Teacher Perspectives on Literacy and Mathematics Professional Development

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A recent report from the United States found that over $18 billion is spent each year on teacher professional development programs, and teachers spend nearly 90 hours a year on various professional development activities (Gates Foundation, 2016). Despite this vast amount of financial resources and time invested in professional development activities, there is a paucity of clear and convincing research about the most effective models of professional development as well as the specific influence of these teacher learning experiences on teachers' instruction and their students' achievement (Wei, Darling-Hammond, Andree, Richardson, & Orphanos, 2009; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

Randel, Apthorp, Beesley, Clark, and Wang (2016) conceptualized the design of professional development to be collaborative learning spaces for teachers to reflect on what is effective in the classroom. Brookhart, Moss, and Long, 2010 and Leahy, Lyon, Thompson, and Wiliam (2010)

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posited that professional development content should address important components for effective practices, but that the amount of time and focus devoted to these components likely will vary. Randel et al. (2016) studied the impact of professional development on teacher assessment practice and found that although teachers' knowledge was significantly impacting their practice the fidelity to the program was below the recommendations of the developer. Martin et al. (2015) also found varied fidelity to professional development practices among teachers involved in a large scale professional development program was influenced by teachers' beliefs, their building-level support, and how much they prioritized what they learned during professional development. The large investment and current research on impact of professional development suggests there is a need to examine teachers' professional development experiences and how they influence their teaching.

Research on Teacher Professional Development and Teacher Perspectives

Guskey (2002) describes a five-level framework for evaluating and examining professional development. Level One hones in on examining teacher-participants' perspectives and reactions. Levels 2 and 3 focus on teachers' acquisition and use of knowledge and skills, respectively. Level 4 covers institutional and organizational influences, and Level 5 focuses on student achievement. Intuitively, while professional development should be designed to improve instruction and student achievement (Joyce & Showers, 2002), that is not possible if participants do not respond favorably to their experiences and intentionally make plans to apply their new knowledge and skills (Joyce & Showers, 2002; Martin et al., 2011). Several researchers have conducted studies on teachers' perspectives during and after participating in professional development (El-Deghaidy, Alshamrani, & Aldahmash, 2014; Martin et al., 2016; Syed, 2008). The rationale behind previous work and this study is the idea that if teachers perceive the professional development as beneficial they are more likely to grow in their practice and implement new strategies (Loucks-Horsley et al., 2010; Martin et al., 2016).

A recent study of over 10,000 teachers in large school districts in the United States indicated that while districts spend over $18,000 per teacher annually on professional development and teachers frequently, teachers did not report that professional development positively influenced their teaching or their students' learning (The New Teacher Project, 2015). Further, two large-scale experimental studies indicated that despite intensive, job-embedded professional development, teach-

ers' instruction hardly changed (Garet et al., 2008; Garet et al., 2010). Further, when professional development results in large-scale studies have been somewhat positive, the effect size has been limited and in some cases results are not conclusive (Gersten, Taylor, Keys, Rolfhus, & Newman-Gonchar, 2014; Yoon et al., 2007).

Researchers have engaged in studies that examine teacher perspectives of their professional development experiences to understand what makes effective professional development. Syed (2008) used narrative inquiry as a research methodology to capture the perspectives of two beginning teachers' experiences of professional development in literacy education. The in-depth study of several interviews produced seven conditions for successful professional development. The conditions included recognizing the teacher as a learner and building their knowledge base. In addition the experience should include active critical reflection of the professional development, reflection of what that means for themselves and their classroom community, and the opportunity to share multiple perspectives through collaborative conversations. Finally, the idea that teachers would be involved in their own professional development agenda and for the context to be democratic where all voices are heard and considered. Although the study included the views of only two teachers their ideas are supported in professional development research (Ganser, 2000; Corcoran, 1995; Goodman, 1996).

Mansour, EL-Deghaidy, Alshamrani, and Aldahmash (2014) conducted a mixed method study to investigate science teachers' views of continuing professional development (CPD). The researchers used survey, open ended questions, and interviews for their data. The study included data from 304 teachers. The researchers found the teachers wanted the opportunity to collaborate with one another in an authentic context, be able talk to one another as part of the learning activity presented along with what they are doing in the classroom, and how they would implement the presented ideas. The study produced five themes from the data sources: (1) community of practice to socially construct professional knowledge, (2) teachers taking initiative for their CPD, (3) school based CPD, (4) contextual challenges and teachers' enactment of learning. The themes noted by the researchers are comparable with the results of Syed's (2008) study, even though this study is much larger.

