

PREASSESSMENT DATA AND DIFFERENTIATION IN MIDDLE SCHOOL
MATH CLASSROOMS

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By
Brittany Mitchell
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PREASSESSMENT DATA AND DIFFERENTIATION IN MIDDLE SCHOOL
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Brittany Mitchell

Date Recommended 4/16/2024

DocuSigned by:
Julia Roberts
C26C8A2C54854BF...
Chair

DocuSigned by:
Janet Tassell
F74D585B2BEF420...
Committee Member

DocuSigned by:
Mary Evans
84452AE49F954FD...
Committee Member

DocuSigned by:
Tracy Ince
F1B8FB4CCB9946E...
Committee Member

DocuSigned by:
Jennifer Hammonds
EBE3858E068F42D...
Interim Director of the Graduate School

ABSTRACT

PREASSESSMENT DATA AND DIFFERENTIATION IN A MIDDLE SCHOOL MATH CLASSROOM

This research study investigates the use of preassessment data to guide differentiated instructional strategies in educational settings. Since there has been an increased awareness of diverse learning requirements among students, differentiated instruction has become a highly researched topic and proved to be an effective strategy used to address different learning modalities, interests, and levels of readiness. However, there has been little research aimed at differentiating for a middle school math classroom. In this study, qualitative methods are employed, and interview transcripts are the primary sources of data. Findings revealed that math teachers understand the benefits of preassessments and differentiation strategies, however are not consistently utilizing them in their classrooms due to several limitations. Implications for current math educators are suggested that may improve the use of preassessment and differentiation strategies within the classroom.

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Introduction

In today's model of modern education, teachers seek to provide quality instruction that addresses the individual needs and learning modalities of all students. Recognizing and addressing the diverse needs and prior knowledge of students are crucial in fostering a deeper understanding of mathematical concepts and promoting academic success. The range of needs in a classroom can vary by student and by subject. In most classrooms, there are diverse learning styles, ranging from visual and auditory, to kinesthetic learners. Along with learning styles, the proficiency levels in a math classroom can widely vary. Some students may require remedial support, while others may require advanced or enriched material. Recognizing student strengths and teaching to those strengths can help ensure students are receiving a quality, meaningful education.

One important tool in implementing differentiated instruction is the strategic use of preassessment data. Instructional practices must be guided by data to ensure student achievement. Preassessments do not have to be in the form of pen and paper; they can look different based on the class and subject. Roberts and Inman (2023) suggest multiple forms of preassessment that provide teachers with the information about students' level of understanding prior to teaching the lesson. These include end-of-the-previous unit assessment, end-of-the-unit assessment, T-W-H and K-W-L charts, mind maps, the five most difficult questions, open-ended questions, and interest and experience inventories. Through analyzing preassessment data, teachers may better understand students' prior knowledge regarding various mathematical concepts.

Preassessment data may also assist teachers in creating differentiated lessons tailored to the needs of each student. Through preassessments, teachers can gauge the learning preferences

of their students and create differentiated instruction to match their learning styles. While many educators are able to recognize the importance of meeting the needs of all students, the constraints of district-mandated curriculum and a lack of time and support may hinder the teachers' ability to implement effective preassessment strategies. Educators understanding what their students can do can change the tone of their classroom and the will of reluctant learners (Tomlinson, 2003).

This qualitative study focuses on how middle school math teachers utilize preassessment data to provide differentiated instruction. Many studies have been conducted about differentiating instruction, and several bodies of research exist on the use of preassessments. This study focused specifically on preassessment data and differentiation methods used in various middle school math classrooms. Teachers from a school district in a suburban area of Kentucky were interviewed as the means for data collection. The purpose of this study was to find practical examples and strategies that illustrate how preassessment data can inform and guide differentiation practices in a real-world, math classroom. By learning from teachers' experiences, this study offers recommendations to educators and stakeholders.

Literature Review

Characteristics of Students Gifted in Mathematics

Students who are gifted in mathematics exhibit many characteristics, such as exceptional cognitive skills, intrinsic motivation, advanced problem-solving skills, and high levels of abstract thinking. Gifted students may display advanced reasoning skills and are able to grasp mathematical concepts quickly. These students typically show a strong intrinsic motivation and passion for the subject and are driven to explore advanced topics, engage in mathematical competitions, and seek out additional learning opportunities. One study reported mathematically

advanced students were quicker when solving the problems and developed better generalization and proving skills (Singer et al., 2017). These students approach mathematical challenges with creativity and flexibility. Their ability to think critically and analytically allows them to navigate complex mathematical problems.

