

# First Through Third Year Secondary Mathematics Teachers' Mentoring Experiences: A Phenomenological Qualitative Study

**Jessica L. Pomeranke**

University of South Dakota

**Kristine Reed**

University of South Dakota

**David DeJong**

*University of South Dakota*

**Lisa Newland**

*University of South Dakota*

**James Nold**

*Sioux Falls School District*

*This study examined the lived experiences of seven beginning secondary mathematics teachers in an upper Midwestern state who had experienced mentoring and remained in teaching. The study sought to identify the mentoring experiences beginning secondary mathematics teachers perceive as most beneficial to their professional growth. Data were collected through individual interviews and focus groups and were analyzed by coding significant words and statements. Findings suggest beginning secondary mathematics teachers experience various types of support from assigned mentors and informal supports from colleagues within the same building. Regular observations with constructive feedback were found to be highly valued by beginning teachers.*

*Keywords:* mentoring, mathematics teachers, informal mentors

Teacher attrition rates continue to hold a place in education. Beginning teachers are leaving the profession for a variety of reasons, but lack of support is amongst the top of the list (Borman & Dowling, 2008; Darling-Hammond, 2003; Ingersoll & Strong, 2011; Rajendran et al., 2020). Throughout the literature reviewed, mathematics teachers have been found to have higher turnover rates than other content areas in secondary education; thus, the focus of this study is on secondary mathematics teachers. Induction programs, with an emphasis on mentoring, have been implemented in districts across states to provide the support that beginning teachers indicate they need. At the time of the study, the current literature lacked research studies that identified effective techniques and strategies for mentoring beginning teachers. The findings from this study provide a window into the mentoring experiences of seven beginning mathematics teachers in an upper Midwestern state. *Varied types of support, informal supports from colleagues, observations and meaningful feedback, and unclear expectations* during mentoring were four themes that emerged during data analysis from participant interviews and focus groups. These findings led to a discussion with implications for practice for beginning teacher mentoring programs in school districts.

### **Purpose Statement and Research Questions**

The purpose of this phenomenological qualitative study was to examine the lived experiences of first through third year secondary mathematics teachers in southeastern school districts of an upper Midwestern state who were mentored and remain in teaching. The following research questions were explored in the study:

1. How do beginning mathematics teachers describe their lived experiences of being mentored?
2. What meaning do beginning secondary mathematics teachers ascribe to their mentoring experiences?
3. What mentoring experiences do beginning secondary mathematics teachers perceive to be the most beneficial to their professional growth?

### **Literature Review**

Roughly one-fourth to one-third of beginning teachers leave the teaching profession within the first five years (Carver-Thomas & Darling-Hammond, 2019; Hong & Matsko, 2019). Specifically, when comparing mathematics and science teacher attrition rates to other non-mathematics/science teachers, rates were almost always higher for mathematics and science teachers even when considering multiple school and student demographics (Carver-Thomas & Darling-Hammond, 2019; Ingersoll & May, 2012). Teachers leave the profession for a variety of reasons; however, research shows that lack of support, lack of preparation from preservice training, insufficient salaries, heavy demands in working conditions, and in-service school policies are among the most common reasons that beginning teachers leave the profession (Rajendran et al., 2020; Trevethan, 2018). While teachers have identified the above reasons for leaving, lack of support once they begin teaching has been one of the most common reasons that a teacher will leave the profession (Ingersoll & Strong, 2011; Rajendran et al., 2020).

One common established practice that states and school districts have done to improve

this lack of support noted by beginning teachers is to implement induction programs (Ingersoll & Strong, 2011; Martin et al., 2016). Induction programs vary from state to state, but common components to induction programs include professional development, seminars, collaboration with colleagues, administrative support, classroom assistance, teacher observations, and formal mentoring (Ingersoll & Strong, 2011; Kang & Berliner, 2012; Martin et al., 2016). Induction programs provide support for beginning teachers once they enter their own classroom (Ingersoll & Strong, 2011; Reitman & Karge, 2019). While induction programs vary in quality, depth, and accessibility, one of the most common components that an induction program has is the pairing of a beginning teacher with a formal mentor in the school district (Carr et al., 2017; Sowell, 2017). In turn, induction programs, with a strong emphasis on a mentoring relationship, have taken place in multiple states and districts to provide support to beginning teachers (Heikkinen et al., 2018; Hudson & Hudson, 2016; Ingersoll & Strong, 2011; Smith & Ingersoll, 2004).