In a recent study, Martin et al. (2016) examined the perspectives of teachers that engaged with professional development specific to using a web-based mathematics assessment tool. The study was limited to their experiences with using a specific tool; however, there were some general recommendations that were expressed in the data. Some consistent suggestions were for the teachers to have more time to plan

and for additional time to implement the new assessment tool in their classroom.

The studies discussed above spanned the content areas of literacy, science, and mathematics. The context, methodology, and number of participants varied across the studies; however, there were several connecting ideas about the components of a constructivist approach, teachers' initiative, and critical reflection enhancing professional development. The studies also noted the contextual challenges of enacting the newly learned material and strategies. Based on the literature base and Guskey's framework for evaluating professional development, there is a need to further examine teachers' experiences regarding professional development.

This study examines teacher's perspectives of the most beneficial professional development they have participated in over the last three year in the content areas of literacy and mathematics. It also investigates teachers views on how professional development influences student learning. Specifically, this study is grounded in the following research questions:

1. What focus areas for literacy professional development do teachers identify as beneficial?

2. What focus areas for mathematics professional development do teachers identify as beneficial?

3. How do professional development experiences in literacy and mathematics compare to one another?

4. How do teachers believe professional development influences students' learning?

Method

Participants

The study included survey responses from teachers in elementary and middle schools in two southeastern states. The study included primarily teachers in elementary and middle school. There were 98 survey responses collected over the 2015-2016 academic year. Ninety-eight usable surveys were received (65.33% of invited participants). Most (76.5%) of the respondents were classroom teachers; almost half (44.9%) taught students in combined grades (e.g., First and Second, Third and Fifth); and, while more than 70% were from large districts, the rest were from rural districts surrounding the local university.

Procedure

Our survey was designed online in SurveyShare by the research

team to gather teachers' experiences and reactions to participating in professional development opportunities. Two of the authors originally designed the instrument and then received feedback from one literacy educator and one mathematics educator. The survey was then revised based on feedback, and then reviewed again by the same literacy and mathematics educator to ensure the final survey reflected feedback. Once the instrument was developed we obtained permission from the Institutional Review Board (IRB), the link to the online survey was emailed to 150 teachers. The front page of the survey contained the consent form.

Instrumentation. The survey (see the Appendix) was developed as a follow up to our study on literacy coaches (Martin et al., 2015). The survey included demographic questions related to positions held within the district and school. It included ten items on specific literacy focused professional development experiences. Respondents noted how often they engaged in professional development centered on this work, rated its effectiveness, and how much they used the content of these experiences in the classroom. This same format of ten items on specific professional development experiences was repeated for mathematics. This study was focused on three open ended response questions included in the survey: (1) Describe the most beneficial professional development that you have had in the past 3 years related to literacy. Explain why it was the most beneficial. (2) Describe the most beneficial professional development that you have had in the past 3 years related to mathematics teaching. How long did it last? What was the focus? How do you know it was beneficial? (3) How has professional development influenced your students' learning?

Data Analysis

The researchers used the ten items presented earlier in the survey as categories for the open-ended responses. The responses were coded according to the focus of the professional development experience that the teacher described as most beneficial for both content areas over the last three years. The responses were coded: 1—content knowledge, 2—engaging strategies, 3—learning difficulties and diverse levels, 4—curriculum, 5—standards, 6—teaching English language learners, 7—assessment, 8—professional learning communities, 9—feedback from coaches or mentors, 10—none to report or nondescript, and 11—combination of codes. The coding was then analyzed to better understand the professional development that teachers found most beneficial for literacy and mathematics. The third open ended question related to the influence of professional development on student learning was coded

and analyzed. The coding for this question was: 0—no impact on student learning, 1—positive impact on student learning, and 2—negative impact on student learning. Researchers compared the responses for literacy and mathematics and identified similarities and differences. The coding of the data was compiled into themes and compared across literacy and mathematics. Professional development centered on content and engaging strategies were considered most beneficial for teachers in both literacy and mathematics. Data from the survey and open questions were also used to explore areas that were not considered as beneficial and to understand the influence of professional development in the classroom.

