instrumental tool in the rehabilitation of the preservice teacher's prior negative views of mathematics.

Identity formation is widely recognized as an ongoing process (Beauchamp & Thomas, 2009; Chong & Low, 2009; Gee, 2001; Norton, 1997; Wenger, 1998). Wenger (1998) illustrates this by stating, "Identity is not some primordial core of personality that already exists. Nor is it something we acquire at some point in the same way that, at a certain age, we grow a set of permanent teeth" (p. 154). This description invokes an image of identity as being similar to a person's physical appearance; even when it seems to remain constant for a finite period of time, it is to be expected that some change will occur in the future. Identity exists as a function of time, which influences a need to reject questions of the form

"What is Sue's identity?" in favor of questions of the form "What is Sue's identity at this particular point in time?" Because identity formation is an ongoing process it has been posited that it can be explored through questions of past identity, current identity, and/or future identity (Beijaard et al., 2004).

Even when controlling for the variable of time, identity is understood to be context specific (Beijaard et al., 2004; Gee, 2001). Individuals exist in a variety of contexts at any given time, and form identities related to each of these. For a given moment in time these identities may conflict with each other, and some may need to be renegotiated in order to produce a consistent identity across contexts (Wenger, 1998). The identity formed through the negotiation of context specific identities is referred to by Gee (2001) as a *core identity*. Connelly and Clandinin (1999) propose that some individuals may attempt to change contexts in order to avoid a significant compromise of some portion of their core identity.

Context Specific Identities

Particular attention has been paid to the development of preservice teachers' identity in the literature. Preservice teachers must often reconcile identities associated with their experiences as K–12 students, as university students studying to become teachers, as temporary teachers in their practicum settings, as future teachers in their own classrooms, and sometimes as the relative or close friend of a student or teacher. Within this network of contexts we focus on three areas of identity that have been studied in the past, namely, teacher identity in general, mathematics identity, and middle grades preservice teacher identity.

Teacher identity can be characterized as identity within the context of the teaching profession. Connelly and Clandinin (1999) built a case for teacher identity as "stories to live by" in which teachers form identities within the context of the school that they work. These identities are influenced by subcontexts that involve other teachers, administrators, students, policies, and in some cases, physical attributes of the school building. Lutovac and Kaasila (2011) shared this view, although they recognized that teacher education programs serve as an additional context for the formation of teacher identities. Other researchers have noted that teacher education programs are of vital importance in the teacher identity formation process, and it is necessary that opportunities for positive teacher identity development be intentionally built into programs (Beauchamp & Thomas, 2009; Chong & Low, 2009; Sutherland, Howard & Markauskaite, 2010).

Leatham and Hill (2010) define mathematical identity as "an individual's relationship with mathematics," while proceeding to identify discursive tasks designed to provide insight into less observable aspects of this relationship. As an extension of identity formation, mathematical identity is formed through the process of an individual negotiating their relationship with mathematics in light of their core identity (Black et al., 2010). Mathematical identity is similar to teacher identity in that it is constructed from many subcontexts (e.g., mathematics courses and teachers, interactions with mathematics in the real world).

Owens (2007) proposes a framework for understanding "identity as a mathematical thinker" in which subcontexts are divided into cognitive and affective aspects. The cognitive aspects generally relate to mathematical practices that students do (or do not) engage in, and include making a plan, self-monitoring progress, choosing appropriate strategies, structuring the learning environment, and seeking and providing social assistance. As an extension of these cognitive aspects, Owens noted that students' "being able to articulate the nature of mathematical investigation indicated their identities as mathematical thinkers" (p. 46), which is an overt reference to her view of the role of discourse in mathematical identity. Resilience in problem solving, developing confidence with mathematics, and taking ownership of the identity formation process were identified as primary affective factors, while Leatham and Hill (2010) mention the impor-

tance of defining what mathematics is, how useful mathematics is, what it means to be good at math, and the role of desire in the formation of a student's mathematical identity.