Educational mentoring is the pairing of a veteran teacher with a beginning teacher established by the school or the district (Heikkinen et al., 2018; Hong & Matsko, 2019; Ingersoll & Strong, 2011; Wang & Odell, 2002). Mentoring experiences for beginning mathematics teachers lack a consistency not only from state to state, but also within a district from school to school (Clark & Byrnes, 2012; Heikkinen et al., 2018; Hong & Matsko, 2019; Kardos & Johnson, 2010; Polikoff et al., 2015; Smith & Ingersoll, 2004). A mentoring experience can look different in its depth, quality, frequency, and requirements for a variety of reasons (Heikkinen et al., 2018; Hong & Matsko, 2019; Smith & Ingersoll, 2004). Kolb (1984) suggests in his Experiential Learning Theory that experiences will differ based on the individual, thus evidenced by the inconsistencies in the research. Regardless of inconsistencies, beginning teachers report that they are assigned a formal mentor for support (Gray et al., 2015). Most common components of mentoring programs are professional collaboration between the beginning teacher and the mentor, classroom observations, assistance in the classroom, and feedback from the mentor (Dağ & Sari, 2017; Kardos & Johnson, 2010; Martin et al., 2016; Sowell, 2017). While not always possible due to accessibility and personnel, studies suggest that content matching of mentors and mentees is an effective component of mentoring relationships (Polikoff et al., 2015; Sowell, 2017). Both Hallman-Thrasher et al. (2017) and Polikoff et al. (2015) found that content matching expert mentors with beginning teachers is beneficial. Research has shown that beginning teachers also appreciate mentors within their school building for accessibility when dealing with concerns and needing answers to questions (Bradley-Levin et al., 2016; Dawson & Shand, 2019; Polikoff et al., 2015). However, content-matching and in-building mentors are not always available in all mentoring programs (Hong & Matsko, 2019; Polikoff et al., 2015).

The mentoring experience for beginning teachers has been met with success; however, research is limited as to what beginning teachers experience during the mentoring process and what mentoring strategies, techniques, and tools are effective for beginning math teachers (Bradley-Levine et al., 2016; Sparks et al., 2017; Trevethan, 2018).

## **Methodology**

A phenomenological qualitative research design was chosen for this study based on the desire to explore participants' experiences using an in-depth method of data collection to understand the meaning and essence of the mentoring experience that participants encountered (Merriam &

Tisdell, 2016) and find the common meaning that individuals attached to the same phenomenon (Creswell & Poth, 2018; Peoples, 2021). Vagle (2018) emphasizes that phenomenology desires to gain a profounder perspective of the “everyday phenomena” (p. 11). The common phenomenon in this study was first through third year secondary mathematics teachers’ mentoring experience in their public-school classrooms with district assigned mentors. The approach sought to uncover commonalities among mentoring for beginning secondary mathematics teachers. Specifically, hermeneutical phenomenology was a narrower methodology chosen for the study that allowed for a continuity of tying patterns in data together to the entire description of the beginning secondary mathematics teachers’ experiences with their mentor and the mentoring program established by the district.

The participants in this study included seven first through third year secondary mathematics teachers from one state with teaching experience of three years or less. Utilizing criterion sampling, principals were contacted via public state-issued email accounts at schools in public school districts and were asked for suggestions of beginning mathematics teachers who had an assigned mentor at their high school. Consenting principals provided names of new teachers who fit the criteria. Potential participants were contacted by email to request their participation in the research. Participants were located in five different high schools. Participants were interviewed individually and participated in a focus group. The online service *Temi* was used to transcribe all interviews. Each transcript was reviewed to ensure that all recordings were transcribed accurately. Two follow-up interviews were conducted to receive clarity on information shared during initial interviews. Participants were given their personal transcript to verify statements and make changes.

Data analysis included identifying common words and phrases that were categorized and organized into themes. Following the analysis of data from individual interviews and follow-up interviews, focus groups were conducted. Five of the seven beginning teacher participants participated. The recorded focus group discussions were transcribed and again, common words and phrases were identified. The words and phrases from the focus group transcripts confirmed the accuracy of the themes. Analyzing data using the hermeneutic circle requires a researcher to use these significant statements and continually consider those statements with the entire transcript (Peoples, 2021). No new themes were drawn from the focus groups; however, more detailed-information was generated that connected to the themes. Throughout the process, I took field notes and utilized memoing while bracketing out any personal biases. According to Peoples (2021), reflection on any personal biases is necessary to make sure those are not entering into the analysis.