Findings

Beneficial Areas for Literacy Professional Development

Teachers appear most positively impacted by literacy professional development that deepens their literacy knowledge and provides engaging strategies for the classroom. The 98 responses indicated that 19% of the teachers felt professional development that deepened their literacy content knowledge was most beneficial. Teachers identified different areas within literacy content that they found to be valuable.

> Close Reading training during our ILT weeks at the district level. We had a cross functional team that discussed where we truly were in implementing close reading in all subjects and had trainings on how to do this.

> Learning about Text Complexity and annotating the text. It was useful in helping my students dig deeper in the text and enhancing their understanding.

> I took a reading class through the district. I gained so much knowledge about reading groups/small group instruction.

The first response discusses close reading and its impact across curriculum, the second response focused on text complexity and annotation, and the last included response highlighted reading groups and small group instruction. Each response appears to emphasize the usefulness of what was presented and it appears the content of these experiences continues to impact their practice.

The next focus area that teachers identified as beneficial for literacy instruction was professional development that focused on how to use engaging and interactive strategies. Out of the 98 responses 19% of the teachers found these types of sessions helpful. These responses indicate a variety of strategies included in professional development.

> We had consultants to model and observe guided reading. Their strategies and feedback was very beneficial.

> Training on how to confer with everybody during mini-lesson and how to utilize conferring time. Conferring can be time consuming during reader's workshop- but is the one of the chief components of the programs.

> Strategies for using close reading. I have been able to use it in my science class with nonfiction text.

> IPad Apps to use such as Razz Kids, etc. to differentiate and challenge students.

The responses included show guided reading, conferencing, strategies for close reading, and engaging uses of technology as a few of the noted strategies that were considered beneficial. The responses for this category indicate teachers engaged in literacy professional development have access to sessions that include a wide variety of strategies.

The last largest coded category in the responses was the category of non-specific and no notably beneficial professional development. Out of the 98 responses 13% were represented in this category. The example responses below are just a few from this category.

> No professional development has been offered.

> None.

> The most beneficial PD I experienced was my first year teaching for UCPS 3 years ago. It was the first one I ever went to and it gave me more of a direction for the teaching expectations in UCPS. It was only beneficial because it was the first one I went to.

The responses indicate that opportunities to participate in beneficial professional development were not offered, offered and not beneficial, or offered minimally. The rest of the 8 categories included a number of responses that accounted for 3%-8% of beneficial experiences.

Beneficial Focus Areas for Mathematics
Professional Development

A similar pattern was found in responses regarding professional development for mathematics. These areas are professional development for mathematical content knowledge (16%) and engaging mathematical strategies (18%). The largest responses fall into the category of non-specific and no notably beneficial (27%).

The teachers' responses below indicate that professional development on mathematical content knowledge was beneficial. The responses show a connection to the theory and ideas shared with regard to content.

> Singapore Math 3 day seminar in Boston presented by the publisher of Singapore Math products. It was a concept that was new to me and

so there was much to learn. Also, the importance of moving from the concrete to the visual and then to the abstract when teaching Math. Many concrete models were presented and practiced. I know it was beneficial because I learned it very well and then was able to pass it along to my students who also learned it very well.

One day conference on guided math. It helped me understand more ideas to implement in my classroom and to ways to implement guided math.

There was a district consultant that worked with me on number talk. I had to recall myself teaching. I enlisted various strategies. This was beneficial. It lasted at least half the year.

The concept of moving from concrete to visual to abstract is discussed in the first response, the ideas that support guided math instruction in the second, and lastly the view of number talks. Each response affirms this work was beneficial, provided greater understanding, and appears to have had direct impact in the classroom.

The area of engaging mathematical strategies was noted in many of the teacher responses. The responses below are succinct and identify the strategy that they felt was most beneficial.

Math Talk was very beneficial. I learned strategies for how to implement Math Talk in the classroom.

Starting the lesson with exploration.

A workshop describing the UCPS web-based resources.

The math hands on workshop about how to best utilize manipulatives.

Math talk, starting with exploration, technology resources and using manipulatives are a few of the strategies included in these responses. It appears teachers valued having sessions that provided them with the tools necessary to implement strategies with their students that they indicate were beneficial for learning.

There were a large number of responses that indicated teachers felt there were no notably beneficial professional development sessions for mathematics.

I have no comment at this time.

I haven't had any staff development in math in the past 3 years.
I have not had specific professional development related to mathematics in the past 3 years that I would classify as beneficial.

The responses above represent the majority of responses in this category; there were a couple of teachers that wrote they were not teaching mathematics at the time and this accounted for their lack of professional

development; however, even with those exceptions this was still the category with the largest responses.