Gifted math students encompass a much broader spectrum than those who display inherent mathematical aptitude. “The widespread belief in the United States that mathematical geniuses are born that way and that others are born unable to do mathematics at high levels is perhaps the most dangerous of all these myths” (Sheffield, 2016, p. 15). Gifted math students include a much greater range of students than those who exhibit pre-existing mathematical skills. Students with a fixed mindset or who believe math ability is something you are born with, do more poorly learning mathematics than those with a growth mindset (Sheffield).

Acknowledgement should be given to the idea that mathematical abilities are capable of being cultivated, they are not inherent traits possessed by only certain students (Sheffield, 1994). It is imperative to recognize that mathematical abilities can be nurtured and developed, rather than being exclusive traits reserved for a select group of students.

Issues in Meeting the Needs of Gifted Students

Advanced learners need elevated instruction, encompassing high-quality curriculum that draws on components of each discipline. They merit instruction at or above their grade level in every subject area (Swanson et al., 2019). To encourage critical thinking in a math classroom, “teachers need to encourage and support risk taking, ask open-ended questions that are of interest to investigate, and focus on fluency, flexibility, originality, and elaboration” (Kettler & Curliss, 2003, p. 301). Many math classes have a mandated curriculum. Straying from this long-range, instructional path may be challenging for teachers, provided they also feel responsible for their

students' academic achievement on state-mandated, standardized testing. However, by designing learning experiences that engage students through open-ended problems with a number of solutions, teachers may better serve their students, in particular, those who have been identified as advanced and/or gifted and talented (Kettler & Curliss,).

Similar to the utilization of preassessments, a lack of instructional time, resources, and support can make differentiating instruction a challenging task for teachers. Kettler and Curliss (2003) suggest that learner differences in a math class may be significant and having access to a variety of resources is essential for effective differentiation. "Effective differentiation involves thinking about how students can move around in the room, how you will give directions for multiple tasks effectively, and how students can get help if you're working with a small group" (Wu, 2013, p 129). Creating plans that respond to all students' learning requires time. When it comes to differentiation, that time is consumed primarily on the front end, since laying the groundwork likely saves time in the end (Latz et al., 2008). Teachers may be hesitant to embrace differentiation due to insufficient support from administration, concerns about deviating from mandated curricula, challenges in classroom management or addressing student behavioral issues, resistance to change, and limitations in available time (Latz et al.). Despite these challenges, differentiation is as important for the educator as it is for the student (Pavelock & Harlin, 2013). The goal is to reach each student at their level to increase student engagement. By getting to know students through preassessment data, educators can differentiate more effectively.

Addressing the needs of gifted and talented students is a work in progress; however, educators are falling short in meeting the specific needs of gifted learners (Swanson et al., 2019). Some educators express that the mission of their school is more heavily weighted toward

supporting low achieving students. Some teachers are simply at a novice level in differentiation. They understand the concept, but they do not feel familiar with preassessments or different learning strategies to the degree they are confident in incorporating it into their daily teaching (Latz et al., 2008). According to Andrews (2021), teachers employ some differentiation strategies in their classroom, but there is minimal distinction in the strategies used for gifted students compared to other students. In response to intervention, one study found participants expressed a lack of belief in their ability to allocate the necessary time for differentiation, documentation, and progress monitoring at the required level (Seedorf, 2014). Teachers need assistance and support with this process.

Many districts have mandated curriculum that teachers are expected to use with fidelity. In instances where districts indicated the presence of designated curricula, one study observed minimal disparity in the accessibility of curriculum explicitly tailored for gifted and talented students in mathematics or reading (Gubbins et al., 2021). Along with mandated curriculum, many states have adopted the Common Core (*Mathematics Standards | Common Core State Standards Initiative*, 2021), which changes the way teachers teach, the way they present material, and when they present material. Common Core can assist in differentiating instruction, but teachers often revert back to more comfortable methods (Swanson et al., 2019).