### **Delimitations and Limitations**

While reflecting on personal biases is critical, it is also necessary to recognize the delimitations and limitations of the study. A phenomenological study utilizes researcher interpretation and analysis. All previous biases, experiences of the phenomenon, and assumptions related to this study were acknowledged and reduced. Secondly, due to the methodology chosen and limiting the study to teachers in their first three years, results may not be generalized beyond the population chosen. Considering that the participants involved in this study were limited to school districts in southeastern South Dakota, the results may only be representative of this specific

population. Not only were there delimitations to the study but there were also limitations. I had no control over participant responses; thus, answers from participants were understood under the assumption that they were honest and truthful in their descriptions. Participants also had control over their own schedule; therefore, the timeline of interviews and focus groups was determined by their willingness and accessibility. Lastly, there is no control over the degree of implementation of mentoring programs within a school, thus descriptions of experiences varied.

### Findings

The following four themes emerged from the analysis: (a) *varied types of support*, (b) *informal supports from colleagues*, (c) *observations and meaningful feedback*, and (d) *unclear expectations* during the experiences with mentors within the mentoring programs. Participants described *varied types of support* during the mentoring experience. Personal, instructional, collegial, and classroom management support were described by the participants in their relationships with mentors. Another finding was that participants frequently sought out *informal supports* from *colleagues* in their school building because of their availability. Colleagues were often more available for immediate assistance than an assigned mentor. Participants also experienced *observations* and meaningful *feedback* in their mentoring experience. Having an extra set of eyes in the classroom and accountability for their teaching during observations were described as valuable to the participants. Participants also found value in receiving constructive feedback following the observations. Lastly, participants experienced *unclear expectations* during mentoring. Participants shared that they did not feel the mentoring expectations were clear and voiced concerns over not being made aware of the program requirements in a timely manner. Participants were unaware of certain requirements and were unsure of the value of certain components in the mentoring program which created frustration and confusion within their mentoring relationship.

### Discussion

The primary goal of this phenomenological study was to uncover the lived experiences of first through third year secondary mathematics teachers who participated in a mentoring program and remain in teaching. Participants described receiving different types of support during the program from their mentor. Personal support was experienced and appreciated by all participants from their interactions with their mentors, but this type of personal support was not one they placed as a high priority from their mentor because they could find it in other relationships in their life. Rather, personal support was perceived as an encouragement during their beginning years of teaching. One participant said, “teaching can have very high highs and very low lows so having someone in your corner who is rooting for you and really wants to see you success and help you try new things is supportive.” With the challenges that are often experienced in teaching and in life, personal support may help encourage teachers to stay in the profession knowing they have support from colleagues. Beginning teachers indicated having someone available to lean on was appreciated throughout the ups and downs of teaching. A participant mentioned feelings of “drowning” and feeling “overwhelmed” often and that by reaching out to her mentor, she felt positively supported and encouraged in those conversations

as a beginning teacher. Established relationships with trusted mentors is critical to ensuring positive experiences for beginning teachers (Hudson & Hudson, 2016; Polikoff et al., 2015; Sowell, 2017; Sparks et al., 2017). Participants spoke on the established relationships with their mentor and how they were thankful for the positive, trusting relationships. One participant stated, “a positive relationship where I just feel like she is someone I can learn from and lean on.” For a beginning teacher new to the profession, a well-established relationship with a mentor provides personal support through the unknowns of teaching. Mentoring programs and relationships within the program are unique in the fact that they are specifically assigned individuals, put in the position to directly support beginning teachers during their initial years. With a goal to retain quality teachers and lower the beginning teacher attrition rate, a mentor holds a unique opportunity to provide extra personal support in times of struggle and when questions arise.

### **Instructional Support**

Participants described the support received about instruction as a valuable part of their experiences with their mentor in the mentoring program. Two participants both shared their mentor’s specific support in their mathematics curriculum issues and technology concerns. One participant stated, “my mentor found out how overwhelmed I was and has been supportive in discussing my questions on the curriculum whenever I reach out.” Another participant shared that her mentor was supportive to “bounce ideas off of for Algebra II” and that she received answers to her specific mathematical language and vocabulary questions. However, participants also discussed the subject or content knowledge held by their mentor revealing that they did not reach out to their assigned mentor for instructional support if the mentor lacked subject specific teaching experience. One participant stated that “I would not reach out to my mentor for any content specific support because she has not taught it before.” Pairing mentors with beginning secondary math teachers becomes complicated as math education contains multiple subjects to teach. Depending on the level of preparedness in a certain subject, a beginning teacher may lack the confidence from one mathematical subject to another. As an example, a secondary mathematics teacher may be more equipped to teach algebra while another may be better equipped to teach geometry. These two subjects in mathematics could have very different instructional approaches which for beginning teachers, may cause increased challenges. Participants in the study indicated their instructional coach provided some mathematics instructional support but having a mentor teaching the same subject to help with specific content and instruction would make for a positive experience. One participant stated that “I would receive some instructional support from my mentor, but there were subjects I was teaching that she had never taught before, so I did not feel comfortable asking her for support and asked others in my building instead.” Another participant shared, “if I have questions that impact my teaching, there are many other colleagues who I am going to go with those questions before my actual mentor”. This participant shared that this would occur because of the content knowledge and collaboration from the colleagues in the same building. With a goal to retain more effective teachers in their beginning years, pairing beginning teachers with mentors who teach the same subject areas provides more opportunities for instructional support.