Comparing Literacy and Mathematics Professional Development

The patterns found in responses related to literacy and mathematics indicate teachers are interested in having a greater and deeper understanding of these content areas and at the same time be provided with opportunity to learn engaging strategies that they can directly implement in the classroom. Another consistency found in these responses is that these opportunities are lacking in both literacy and mathematics professional development.

In both literacy and mathematics there were few responses related to professional development with English language learners (ELL) and assessment practices. These areas may be reported less due to lack of opportunity; however, it would require further research into the lack of professional development experiences in these areas.

Another noticeable difference was in the responses related to curriculum. There were seven responses highlighting mathematics professional development in the area of curriculum, six of those responses were on math foundations training and one response just mentioned training on a new math program. There were nine responses in literacy professional development for curriculum and each one referred to training in a different curriculum. Some examples from these responses were FLEX reading program, Comprehension Toolkit, Lucy Calkins workshop, and Empowering writers to name a few. There appears to be greater consistency for adopting curriculum in mathematics across schools.

Influence of Professional Development

Teachers view their experiences with beneficial professional development as a positive for student learning. The responses showed that 88% of teachers find that professional development positively impacts student learning:

> By helping me better understand more clearly what the standards are and how to get my students to understand.

> The PD that I received has helped my students think deeper about the content of books that have been read aloud to them, as well as making them more independent readers that ask the questions as they read of themselves.

> Every new thing I learn I can use or share with them in the classroom, so I think it impacts their learning greatly.

These responses show teachers value professional development and that they bring a greater understanding back into the classroom which in turn helps students to think deeply about literacy and mathematics.

There were 9% of the teachers that indicated professional development had no impact on student learning, illustrated in one teacher response, "I have not had professional development in the last three years that has benefited my students' learning" and another teacher's response "I've learned a few new strategies to use with my students but other than that, not much."

Only 3% of responses suggested that professional development was negative for student learning.

> Professional Development is scheduled during the school day so I am pulled away from my students weekly. So it has influenced my students in a negative way.

> In some ways, it has taken away from it. While I have learned strategies,, we are in meetings so much that we do not get time to plan as a team or really focus on our classroom.

Both of these responses appear to be connected to the amount of time devoted to professional development in the form of meetings. The time away from the classroom is the focus rather than the actual content of the meetings.

Summary of Perspectives

Professional development on content and strategy are most prevalent in both literacy and mathematics teacher responses. For both mathematics and literacy there are also a high percentage of teachers reporting that they have not had notably beneficial professional development in the past three years; however, the majority of teachers find professional development to positively impact student learning. This seems to indicate that teachers would value the opportunity to engage in beneficial professional development in both content areas and that they would use their new understanding and strategy to directly impact student learning.

Discussion

Teachers in our study reflected on their last three years in education and highlighted professional development experiences that they felt were most beneficial. In regards to both literacy and mathematics, teachers reported deepening content knowledge and learning engaging strategies. Their responses showed an interest in gathering greater understanding, connecting theory, and moving toward deeper thinking about applying pedagogies that they learned during professional development.

In regards to the impact of professional development on students, multiple teachers reported that, when offered, their professional development experiences had a positive influence on student learning. Based on Guskey's (2002) framework, these participants are reporting positive reactions (Level 1), a positive influence on their teaching (Level 3), as well as a positive influence on students (Level 5).

Despite the positive reports, one of the limitations in this study is that the details as to what the teachers experienced during professional development is limited.

The data also indicated some negative responses, in which teachers reported that professional development had a negative impact on student learning, since they left their classroom to participate in experiences that were not beneficial. This aligns with findings from the large-scale studies from various organizations (Garet et al., 2008; Garet et al., 2010; TNTP, 2015), which cited the expensive costs, costly time away from teaching, and minimal impacts of professional development experiences.

Future studies are needed to examine the influence of research-based professional development experiences that connect what teachers' value as well as what administrators and professional development facilitators value. There appears to be a divide, based on this study, between professional development offered and what teachers feel that they need to improve their learning. To this end, a large number of teachers in our study indicated their voices are not part of the planning and therefore are unable to identify beneficial experiences in the last three years. These types of professional learning experiences, where teachers do not have a voice or ownership of their learning, have been well documented in the literature as experiences with little carryover from workshops into teachers' classrooms (Borko, 2004).

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