The Role of Pressessment

Preassessments are used in education to determine students' prior knowledge and skills, enabling teachers to differentiate instruction effectively. According to Guskey and McTighe (2016), preassessments are the tools and techniques employed by an educator to ascertain the prior knowledge, abilities, or attitudes of students prior to beginning instruction. Preassessments

play an essential role in education, acting as educational roadmaps that pave the way for effective instruction. Evaluation tools such as surveys, tests, interviews, or other methods can be used to understand the supports and enrichments students need to be successful. Pretesting stands out as a highly accessible tool for differentiation, as it doesn't necessarily have to rely on paper-and-pencil methods, making it a crucial practice for all differentiated teaching approaches (Counsell & Fiedler, 2017).

Using preassessment data is essential in identifying prior knowledge and determining student readiness to differentiate instruction. Educators can also use preassessments to recognize different learning styles, while also identifying students' interests and motivations.

“Preassessment is a necessary step if instruction is to be meaningful and motivating to students; it establishes the starting point for learning experiences, so students can make continuous progress” (Roberts & Inman, 2023, p. 54). While most educators may agree that preassessments are important, “Evidence from research is hard to find to show that teachers consistently use preassessment data in planning instruction or that the use of such data leads to improved student learning” (Guskey & McTighe, 2016, p. 39). Due to time constraints, a lack of awareness, and limited training and support, preassessments are likely not being used as effectively as possible. However, as our educational system continues to evolve, the role of preassessment data will become increasingly important, guiding decisions and supporting student success.

Differentiation

Differentiation is about finding strategies that allow educators to accommodate the various needs of students through tailored instruction. Carol Ann Tomlinson, an educator known for her work with differentiation, says in an interview with Wu (2013, p. 126), “Almost any good instructional strategy will allow you to do different things at different times with different

students.” The process of differentiation integrates diverse instructional methods and materials to boost and inspire the learning styles of different students (Reis & Renzulli, 2018). To implement differentiated curricula and instructional practices, teachers need to adjust both the depth and complexity of concepts, along with the pace of instruction (Kettler & Curliss, 2003).

Differentiation practices are frequently observed in a typical, general education classroom for struggling students, but adjustments for advanced and, at times, even average learners are often less prevalent, (Andrews, 2021). A one-size-fits-all approach does not benefit students with varying levels of interests, abilities, and experience.

Reis and Renzulli (2018), suggest five dimensions of differentiation: content, instructional strategies, the classroom environment, products that allow students to express what they have learned in different ways, and the teacher to provide consistent differentiation in a progressive manner. Students need modified content that is based on their readiness level and their interests along with options to show mastery. In order to ensure continuous growth, it is imperative that highly-qualified teachers are adjusting their strategies (and even curriculum) to fit the needs of their students as well as creating a classroom environment that is supportive and inclusive of diverse learners.

Differentiated instruction may not look the same in all classrooms. For example, learning stations, small group instruction, or tiered lessons are forms of differentiated instruction, and can change depending on the learning goals and characteristics of students. Educators enhance the effectiveness of their instruction by adjusting both the depth and complexity of their teaching, as well as the pace of instruction (Kettler & Curliss, 2003). To tackle current performance levels, an educator might consider the content being explored, the instructional methods employed, and the manner in which students engage in the lesson to demonstrate their understanding of essential

concepts (Swanson et al., 2019). This holistic approach to differentiation ensures that instruction is tailored to meet the unique needs and abilities of each learner.

Reis and Renzulli (2018), Roberts and Inman (2023), and Tomlinson (2015) describe effective methods of differentiation such as enrichment, more challenging material, and a faster pace of instruction. “Enrichment opportunities enable children to move beyond grade level lessons and extend the regular curriculum, with individualized opportunities” (Reis & Renzulli, 2018, p. 90). Tomlinson (2015) talks about the idea of “teaching up,” where teachers design tasks that offer effective challenges suitable for advanced or high-end learners, and subsequently, they differentiate or scaffold learning to facilitate a wide range of learners in engaging with that “advanced” level of knowledge. Faster paced instruction can be an effective way to differentiate for the students who thrive on accelerated content delivery and deeper exploration of complex concepts.

When analyzing the utilization of math domain-specific identification, one study revealed a higher likelihood of offering advanced content and/or implementing differentiated learning experiences for those students (Gubbins et al., 2021). Differentiation can take many forms in a math classroom, but it is up to the educator to create those opportunities for those students. Gifted students attributed their academic success, interests, and motivation to their experiences with teachers (Siegle et al., 2013). Effectively catering to advanced learners requires the integration of higher-level challenges into the course sequences they undergo throughout their school years, beginning in their primary years (Smith & Stonequist, 2021). Teachers should be engaging students in challenging tasks, observing and listening while students work so they are able to offer the appropriate level of support for a wide array of diverse learners (Smith et al., 2017).