Middle grades preservice teacher identity can be thought of as the identity that resonates with the preservice teacher and calls them to teach students at this age. Although little research exists in this area, one recent study examined the reasons middle grades preservice teachers report choosing this age group (Mee, Haverback & Passe, 2012). Mee, Haverback and Passe interviewed and conducted observations of prospective middle grades teachers and found that they chose middle grades based on their love of the subject, the perception of greater marketability, and experiences and beliefs related to teaching this age group. While love of their subject area was often mentioned first as a reason for entering middle grades teaching by the preservice teachers in their study, the preservice teachers also commented that their second area of certification was usually not a passion for them, but instead represented the lesser of several evils. For example, one preservice teacher in their study stated, "I would probably head more toward English because I am not a math person" (Mee et al., 2012, p. 8).

Much of the past research on experienced and preservice mathematics teacher identity has focused on the change in identities from one negatively oriented toward mathematics to one more positively oriented toward mathematics, or from one more associated with traditional images of mathematics teaching to one more associated with reform visions of mathematics teaching (e.g., Hodges & Cady, 2012; Ma & Singer-Gabella, 2011; Nicol & Crespo, 2003; Owens, 2007). We choose to approach the question of middle level mathematics teacher identity from a different perspective. We begin by recognizing that very little is known about the identities of middle grades preservice teachers in general and middle grades mathematics preservice teachers specifically. Thus, in this study, we describe our attempt to understand the identity of middle grades mathematics preservice teachers (MGMPSTs), in hopes of later creating experiences and contexts that serve as sites for continued and productive identity development.

METHODS

Using Sfard and Prusak's (2005) notion that identity can be thought of as "collections of stories about persons" (p. 16), including those that a person tells about themselves, we set out to collect and analyze the stories the preservice teachers told about themselves related to becoming a middle grades mathematics teacher. Our research took place over two semesters in five different middle grades mathematics methods courses and combined elementary and middle grades content courses at three universities in the south-central region of the United States. Each of the universities offered a middle grades program for certification in Grades 5 through 9 in which the preservice teachers selected two content areas for concentration. The demographics were similar across all three universities. A total of 68 preservice middle school teachers (25 male and 43 female) out of 73 middle school preservice teachers enrolled in the courses agreed to participate in the study, and over 90% were Caucasian. The participants were a mixture of undergraduate and postbaccalaureate students. Although the courses were structured slightly different, all of the courses focused on preparing preservice teachers to teach mathematics. In two of the classes in which ample time was available the preservice teachers wrote responses to the reflective prompt during class and in three of the classes the preservice teachers prepared their responses at home.

Data Collection and Analysis

In order to begin to understand middle level preservice mathematics teachers' identities, the authors created a reflection task and asked the preservice teachers to respond to the following: *Why did you decide to become a*

middle school mathematics teacher? Why did you decide to teach middle school and not elementary or high school? This open-ended, reflection prompt allowed preservice teachers the freedom to openly express their stories about themselves becoming a middle grades mathematics teacher (Oyserman & James, 2011). This task was administered at the end of the semester, and only the responses from the middle grades mathematics preservice teachers who agreed to participate in the study were analyzed.

In order to analyze our data, we used open coding (Ryan & Bernard, 2000) to discover patterns and themes that emerged (Strauss & Corbin, 1998). To do so, we individually read through the raw data and made notes of the types of responses being made as potential preliminary codes. We then came together and created codes based on the data, which ranged from motivation to teach middle level students, mathematical content knowledge of preservice teacher, and how preservice teachers characterized themselves. This process was repeated to further refine the codes. To establish consistency among the raters, we individually coded 10% of the data, and discussed agreements and came to a consensus on disagreements. An agreement was recorded if there was an agreement on the how the data was coded. A disagreement was recorded if the coded data was not coded with the same code or if a researcher coded data and the other did not. The interrater reliability was 87.2%. Once reliability was established, we individually coded the remaining data, and wrote analytic memos (Maxell, 2005) to identify themes related to the MGMPSTs' stories and collectively discussed the themes identified. We then agreed on the themes that were most prevalent across the middle level preservice mathematics teachers' responses. The narratives of the MGMPSTs focused on three overall themes related to context and identity: (1) the timing of the context that supported their identity formation toward middle grades teaching, (2) a mathematical identity, either their own or those of past teachers and future students, and (3) the middle grades context in general.

FINDINGS

Our findings indicated that the MGMPSTs' identities as teachers were shaped by a variety of experiences and contexts.