Participants described feeling unsure of the mentor program expectations from their

assigned mentor because they were also their instructional coach. It is curious to know if the beginning teachers felt they had to distinguish between the support received from their mentors as a mentor or as an instructional coach. Perhaps as a beginning teacher not having experienced working with an instructional coach could find the different roles confusing and therefore, having clarification between the role of an instructional coach and that of a mentor may be helpful. Since instructional coaches have access to all teachers in the district, this distinction may help beginning teachers gain more understanding that will help them feel more connected to the district.

### **Collegial Support**

A surprising finding was that many participants felt their mentor offered support with colleagues in their building. One participant shared that “my mentor bounced ideas around with me to be vocal in my math collaboration as a first-year teacher and how to navigate being young in the profession with my colleagues.” Participants indicated trusted collegial support could be one benefit of not having a mentor permanently located in the same building. Specifically, one participant shared that this benefit was helpful because “I can talk through some hiccups and pains, and she doesn’t already have an opinion about those things. My mentor is someone I can talk to and know that nobody I work with will know my concerns”. The collegial support from their mentor was provided from an outside perspective which allowed the beginning teacher to feel comfortable in discussing encounters with other school building personnel. This finding may suggest beginning teachers struggle with collaborative interactions or when advocating ideas in their initial years. Hudson and Hudson (2016) found that beginning teachers value the preparation for challenging conversations. Participants spoke about the trust they developed with their mentor and the importance of that trust before sharing in critical conversations. One participant described that this established trust with her mentor allowed for her to “ask for help and receive advice on how to move forward” with challenging conversations in her mathematics department. It is also important to note that beginning teachers may struggle to feel connected or develop relationships with other school personnel. Since isolation has been found to be a reason beginning teachers leave the profession, mentor relationships hold an opportunity to support beginning teachers helping them develop connections while becoming acquainted with others in the school and throughout the district.

### **Classroom Management Support**

Research points to classroom management as the highest concern for beginning teachers (Bradley-Levine et al., 2016; Hudson & Hudson 2016; Sowell, 2017). Student demographics and challenging behaviors have been reasons that beginning teachers leave the profession (Gallant & Riley, 2014; Rajendran et al., 2020; Schaefer et al., 2012). Participants desired and appreciated classroom management support from their mentor as many stated they were unable to know what to expect as a beginning teacher. Participants indicated that they felt supported in their classroom management when their mentors provided assurance their classrooms were normal when compared to other beginning teachers’ experiences. Specifically, a participant shared that her mentor supported her in feeling that “things that are happening in my room as a first-year

teacher are normal compared to other first-year teachers.” Most participants spoke in length about the classroom management support and were most interested in learning different methods and strategies for effective classroom management. Two participants mentioned their mentor provided support with classroom management by implementing “Kagan strategies in the lesson” and “wait time in the classroom”. One participant shared that her mentor supported her to “try things that are out of my comfort zone”, while another participant noted that his mentor kept him aware of “why I am doing what I am doing a certain way and helps to combat any kind of mindless teaching.” The classroom management anxiety and the challenging behaviors experienced by the participants emphasized the importance of strong classroom management support for beginning teachers. Mentors are in a good position to offer this type of support which may lead to retaining more effective beginning teachers.

### **Lack of Availability for Support**

Mentor availability issues were shared by all participants. Interestingly, no mentors were in the same building in this study. For participants, email was for the most part an appreciated, consistent form of communication while it was less valued for mentoring conversations. One participant said he did not always reach out to his mentor because he could “zip across the hallway . . . a more efficient means for me to gather information.” Others voiced concerns about not being able to receive a quick response from their mentor but were grateful for colleagues within the building who provided support. Participants wondered about having the mentors located in the same building. One added, “I would appreciate the convenience of them being in my building because if I see them, it could maybe spark something I wanted to ask.” Participants emphasized the lack of mentor availability limited the degree to which their needs were met. Other participants mentioned that not having their mentor in the same building was a barrier which made it challenging to reach out with questions knowing that a response may not come as quickly as needed. The lack of mentor availability for beginning teachers may be an area for those directing mentoring programs to revisit. Considering the high beginning teacher attrition rate, state mentoring programs and local school districts should continue to review beginning teacher concerns and consider the ideal location of the mentor throughout the school day. Research on school mentoring found the location of a mentor in the same building as beneficial (Carr et al., 2017; Ingersoll & Strong, 2011; Polikoff et al., 2015; Smith & Ingersoll, 2004). In this study, participants also suggested that the positioning of a mentor in their school building could provide optimal support. When asked how it would look differently if a mentor was positioned in their same building, one participant shared that “having a set time where you meet every week would be nice instead of just trying to find a time that fits in my mentor’s schedule since she has others in the district to mentor”. Kolb (1984) acknowledges that learning occurs, in part, from observation and the reshaping of ideas in a continual process. With this in consideration, a mentor located in the school building provides the opportunity for questioning and conversation as new ideas emerge and challenges threaten to overwhelm. Face to face, consistent conversations with available mentors may lead to increased new teacher satisfaction while decreasing the attrition rate.