To ensure all students are receiving an educational experience that meets their needs and interests, differentiation is essential. Differentiation does not mean more work (Latz et al., 2008). Effective differentiation means the teachers know their students' interests and needs and recognize the strengths of each individual student. With this information, teachers can "provide opportunities both for whole class work on shared goals and individual and small group work on more personalized goals that must be addressed to pave the way for individuals' academic growth" (Tomlinson, 2015, p. 205).

Methodology

The purpose of this research study was to determine how middle school math teachers use preassessment data to differentiate instruction. This study provides insight into teachers' instructional practices through six interviews. Teachers interviewed taught a variety of classes, such as general education, special education, and accelerated classes. General education classes consist of special education students and regular education students. Special education classes consist of students who receive an Individualized Education Plan (IEP). Accelerated classes consist of advanced students who learn above grade level.

Of the six participants, three were from a middle school for grades 7 through 8, consisting of 735 students, with 63% white, 14% Asian, 8% Hispanic or Latino, and 14% other. Slightly over half (55.6%) of students from this school are considered economically disadvantaged, and 29% of students are identified as gifted and talented. The remaining three participants were from three different middle schools. One middle school, with grades 7 through 8, consisted of 781 students, with 72.5% white, 9.6% Asian, 6.5% African American, and 11.4% other. Economically disadvantaged students made up 47.8% of the student population, and 20% were identified as gifted and talented. The second middle school also contained grades 7 through

8, consisting of 481 students, with 70% white, 11.4% Hispanic or Latino, 10.2% African American, and 8.3% other. Of the total number of students, 63.8% were considered economically disadvantaged, and 20% were identified as gifted and talented. The final middle school, grades 6 through 8, had 1,055 students enrolled, with 69% white, 9% African American, 9% Hispanic or Latino, and 7% Asian. A total of 34% of students qualified for free or reduced lunch, with 21.6% identified as gifted and talented (Kentucky School Report Card, n.d.).

Research Method

This qualitative research was completed using a sample size of 6 middle school math teachers from a suburban school district in Kentucky. The teachers interviewed had various levels of experience, from 6 years to 30 years in the classroom. (See Table 1 for more demographics of participants). These semi-structured interviews allowed for an in-depth exploration of middle school math teachers' perspectives, experiences, and practices. Themes were extracted from the transcripts through the researcher becoming familiar with the data by reading and re-reading the transcripts to gain a comprehensive understanding of the content. Categories were then created based on similarities in responses. Recurring patterns, commonalities, and variations in responses were identified and highlighted to create themes and subthemes.

Subjects

Participants in this study (n=6) volunteered to participate in an interview via Google Meets. All discussions were transcribed. Questions were asked regarding the teachers' thoughts, opinions, and utilizations of preassessments and differentiation methods.

Table 1

Demographic Information and Designators for Subjects Used in the Study

| Subject | Teaching Experience (Years) | Highest Level of Education Achieved (At time of study) | Subjects Taught (At time of study) |
|---------|-----------------------------|--|--|
| P1 | 6 | Bachelor's Degree | 7th Grade Math |
| P2 | 7 | Bachelor's Degree | 7th Grade Math |
| P3 | 8 | Master's Degree (Anticipated Spring 2024) | 8th Grade Math |
| P4 | 15 | Ed.S., Gifted and Talented Education (Anticipated Spring 2024) | 7th Grade Math (Advanced) 7th Grade Math (Special Education, Coteacher) |
| P5 | 20 | Not Specified | 8th Grade Algebra 8th Grade Geometry |
| P6 | 30 | Master's Degree | 7th Grade Math 8th Grade Math |

Procedures

Interview questions were created in order to understand if and when teachers use preassessments and the different strategies they use to differentiate instruction. (See Appendix A.) Teachers were asked to describe the curriculum they used. Since all were from the same district, they used Desmos and Illustrative Math as their main curriculum. Understanding the purpose of Professional Learning Communities (PLCs) allowed the researcher to understand the goals of the PLC and the overall effectiveness of the PLC. This helped the researcher understand how/if the discussion of preassessments and/or differentiation were occurring during planning times. The questions “What are your thoughts and opinions about preassessments?” and “What are your thoughts and opinions about differentiation?” were necessary to gauge teachers’ insights into their actual classroom practices. Exploring their opinions helped to identify successful

practices, challenges faced, and student impact. The next portion of questions focused on how preassessments were created, analyzed, and used to differentiate instruction. This was crucial to the study to determine if, in fact preassessments were used, and, if not, the limitations teachers experienced to prohibit them from using preassessments. Initially, the researcher hoped to better understand how preassessments were being utilized in the classroom. What was more prevalent was the use of differentiation strategies to achieve a similar goal of reaching every student at their current academic level.