Timing of Supportive Context

Interestingly, the MGMPSTs' narratives indicated that the important experiences that prompted them to choose their future career path presented themselves at varying times in their lives. The MGMPSTs made clear that some of them did not initially want a degree in education. Of those that did, less than half stated they always wanted to be a teacher, while others switched to education after majoring in business, respiratory therapy, construction management, social work, physics and engineering. Many of the MGMPSTs who did opt to go into other careers were unfulfilled in their chosen field. One MGMPST remarked,

> [I] did not major in teaching because I was younger and stupid and had the mindset of "teachers don't make enough $ [money]." After making money and being unhappy, I am now back to square one to accomplish my dream of teaching.

For these MGMPSTs even though a teacher's salary was not lucrative, it was more important for them to be happy and pursue their life-long goal.

While some MGMPSTs knew early they wanted to teach middle school, others were not as sure. One middle school PST stated, "When I first declared an education major, middle school was the last place I thought I would be." This individual knew they wanted to teach mathematics, but was unsure of the grade level. Some of the MGMPSTs originally wanted to teach high school mathematics, but decided to teach middle school because of a lack of confidence in their mathematical skills:

"I would like to teach students that have a developed knowledge of basic mathematics skills, but hopefully not above my own knowledge as a teacher." Another wrote: "I am still not 100% positive that it is middle school that I want to do. I am just worried about the upper level math class requirements for secondary education." Other MGMPSTs initially considered teaching high school, but shared similar stories of being too intimidated to take the upper division mathematics courses: "What I originally wanted to teach was high school math b/c I love math … however I didn't have enough confidence/motivation to get through the mountain of math courses required for secondary."

A couple of MGMPSTs realized they wanted to go into middle level education after being a substitute teacher. For example, one MPST remarked,

> Having my first experience of standing in front of class full of rambunctious preteens is an adrenaline rush I will never forget. I was nervous about whether or not I would be able to get the students to listen to me and respect me.… Teaching at the middle school was by far the best experience I have had, and made my decision to be a middle school teacher one of the best decisions I have made in my life.

Other MGMPSTs made the decision of becoming a middle level teacher from their experience in an introduction course on education, which provided MGMPSTs opportunities to observe elementary, middle, and high school classes. Although many of the MGMPSTs in our study did not initially decide to pursue a career in middle level mathematics education, several of them proclaimed that they now "love teaching middle schoolers."

Identities Related to Mathematics

Similar to Mee et al.'s (2012) findings, the desire to teach the content area was an important element for some of the MGMPSTs. Our findings build on this research by identifying subcontexts related specifically to mathematics that most appealed to the MGMPSTs. In their narratives the MGMPSTs revealed a variety of stories about themselves as learners and doers of mathematics. The indication, not surprisingly, was that feelings about and experiences with mathematics had influenced their decision to teach mathematics, albeit in different ways.

Fondness for Mathematics. One theme that emerged from the MGMPSTs' stories was being a lover of mathematics. These stories by MGMPSTs described a passion for and love of mathematics. For instance one stated, "I love math and would love to be able to do math every day" while another wrote, "I have always had a passion for math ever since I was a little girl. I would do every math workbook I could." In addition to loving mathematics in general, some of the MGMPSTs pointed to a particularly appealing area within mathematics, for example, "The primary reason I chose to teach math was my love of the subject, and more specifically, of algebra." The MGMPSTs' narratives about loving mathematics indicated an emotional connection to the subject and the learning of the subject, which for many translated into a desire to share that love with students as indicated by one MGMPST: "I loved math all through school and want to share my passion for math with students today." In some cases the MGMPSTs recognized that some students may not be comfortable in the mathematics classroom and, therefore, they wanted to promote positive feelings about mathematics: "I want to do my best to make it [mathematics] not so scary for kids and hope my kids walk out of class not hating math." For these MGMPSTs, positive feelings about mathematics drove their decision to teach mathematics at the middle grades.

Facility With Mathematics. Another theme identified in the narratives of the MGMPSTs was that of their perceived facility with mathematics. For some, classroom success in mathematics went hand in hand with loving, or at least liking, mathematics: "As a student myself I always enjoyed and under-

stood math." However, the stories of mathematical proficiency did not always include positive feelings about mathematics. For example, one student wrote:

> Mathematics has always been my strongest subject. Throughout school, I was always gifted in mathematics and placed in the advanced classes. In high school, I took every mathematics class I possibly could. My ACT results proved that math is my strongest subject.