### **Informal Supports from Colleagues**

Colleagues acting as informal mentors were frequently mentioned by the participants. Upon describing why she reaches out more to colleagues than her mentor, one participant shared, “I am usually planning things last minute as a first-year teacher, so I just walk down the hall to whoever is here immediately.” According to the participants, mentors often traveled between buildings within the district or were unaware of building specific information, along with not having taught the same subjects. A participant said that “if I have a question about something, it is nice to not have to send an email and then wait for a response, so unfortunately, it falls more on my colleagues around me than my mentor.” Several studies identify the value in pairing mentors in the building who teach or have taught at least one similar subject (Bradley-Levine et al., 2016; Hallman-Thrasher et al., 2017; Ingersoll & Strong, 2011; Kang, 2011; Polikoff et al., 2015; Smith & Ingersoll, 2004). No participant in the study experienced a mentor who was a teacher who taught the same subject. Participants gave these as reasons why they would reach out to building colleagues instead of their mentors. One participant shared that “if they (mentors) were in the building, they could walk alongside of you instead of just being there to support you occasionally, but not really being present with you.” Colleagues acting as informal mentors provided opportunities for participants to observe teacher behavior and actively learn from consistent mathematical conversations and observations. They also valued the information received from colleagues who were also teaching mathematics. The consistent fluctuation between observing and acting on observations and sharing in discussions on mathematics led to increased understanding and action. Participants agreed that proximity of their colleagues and the connection to the same content was beneficial. The connection to mathematical content support from a colleague provides a vast bank of knowledge for a beginning teacher. This made the participants gravitate towards other colleagues, whom some referred to as informal mentors, instead of reaching out to their assigned mentor for assistance. Colleagues down the hallway provide beginning teachers the opportunity to receive continuous advice throughout the school day.

Beginning teachers enter the profession with an idea of what teaching will look like. Having a colleague that is in close proximity to have conversations about expectations and experiences provides an opportunity for the beginning teacher to reflect. While research has shown that beginning teachers have questions regarding ways to teach content (Bradley-Levine et al., 2016; Hallman-Thrasher et al., 2017; Hudson & Hudson, 2016; Martin et al., 2016), participants found most content-specific advice from their building colleagues instead of their mentors. Support from fellow colleagues was valuable to participants when they taught a new mathematics course for the first time and had questions regarding best practices. Participants found themselves learning from a mentor and their interactions with colleagues, which all add to the experiences of a beginning teacher. For beginning secondary mathematics teachers to grow in instructional strategies and effective practices, their first-year experiences may be improved by having a mentor who teaches the same subject. Isolation and lack of collaboration are just two of the reasons that beginning teachers leave the profession (Gallant & Riley, 2014; Rajendran et al., 2020). To lower the beginning teacher attrition rate and improve the mentoring experience for beginning secondary mathematics teachers, pairing veteran math teachers with beginning math teachers may promote collaboration and eliminate feelings of isolation.

## Observations and Feedback from Mentors

All seven participants referred to mentor observations which have become a common practice in induction programs (Hairon et al., 2020; Martin et al., 2016; Polikoff et al., 2015; Reitman & Karge, 2019; Sowell, 2017). Participants identified observations as some of the most helpful experiences of the program along with the constructive feedback that often followed an observation. One participant emphasized that observations were helpful because “I appreciate having extra eyes in the classroom”. Although the number of observations varied depending on the participant’s descriptions, those who had consistent observations valued the frequent presence of their mentor. One participant described the experience saying, “everything’s been positive and gets me thinking about what is going on in my classroom, so having lots of observations is positive.” Another also had a consistent mentoring observation experience with her mentor coming to observe every week and then having a follow-up conference after each observation. A third participant mentioned that he “appreciated the accountability, someone to whom I know I’m going to speak to about my teaching.”