Data Collection

The researcher sent a letter to the assistant superintendent requesting permission for teachers in their school district to participate. The assistant superintendent then distributed the request letter to middle school principals who then reached out to the teachers they supervise. Based on teacher response, the researcher was able to acquire 6 participants. All interviews were approximately 25 minutes in length. Once completed, all interviews were transcribed through Google Meets and edited by the researcher. Questions were designed to gain insight into teachers' perceptions on using preassessments and differentiated instruction in their classrooms.

Analysis

All transcripts were analyzed and coded after multiple readings. Initial codes were generated by identifying patterns, recurring themes, and noteworthy quotes related to preassessment, differentiation, and other factors that influence both of these strategies. Codes were organized into themes and subthemes. Themes were continuously reviewed and revised to ensure coherence and comprehensiveness. Interpretations aimed to provide insight into educators' perspectives, practices, and challenges regarding preassessment and differentiation.

Reliability

Once the transcripts were completed and edited, subjects were sent a Google document containing their interview transcription. If the subject requested that parts of the interview should be edited further to reflect the subject's thinking, these changes were made. Of all the subjects, one asked to make edits, which the researcher allowed, and two others noted grammatical errors or misspellings of software or curriculum used. No changes were made that would affect the meaning or interpretation of raw data.

Results

Interview data sets were analyzed through qualitative means. Individual responses were transcribed, and themes were constructed based on interview responses. The major themes gleaned from conversations relating to the use of preassessments and differentiation are detailed below:

1. Teachers are using alternative ways to assess student knowledge.
2. Teachers are effectively using preassessments.
3. Limitations of using preassessments were described.
4. Differentiation strategies are evident in teaching practices.

Theme 1 : Teachers are using alternative ways to assess student knowledge

Data related to Theme I are relayed in Table 2.

Table 2

Theme 1 Question Analysis

| Theme | Question | Sub-Category | Quantity |
|---|---|--|---------------|
| Teachers are using alternative ways to assess student learning. | 2. How often do you work with your PLC? | 1. Teachers are using formative assessments. | 1. 6/6 (100%) |
| | 2a. Please describe the main goals of | 2. PLC groups use alternative | 2. 6/6 (100%) |

| | | | |
|--|---|--------------|--|
| | your PLC. 4. What are your thoughts and opinions about preassessment? 9. What do you use to plan or guide your instruction? | assessments. | |
|--|---|--------------|--|

Each subject was asked what they use to guide their instruction, and 100 percent of participants (6 out of 6) suggested alternative strategies, besides preassessment for assessing student knowledge. Teachers mentioned using formative assessments and other common assessments to guide their PLC and plan instruction. P1 said, “I just feel like it's a better use of [time] to start and kind of see where the gaps are and then fill those in through the instruction.” This statement reflects a shift towards using alternative assessments, such as formative assessments, that prioritize active learning, identifying specific areas of need, and adapting instruction accordingly, rather than using preassessment data.

Teachers were asked in question 2, “What are the main goals of your PLC?” P1 mentioned they use formative assessment data to show what students are learning. Similarly, P1 said their main goal is looking at student data through formative assessments during their PLC time. One hundred percent of participants mentioned using some form of student data to discuss progress during their PLC time. According to P1, the main goals of PLCs are to “review last week’s goal of what we were trying to accomplish, then we do a data check and we look at what the data shows about student learning based on our last formative assessment.” P2 stated, “We’re looking at that student data to best proceed and think about what the next steps are” in response to their goals of PLC. P5 stated the main goal of their PLC is “looking at the data from the

previous week and using that to drive for the next week.” In summary, the main goals of PLC’s reported by the participants include utilizing formative assessment data to understand student learning, reviewing and analyzing student data to inform instructional decisions, and using insights from past assessments to guide future teaching strategies.