Although this MGMPST clearly articulated a belief that math was a strength for them, there was no mention of *enjoyment* of mathematics. In some cases we found that being mathematically proficient and enjoying mathematics corresponded to the MGMPSTs wanting to teach mathematics beyond the content taught at the elementary level: "When I think about elementary I think of little kids running around learning the alphabet and just learning to multiply and divide."

Experiences With Mathematics Teachers. Not only did the MGMPSTs in our study focus on their feelings about mathematics as a subject, they also discussed the important role past mathematics teachers played, both positively and negatively, in their decision to become a middle grades mathematics teacher.

> Until I got to middle school, I always struggled with math. When I entered sixth grade I began to struggle even more. I was extremely frustrate[d] and ready to give up. In sixth grade after 2 years of constantly struggling, I had Mrs. Smith in math. She was so scary the first weeks of school. Somehow she made me connect with math … I want to be the teacher that Mrs. Smith was for me.

> I had a middle school math teacher who made me hate math for a couple of years, and I want to help students in that crucial time and be a good stepping stone to high school math.

In some cases the MGMPSTs did not reference specific teachers from their past but instead wrote about their perceived future identities as teachers.

> My image I see when I think about middle school is teaching new things. The idea of a variable and how you can graph that. The facial expressions on students when they finally do something on their own for the first time is incredible.

> I hope I will change the lives of kids and help people that aren't passionate toward math to find things that they do like about it and find interesting. I also want to show how important it is in life, and how knowing why you do something makes it a thousand times more interesting.

Each of these MGMPSTs hoped to create positive experiences for their future mathematics students.

Perceived Mathematical Identities of Future Students. In addition to stories about themselves as teachers of mathematics, the MGMPSTs included perceived identities of their future middle grades students as doers and learners of mathematics. The academic expectations MGMPSTs held for their students appeared less frequently than other nonacademic expectations (e.g., behavioral characteristics). This was found in statements like the following: "I would rather [my students] already have a basic understanding of numbers and how they work so I can teach deeper subject areas such as algebra."

While a few MGMPSTs specifically stated they expected students to be prepared for middle grades mathematics, only one mentioned how incoming students might be underprepared, and that was within the context of a story about how he was not prepared. Much more prominent was the view that the middle level was the time period that students' attitudes about school and learning were at their most unstable.

> I think in middle school, students start to notice if they are falling behind or if they are in the "slow" class. I think students begin to hate math in middle school.

> In middle school a child will probably not yet hate math and still be open to learning it.

The MGMPSTs' perceptions of middle grades students mathematics learning seemed to consist of students making it to the middle grades with a positive view of mathematics and learning in general, having either some sort of difficulty in the middle grades, and the students' ability to persevere through the middle level determines whether or not the student will be successful in later mathematics courses. This notion of the importance of middle grades was found in many of the narratives as well.

Appeal of Middle Grades Context

Of particular interest was the number of MGMPSTs whose narratives contained no stories about themselves as learners and doers of mathematics. Nearly half of the MGMPSTs made no mention of their affinity for or accomplishments in mathematics. These MGMPSTs often spoke of enjoying school or their middle school years without making any particular reference to mathematics. For example,

> I was a part of a bullying prevention program working with sixth graders and I was a pitching coach for a sixth grade softball team. This is what intrigued me to want to work with this age group. Seeing how much they already knew yet still having so much to learn, inspired me to want to be the one to teach them.

By omitting any discussion related to mathematics, it appeared that some MGMPSTs chose to enter middle level education primarily because of a desire to work with middle grades students, and then as a secondary decision chose to teach mathematics.

Importance of Middle Grades for Students. Many of the MGMPSTs emphasized that middle school was one of the most important times in an adolescent's life, and they wanted to be part of this influential time. For at least some of the MGMPSTs the importance of this time in a student's life was not directly related to mathematics or mathematical learning. For example one MGMPST stated,

> I chose middle school because I think it's the time where you can have the most impact on someone. It's where goals and dreams are starting to be developed and I want to help them reach those goals … middle school years are the most interesting because kids are going through major changes and I want to be there with wisdom and guidance from personal experiences.

Middle school was characterized as a "pivotal" time in students' lives and MGMPSTs claimed they could be that change and role model students' need. In some cases this was based on their own experiences as middle school students. One MGMPST stated,

> I feel and felt like [middle school] was the only place where I belonged and really enjoyed. It's the benchmark life lessons that you learn in middle school that make it the most memorable. I want to be there for that student who needs a memorable reaching experience and remembered it years down the road.