Consistent observation schedules with beginning teachers not only lead to increased accountability but also provide more opportunities for the learning process through experience. Consistent observation schedules encourage and ensure that suggestions for instruction and management are being attempted by the beginning teachers. Two participants said they did not experience consistent observations and desired more planned observations with feedback. Most participants identified areas they needed to improve and welcomed feedback from mentors. One participant shared that she desires to be observed more for the opportunity “to receive constructive criticism and feedback.” Another participant also valued feedback because “if I teach the same class later on in the day after being observed, I can adjust whatever I need based on the feedback I receive.” It is evident that observations and constructive feedback are beneficial in the mentoring experience with regularly scheduled observations desired by beginning teachers.

The feedback following observations was also discussed with participants expressing appreciation for suggestions about effective teaching strategies. Participants also appreciated being stretched out of their comfort zones by being encouraged to try different teaching strategies. One participant mentioned that “sometimes it is uncomfortable. They do point out places where you can grow but obviously, we all need that.” Another participant also shared that her mentor encouraged her to try new things such as changing the layout of her classroom to allow for group work. She was also stretched out of her comfort zone and with support, felt at ease trying new strategies. Feedback from mentors holds the key in helping to develop beginning teachers’ skills and confidence. Participants acknowledged they have a lot to learn and appreciated the feedback that allowed them to reflect on their work. Reflection, according to Kolb (1984), is critical to the learning process. Mentors observing beginning teachers and providing constructive feedback that includes trying new strategies is beneficial to beginning teachers and may lead to higher retention rates.

## **Unclear Expectations**

The results indicate that the participants were unclear about the state's mentoring program expectations and desired efficient methods of communication with a justification for the requirements. One participant described some program expectations in his experience as "more like checking a box than it does equipping us for success." Another participant shared, "I know it is like drinking from a fire hose of information your first year, but I am unclear on the requirements." A third participant suggested that she never received any "overview of the expectations" and "finds out information when it is happening or only a few days before." Research has shown that mentoring programs commonly have requirements such as seminars and professional development for their beginning teachers (Kang & Berliner, 2012; Killeavy, 2006; Reitman & Karge, 2019). However, beginning teachers do not always find the same level of significance for requirements thought to be beneficial (Kang & Berliner, 2012; Martin et al., 2016; Smith & Ingersoll 2004). Case in point, most participants did not find some requirements of their mentoring experience valuable to their teaching. Other participants found challenges understanding the important of some requirements. Regarding a seminar that was required to be attended, one participant described it as "not super helpful. It felt like it was more geared towards elementary education." During a focus group discussion, three participants described that they had just been made aware of a book that they were required to read for the program, and they shared their negative and unmeaningful experiences with the book now that they knew they were required to read one. Findings suggest that beginning teachers often do not understand the reasons for mentoring requirements which may be resolved by linking mentor program requirements to their daily teaching responsibilities.

While mentoring experiences look different for each beginning teacher, this study substantiates much of what previous research revealed about school mentoring experiences. With the hope of reducing beginning secondary mathematics teacher attrition rate, providing support is a critical component in mentoring relationships. Mentor availability to meet beginning teachers' needs is critical. Therefore, pairing beginning teachers with mentors located in the same building is closer to assuring beginning teachers receive the support needed in a timely fashion. Additionally, a mentor located in the same building may also promote more consistent observations and timely feedback which participants highly valued.

## **Implications for Practice**

Based on the findings from the study, there are recommendations for practice and mentoring programs. This qualitative study has a small sample size; therefore, the given recommendations for policies in a mentoring program are consistent suggestions from the participants in this study and not necessarily generalizable. One such implication is that school leaders assigning mentors should assign personnel who are in the same building and who teach or have taught at least one of the same subjects as the beginning teacher. This suggestion provides more accessibility for beginning teacher needs and opportunity for collaboration. Specifically related to mentoring programs, a recommendation from participants is that mentoring programs should be designed to protect time for weekly discussions on student discipline and challenging behaviors, lesson plan development, grading in the classroom, structured group work strategies, having a voice in

collaboration, and curriculum standards. Mentoring programs also should ensure that mentors make routine the practice of observing and providing constructive feedback often. This timely, constructive, and continuous communication and feedback throughout the mentoring relationship is beneficial to beginning teachers. Mentoring programs should have these components established and clearly communicated to mentors and mentees.

### **Recommendations for Future Research**

The following recommendations for future research are based on the findings from the study:

- A case study that includes beginning secondary mathematics teachers in their first three years to see how mentoring needs change over the course of a school year.
- A quantitative design with a survey to be completed by all beginning high school teachers in multiple states to identify effective mentoring strategies.
- A phenomenological study to examine the experiences of mentor teachers in different size school districts who are housed in the same building as their mentees.
- Compare beginning teachers with mentors to beginning teachers not assigned mentors to identify differences in teachers' willingness to remain in the profession.
- Survey to gather data from beginning teachers who are assigned mentors in different states to compare state mentoring programs based on the state's mentoring requirements.