The use of formative assessments to guide instruction or plan lessons is mentioned by 50% of the participants in question 9, “What do you use to plan or guide your instruction?” P3 said weekly checks, which were described as a quiz, are used to guide instruction. P5 stated they use a ‘check your understanding’ piece and “will do some intro things if I feel like they need to brush up on something.” P2 responded with “not so much preassessment, more just the formative [assessment] with the regular classes.” The incorporation of formative assessments used as a primary tool in informing instruction was emphasized by half the participants.

Other methods participants use to assess student knowledge are bell-ringers, reflection activities, and weekly temperature checks. P1 uses the prediagnostic from the curriculum as a bell-ringer. P2 stated they “use bell-ringers to pull prior knowledge.” P6 uses a reflection activity after unit assessments. P4 does a weekly temperature check to assess where students are. Participants suggested the use of various assessment tools to gauge what their students know and what they have learned.

Theme 2: Teachers are using preassessments effectively

Data related to Theme II are relayed in Table 3.

Table 3

Theme 2 Question Analysis

| Theme | Question | Sub-Category | Quantity |
|-----------------------------------|------------------|---------------------------|------------------------------|
| Teachers are using preassessments | 4. What are your | 1. Placement of students. | 1. 4/6 (67%) 2. 3/6 (50%) |

| | | | |
|--------------|---|--|--|
| effectively. | thoughts and opinions about preassessment? 6. How do you use preassessments? 9. How can incorporating preassessment data benefit your teaching methods or student outcomes? | 2. Use for intervention. 3. Confident using preassessments 4. Preassessments created by teacher. | 3. 2/6 (33%) 4. 4/6 (67%) 5. 3/6 (50%) |
|--------------|---|--|--|

Teachers are using preassessment data to place students in intervention classes or to ensure they are placed in the most appropriate advanced class. Four of 6 (67%) teachers said they use preassessments for placement of students. When asked “What are your thoughts and opinions on preassessments?” (i.e., question 4), P2 said, “We’ve been using preassessments a lot with our intervention kids... grouping students in those interventions for every unit. We use preassessments with them, specifically on prerequisite skills.” Furthermore, P2 stated, “We group together those students who perform similarly....” P2 again talked about using preassessments for lower level students: “We use preassessments for students scoring in the 40th percentile.” P3 stated they find it useful in smaller groups like RTI. P3 stated, “In our RTI we do preassess for every unit, and that is called a diagnostic.” P5 used preassessments to determine if students were appropriately placed in the advanced classroom. P6 stated their school is using end-of-year MAP testing to place students in a class for the next year: “If a student is correctly placed according to their percentile ranking, preassessments are not needed.” Most participants expressed the use of preassessments for placement of students and for intervention classes. Little was mentioned about the use of preassessments for whole group instruction or high-achieving students.

Two out of six of the participants suggested they felt comfortable with the use of preassessments for their whole group instruction. P4 stated when asked about their thoughts and opinions on preassessments, “I think it saves time ... if you figure out what your kids know, you can shave time off of one section and use that time they need to learn.” P6 mentioned strategies used in a previous county they worked in: “We were proactive in making sure the students knew where they stood before the unit was taught. I knew what skills needed to be retaught and what skills they already knew.” Question 9 asked, “How can incorporating preassessment data benefit your teaching methods or student outcomes?” P4 said, “It absolutely lets me more efficiently target and spend my time wisely....” Question 6 asked “How do you use preassessments in your class?” P4 stated:

We preassess the beginning of each unit. It'll be either something as easy as a standard form 10 question test. We can look for what skills that they have or we can go ahead....

I'll give them one form of the exam at the end of the unit ahead of time and see what they know. If they score high, we take that half of the unit off to focus on the other half. So it saves time there.

P6 also stated:

It seems like I do a lot of assessing. At the beginning of my units, my preassessments can be a five minute thumbs-up, thumbs down. It can be 5 questions to see if students have any background knowledge of our new unit. I preassess by giving a short test on skills needed before starting my unit. It is best to give short preassessments. But if you are looking to identify students who really need to be accelerated, you need to give a pretest similar to a post test. You need the big picture of what students can do.

Three out of six participants stated that they create their own preassessments. In reference to preassessments created for an intervention class, P2 stated, “It is something that we create through an online system that has a bank of questions. We choose our prerequisite skills, and then we find questions to go off of that.” P4 stated, “I use Google forms and a legal pad. I also use the Kentucky standards and try and see what this unit is trying to test.” P6 also suggested using software programs to create their preassessments, saying, “Pretests that I have consistently used were created in a software program and the common core standards.” Overall, 50% of participants are creating their own preassessments and using resources outside of their curriculum.