Importance of the Role of Teacher in the Middle Grades. The MGMPSTs wanted to do more than have a positive influence on middle level students. They wanted to be role models and emulate their role models from middle school.

> Middle school was particularly challenging [for me].… If it wasn't for my seventh and eighth grade teachers, I'm not sure if I'd be where I am today. I want to be the role model for my future students as my previous teachers were for me. I yearn to go the extra mile for my students as many also went on my behalf when I was an adolescent.

As role models for their students, MGMPSTs expressed that they wanted to be a guide and make a difference in students' lives.

> I want to guide individuals that are slowly going down the right path in life toward a better direction. I want to be a mentor that teaches students that education is a big factor in life … I want to show these students to never give up and always keep your dreams. I want to save a student from following the wrong path, as what I almost did. I want to help shape [their] future.

Many of the MGMPSTs identified positive traits that they possessed as well as traits they characterized their role models to have. For example, one MGMPST argued that she was "equipped with patience, proactive outlook, and perseverance." The MGMPSTs recognized that they may need to be entertaining, funny, sarcastic, unpredictable, and serious when entering the middle school mathematics classroom. For instance, a MGMPST summarized that she wants to be "quirky [and] energetic." The MGMPSTs also realized they needed to know how to get along with students, and make sure their expectations were explicit.

Many of the MGMPSTs shared that their desire to teach middle school stemmed from their middle school experiences not necessarily related to mathematics; some of which were positive, while others were not as positive. For example, one MGMPST stated, "Middle school was the most influential part of my life, and there were teachers that really reached out to me. I really want to try for a similar experience with my students to help them through those hard years." These MGMPSTs wanted to draw on their previous experiences as middle school students and use those experiences in the future when teaching in their own classrooms.

Context Specific Factors in the Middle Grades. It appears that at least some of the MGMPSTs selected to teach middle school because of the option of teaching the two subjects that they love, whereas in high school they could only teach one subject. Typically, an elementary school teacher has to teach a plethora of subjects, and some of the MGMPSTs expressed they did not enjoy the other subjects such as English and history; hence the decision not to become an elementary teacher. Some of the MGMPSTs argued that high school may be "too late" to influence students' thoughts and opinions.

One of the major themes relating to the desire to work with middle grades students was MGMPSTs' perceived identities of middle level students. These perceived identities were communicated in terms of nonacademic expectations (e.g. personalities and nonacademic developmental progress) for middle level students. One strategy for communicating the perceived identities of middle grade students was the comparison of expected behaviors and personalities of elementary or high school students to middle grade students. The assumption that middle grade students are exempt from the identified characteristics was often unstated, but generally implied in the responses. Typical responses included: "I didn't want to feel like I was babysitting a class of children or like I was preaching to a classroom of adults" and "[Middle school children] don't require constant supervision like younger kids or have the attitudes of high school kids." While each of these responses take a different approach in describing characteristics of elementary and high school students, they tend to reflect a recurring theme from the MGMPSTs narratives. The MGMPSTs' feelings regarding elementary school students were usually described as a lack of desire to babysit or to attend to the "neediness" of elementary students with "low maturity levels." The MGMPSTs also contended they would not be able to hold intellectual conversations with elementary students.

Conversely, one of the recurring complaints about high school students was that they are difficult to "influence" and "mold", as in the following response: "Once they're in high school most students have already made up their mind and it's hard to have an influence on them." Some MGMPSTs felt that teaching high school was a lost cause because "in high school skills have had to have been acquired, if not, you have a class of lost students." An

MGMPST stated, "It's hard to influence high school students because their mind is already made up" and in high school the instruction was perceived to be, primarily, worksheets and lecture. One MGMPST thought if she became a high school teacher, it would be difficult to distinguish her from other high school students because she looked as young as the high school students.

While there was no shortage of responses that referenced expected negative behaviors of elementary and high school students, several MGMPSTs supplemented their reasoning with anticipated positive behaviors and personalities of middle level students. Responses in this category reflected varied views, although the views were not inconsistent with each other. Some of the terms used to describe middle level students included energetic, excited, independent, hilarious, responsible, accountable, and interesting. Other MGMPSTs focused on the ability to have "adult interactions and conversations" with middle grade students, although there was no clarification regarding whether these were individual or class discussions, or if the conversations were about academic or nonacademic subject matter.