### **Conclusions**

Varied types of support were experienced for the first through third year secondary mathematics teachers in the study in the form of personal, instructional, collegial, and classroom management support. All participants experienced personal support although it was not the most sought out form of support. Participants found instructional support to be of utmost value. Instructional support was especially effective when the mentor had experience teaching the same subject. Over half of the beginning teachers mentioned that collegial support was important to assist them in finding their voice with colleagues and other teaching professionals. Almost all participants mentioned that support with classroom management provided new ideas for effective structure and routine in their classroom.

Another conclusion from the findings suggests that lack of mentor accessibility throughout the day may limit the effectiveness of the mentoring process. Participants described contacting mentors via email and receiving responses later that day or a few days after which failed to offer support for issues needing more of an immediate response. This led to participants reaching out to colleagues located in their building more than their mentors. In fact, all participants mentioned relying on their colleagues as informal mentors. These informal mentoring meetings were a frequent part of the participants' first years often because they were in same building and teaching the same subject. Based on shared participants experiences, informal mentors serve as efficient supporters who can provide immediate feedback when assigned mentors are not in the building.

A third conclusion based on the findings suggests that having frequent and consistently scheduled observations followed with constructive feedback is highly valued. While it is

encouraging to have an extra set of eyes in the classroom, participants found the conversations that included constructive feedback led to feeling more instructionally effective. Most participants received feedback through email a few times but preferred it delivered in person as that presented opportunities for discussion with their mentor.

Participants indicated that they were not clear about the requirements and expectations of the mentoring program. In the state where participants were teaching, individual school districts design their mentoring programs based on the state requirements. While participants described being unsure about the requirements from their mentors, they did not see the value of extra webinars and meetings that were a part of the mentoring experience. Another requirement involved the participant in a book discussion with the mentor. Participants involved in the book discussion did not find the activity significant to their level of experience. Others described not seeing the purpose or the relevance of the activities to what they needed as beginning teachers. Participants believed communications explaining the relevance of the requirements and detailing the expectations could improve the mentoring experience. Designing mentoring programs that emphasize clear communication and provide beginning teachers reasons for the mentoring assignments may strengthen the mentoring process and lead to increased teacher satisfaction.

## References

- Bradley-Levine, J., Lee, J. S., & Mosier, G. (2016). Teacher mentoring as a community effort. *School Science and Mathematics, 116*(2), 71-82. <https://doi.org/10.1111/ssm.12158>
- Carr, M. L., Holmes, W., & Flynn, K. (2017). Using mentoring, coaching, and self-mentoring to support public school educators. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 90*(4), 116-124. <https://doi.org/10.1080/00098655.2017.1316624>
- Carver-Thomas, D., & Darling-Hammond, L. (2019). The trouble with teacher turnover: How teacher attrition affects students and schools. *Education Policy Analysis Archives, 27*, 36. <https://doi.org/10.14507/epaa.27.3699>
- Clark, S. K., & Byrnes, D. (2012). Through the eyes of the novice teacher: Perceptions of mentoring support. *Teacher Development, 16*(1), 43-54. <https://doi.org/10.1080/13664530.2012.666935>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design* (4<sup>th</sup> ed.). Thousand Oaks, CA: Sage Publishing.
- Darling-Hammond, L. (2003). Keeping good teachers: Why it matters, what leaders can do. *Association for Supervision and Curriculum Development, 60*(8), 6-13.
- Dağ, N & Sari, M. (2017). Areas of mentoring need of novice and preservice teachers. *International Electronic Journal of Elementary Education, 10*(1), 115-129. <https://doi.org/10.26822/iejee.2017131892>
- Dawson, V., & Shand, J. (2019). Impact of support for preservice teachers placed in disadvantaged schools. *Issues in Educational Research, 29*(1), 19–37.
- Gallant, A., & Riley, P. (2014). Early career teacher attrition: New thoughts on an intractable problem. *Teacher Development, 18*(4), 562–580. <https://doi.org/10.1080/13664530.2014.945129>
- Gray, L., Taie, S., & O'Rear, I. (2015). (rep.). *Public school teacher attrition and mobility in the first five years: Results from the first through fifth waves of the 2007-08 beginning teacher longitudinal study*. Retrieved from <https://nces.ed.gov/pubs2015/2015337.pdf>
- Hallman-Thrasher, A., Connor, J., & Sturgill, D. (2017). Strong discipline knowledge cuts both ways for novice mathematics and science teachers. *International Journal of Science and Mathematics Education, 17*(2), 253–272. <https://doi.org/10.1007/s10763-017-9871-x>
- Hairon, S., Loh, S. H., Lim, S. P., Govindani, S. N., Tan, J. K. T., & Tay, E. C. J. (2020). Structured mentoring: Principles for effective mentoring. *Educational Research for Policy and Practice, 19*(2), 105–123. <https://doi.org/10.1007/s10671-019-09251-8>
- Heikkinen, H. L., Wilkinson, J., Aspfors, J., & Bristol, L. (2018). Understanding mentoring of new teachers: Communicative and strategic practices in Australia and Finland. *Teaching and Teacher Education, 71*, 1–11. <https://doi.org/10.1016/j.tate.2017.11.025>
- Hong, Y., & Matsko, K. K. (2019). Looking inside and outside of mentoring: Effects on new teachers' organizational commitment. *American Educational Research Journal, 56*(6), 2368–2407. <https://doi.org/10.3102/0002831219843657>
- Hudson, P., & Hudson, S. (2016). Mentoring beginning teachers and goal setting. *Australian Journal of Teacher Education, 41*(10), 48–62. <https://doi.org/10.14221/ajte.2016v41n10.4>