DISCUSSION

Although the themes represented here cannot represent every thought and experience of each participating MGMPST in the study, our analysis was able to uncover several important contexts that should be considered by middle grades teacher educators. The MGMPSTs responses revealed three primary contexts for understanding their identities as preservice middle grades mathematics teachers, namely, their relationships with mathematics, with the middle grades, and with their future students. The contexts were somewhat predictable as they strongly reflect the wording of the writing prompt, but the responses of many MGMPSTs validated the questions we had asked them to consider.

Mathematics Context

Within the context of mathematics, two major themes arose: the MGMPSTs' affinity for the subject, and their confidence in their ability within the subject. None of the MGMPSTs indicated a dislike of mathematics, and many expressed a deep love for the subject. However, some MGMPSTs seemed to be motivated by other factors, like future employability, and it was difficult to discern if they had any real positive connections with mathematics. Most MGMPSTs who addressed the issue indicated at least a moderate level of confidence in their mathematical ability, although doubt of their ability was also seen in select responses. Those with less confidence usually had a particular area in mind (e.g. algebra), or had decided to teach middle grades as a second choice to high school. Given the variety of responses on both fronts it was not possible to find one particularly consistent account of MGMPSTs' relationship to mathematics. One of the more immediate consequences of this finding is it challenges assumptions instructors of mathematics content courses for preservice teachers may have about their students. It is tempting to think that students who have chosen careers as mathematics teachers either like mathematics or have a high confidence level in mathematics, or both; however, their own responses show a much wider range of possibilities. With this in mind, it is not safe to assume that students will be confident or self-motivated to engage in mathematical thinking, and approaches to teaching content courses may need to be reconsidered in this light.

Only a small minority of the MGMPSTs in our study indicated a previous desire to teach high school mathematics but settled for the middle grades due to the required coursework, with a couple of these having changed majors to the middle grades after attempting higher level mathematics courses. The types of courses typically required for secondary certification are similar to, if not the same as those taken by mathematics majors, and could be intimidating for many people. Despite this, it is

concerning that some of the MGMPSTs lack confidence in their mathematical skills. It would be easy to try to differentiate between the skills required to be a mathematics major and the skills required to teach in the middle grades, but the important underlying factor is that of *mathematical thinking*. If MGMPSTs are skilled in their ability to think mathematically, then any level of mathematics coursework could be accessible to them. Alternately, if MGMPSTs avoid mathematical thinking in favor of mathematical procedures, then the difference in difficulty of courses becomes more pronounced. Furthermore, a couple of the MGMPSTs specifically stated their primary reason for choosing the middle grades was not that they were intimidated by the content of upper level mathematics courses, rather, by the amount of work that would be required for them to complete the courses. While it cannot be said as a rule, the desire of a few of the MGMPSTs to pursue a degree they perceive as easier is not necessarily a desirable trait for a teacher at any level in any content area.

As mentioned above, an additional aspect of the MGMPSTs' relationship to mathematics that warrants further consideration is the type of mathematics they relate to. For some MGMPSTs who liked mathematics or were confident in their mathematical abilities, there were occasional clues they were drawn toward more procedural aspects. While procedures have their place in the mathematics classroom, mathematical problem solving skills and a conceptual understanding of how mathematical ideas fit together are important for teaching mathematics at any level. Since problem solving and conceptual views of mathematics are already addressed to some degree in preservice teacher courses, the primary issue is not necessarily altering what is taught in these courses, rather, understanding how receptive MGMPSTs are to the importance of these topics for them as future teachers. Tracking the mathematical preferences of MGMPSTs as they progress throughout their teacher preparation program would be helpful for understanding whether or not exposure to problem solving and mathematical concepts in coursework is enough to elicit a change in their views of mathematics for teaching, or if additional measures need to be taken.

Perhaps the most important questions to arise from the MGMPSTs' discussions about mathematics are related to the fact that a significant number of the responses included no mention of mathematics. For a teacher to be more motivated by the grade level than the subject they teach would be understandable, but the possibility that some MGMPSTs have no real connection to mathematics has consequences that make it impossible to ignore. Teaching effectively requires a level of dedication that would be difficult to maintain if a person does not enjoy what they are doing, and the choice to teach mathematics must be made with this consideration in mind. Since teacher preparation programs are primarily concerned with producing effective teachers, it falls within their purview to ensure that their students have selected a subject area in which they can excel. These considerations must be understood at the advising level; however, teacher educators need to be aware of this issue and be able to identify when this could be a problem for the students that they interact with.

Middle Grades and Future Student Context

As was the case with the mathematics context, there did not seem to be one major characteristic that described all of the MGMPSTs very well within the middle grades context, although it was interesting to see how each MGMPST chose middle school based on a variety of factors. Overall, there were two predominant approaches employed by the MGMPSTs, many times in tandem. In the first, the MGMPSTs seemed to base their grade level decision on a process of elimination; after having given some thought to teaching at the elementary or secondary levels, they found enough reasons to *not* teach at those levels. In the other, the middle grades choice was a first

choice made based on a more positive view of the middle grades students, occasionally with no stated consideration of teaching other grade levels. The factors considered in their decisions ranged from the content taught in the various grade levels, the coursework required to become a teacher for those grade levels, and quite often, characteristics of the students that they would have to teach in those grade levels.

On one hand, MGMPSTs displayed a strong sense of wanting to help middle grades students through a time in their life that they identified as the most difficult, whether emotionally, developmentally, or scholastically. On the other hand, teaching the middle grades was seen as a compromise between "babysitting" elementary school students and struggling with disenfranchised teenagers in high school. In either case, the MGMPSTs often expressed a very student-centric view of teaching. While the range of expectations at the various grade levels were formed as a result of different experiences by the MGMPSTs, it was clear that these expectations played a major role in the selection of the middle grades. With this in mind, it is understandably important for teacher education programs to help all preservice teachers build realistic expectations of teaching at any level before they spend too much time specializing in a particular grade level.

CONCLUSION

Looking again to the definition of identity, it is important to consider that identity is dynamic, and in addition to being context specific it is also time specific. We can look at the MGMPSTs as being in the same station of life considering they are each in a teacher preparation program, but the responses they gave indicate there are more factors to consider. Some of the more developed responses included accounts of experiences that the MGMPSTs had while conducting observations or participating in practicum experiences. On the other hand, several of the MGMPSTs were in the early stages of their program and were not able to draw upon such experiences as they reflected on their career choice. Since the choice to become a teacher necessarily precedes such experiences, a more thorough exploration of MGMPSTs' identities should incorporate some way of differentiating students based on how long they have been in a teacher preparation program.

In addition to the effect that time spent in a teacher preparation program can have on a MGMPST's identity, it is also important to consider where they were before they entered the program. Some of the MGMPSTs had children who were school age, if not already beyond the middle grades, and experiences with their children influenced their career choices. Even some MGMPSTs who did not have children were able to draw on experiences with siblings or other family members who they had seen go through the middle grades. On a slightly different note, there were MGMPSTs who came from other careers or majors and experiences in those fields drove them toward education. These different life experiences helped to contribute to the varied responses given by the MGMPSTs, and could really be understood as both student specific contexts and time specific experiences. Either way, the longer a student waits to enter a teacher preparation program, the more opportunities they have to encounter new contexts for defining their identity, which will have an impact on their identity development.

Even if the exploration of identity was limited to defining a common context, it would be extremely challenging to find one consistent characterization of the identities of the MGMPSTs. A possible summary of our findings might include some vague description of "people who are good or enjoy mathematics and/or want to help students." The problem is that "good at mathematics" meant something different for each MGMPST, and the ways in which they wanted to help their future students were as disparate. Adding in the fact that each MGMPST brings a different set of life experiences to the table adds to the difficulty of

determining one consistent identity. In fact, upon reading the responses of the MGMPSTs it is clear that the value of looking at the whole group is not in finding the major strands that unify them, but in recognizing those elements of each MGMPST's identity that makes them unique compared to the group. The MGMPST group identity, then, is not a simple label that can be placed on the whole group, rather it is a complex lens through which the individual identity of each MGMPST can be understood and curricular decisions for their preparation should be made. This includes finding ways within teacher education programs to simultaneously support MGMPSTs' development as mathematics teachers and middle grades teachers so that those who begin with a strong identity in only one of the areas, leave their teacher education experiences defining their identities in terms of both.

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