- Ingersoll, R. M., & May, H. (2012). The magnitude, destinations, and determinants of mathematics and science teacher turnover. *Educational Evaluation and Policy Analysis, 34*(4), 435–464. <https://doi.org/10.3102/0162373712454326>
- Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers. *Review of Educational Research, 81*(2), 201–233. <https://doi.org/10.3102/0034654311403323>
- Kang, S. (2011). Understanding the impacts of mentoring on beginning teacher turnover. *National Teacher Education Journal, 4*(4), 87–97.
- Kang, S., & Berliner, D. C. (2012). Characteristics of teacher induction programs and turnover rates of beginning teachers. *The Teacher Educator, 47*(4), 268–282. <https://doi.org/10.1080/08878730.2012.707758>
- Kardos, S. M., & Johnson, S. M. (2010). New teachers' experiences of mentoring: The good, the bad, and the inequity. *Journal of Educational Change, 11*(1), 23–44. <https://doi.org/10.1007/s10833-008-9096-4>
- Killeavy, M. (2006). Induction: A collective endeavor of learning, teaching, and leading. *Theory Into Practice, 45*(2), 168–176. [https://doi.org/10.1207/s15430421tip4502\\_9](https://doi.org/10.1207/s15430421tip4502_9)
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.
- Martin, K. L., Buelow, S. M., & Hoffman, J. T. (2016). New teacher induction: Support that impacts beginning middle-level educators. *Middle School Journal, 47*(1), 4–12. <https://doi.org/10.1080/00940771.2016.1059725>
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation*. Jossey-Bass.
- Peoples, K. (2021). *How to write a phenomenological dissertation: A step-by-step guide* (Vol. 56). SAGE Publications, Inc.
- Polikoff, M. S., Desimone, L. M., Porter, A. C., & Hochberg, E. D. (2015). Mentor policy and the quality of mentoring. *The Elementary School Journal, 116*(1), 76–102. <https://doi.org/10.1086/683134>
- Rajendran, N., Watt, H. M. G., & Richardson, P. W. (2020). Teacher burnout and turnover intent. *The Australian Educational Researcher, 47*(3), 477–500. <https://doi.org/10.1007/s13384-019-00371-x>
- Reitman, G. C., & Karge, B. D. (2019). Investing in teacher support leads to teacher retention: Six supports administrators should consider for new teachers. *School Administration, Multicultural Education, & Inclusion*.
- Schaefer, L., Long, J. S., & Clandinin, D. J. (2012). Questioning the research on early career teacher attrition and retention. *Alberta Journal of Educational Research, 58*(1), 106–121.
- Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *Educational Evaluation and Policy Analysis, 26*(3), 681–714. <https://doi.org/10.3102/01623737026003681>
- Sowell, M. (2017). Effective practices for mentoring beginning middle school teachers: Mentor's perspectives. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 90*(4), 129–134. <https://doi.org/10.1080/00098655.2017.1321905>
- Sparks, J., Tsemenhu, R., Green, R., Truby, W., Brockmeier, L. L., & Noble, K. D. (2017).

- Investigating new teacher mentoring practices. *National Teacher Education Journal*, 10(1), 59–65.
- Trevethan, H. (2018). Challenging the discourse of beginning teaching: Only one crying phone call. *New Zealand Association for Research in Education*, 53, 49–63.
- Wang, J., & Odell, S. J. (2002). Mentored learning to teach according to standards-based reform: A critical review. *Review of Educational Research*, 72(3), 481–546.  
<https://doi.org/10.3102/00346543072003481>