Theme 3: There are limitations to using preassessments.

Data related to Theme III are relayed in Table 4.

Table 4

Theme 3 Question Analysis

| Theme | Question | Sub-Category | Quantity |
|--|--|---|---------------|
| There are limitations to using preassessments. | 3. Please describe the curriculum you use. | 1. Most teachers aren't using preassessments for whole group instruction. | 1. 4/6 (67%) |
| | 4. What are your thoughts and opinions about preassessments? | 2. Agreement of its benefits | 2. 6/6 (100%) |
| | 6a. Can you elaborate on why you don't currently incorporate preassessments into your instruction? | 3. Requires time. | 3. 5/6 (83%) |
| | 6b. Are | 4. Curriculum | 4. 4/6 (67%) |

| | | | |
|--|---|--|--|
| | <p>preassessments included in your curriculum?</p> <p>7. Thoughts on how incorporating preassessment data could benefit your teaching methods or student outcome.</p> <p>12. Do you think there is anything missing from your curriculum or instructional strategies that would be beneficial to your students?</p> | | |
|--|---|--|--|

Although four out of six (67%) of the teachers interviewed did not report incorporating preassessments into their whole group instruction, 100% of teachers recognized the benefits of using preassessments. All but one teacher (83%) said the use of preassessments requires more time. P2 stated, “Preassessments are definitely very helpful.... Always kind of hard to find time to do them....” When asked “What limitations have you encountered that hindered you from using preassessment data?” P2 responded with “time, just to be able to give the assessment is hard to do, and then time to look at the data and regroup.” P1 was asked their thoughts and opinions about preassessments. They stated, “Sounds awesome...Where is the time and what do I do with that data?” P1 mentioned time as a limitation four separate times throughout the interview, including “I think we have a billion things thrown at us and they’re all great, it’s just the time to strategically choose what to use.” P5 responded, “the amount of time that it was taking... I wasn’t getting a lot out of the results,” when asked about their thoughts and opinions on preassessment. P6 acknowledged that it takes a lot of preparation when pre- and

post-assessing. In addition to time, P4 stated PLC groups are the limitations that have hindered them from using preassessment data. They stated, “I’ve been told by several people, why are you preassessing; you can just go straight into the lesson.”

Another limitation participants expressed is within the curriculum. Four out of six (67%) participants mentioned a feeling of uncertainty about preassessments provided in their common curriculum. P1 stated the preassessments are confusing: “I’m wondering if it’s a readiness check or if it’s a more true diagnostic.” P2 said they don’t use them because they are more diagnostic. P3 said, “We don’t feel like those preassessments are best for them [students].” They continued by questioning the amount of applied reasoning, saying “I want to know if they can solve equations, we will get to the reasoning later...” When asked how the curriculum suggests using the preassessments, P4 said “it stated use them... it just stated here’s a tool.” It is evident that there are limitations to using preassessments, including time and curriculum.

Theme 4: Differentiation is evident in teacher practices.

Table 5

Data related to Theme IV are relayed in Table 5.

Theme 4 Question Analysis

| Theme | Question | Sub-Category | Quantity |
|--|--|--|---------------|
| Differentiation is evident in teacher practices. | 5. What are your thoughts and opinions about differentiation? | 1. Teachers think it is necessary | 1. 3/6 (50%) |
| | 8. Do you use preassessment data to guide differentiation efforts? | 2. Teachers are using differentiation strategies | 2. 6/6 (100%) |
| | 9a. What do you use to plan or guide your | 3. Improvements can be made. | 3. 3/6 (50%) |
| | | 4. Curriculum and differentiation. | 4. 3/6 (50%) |

| | | | |
|--|---|--|--|
| | instruction? 10. In what ways does the curriculum you use differentiate instruction? | | |
|--|---|--|--|

All participants interviewed support and actively implement differentiation strategies into their instructional routines. When asked, “What are your thoughts and opinions about differentiation?” resulted in three out of six, (50%) saying it was necessary, and two out of six, (33%), said they use it because they do not want their students bored. P1 stated, “They should always have something that’s making them think on their level.” P3’s response was “to help accelerate those that are ready for acceleration and ready for that challenge. It is helpful for students that need a more basic baseline and support or even small group instruction.” P4 mentioned its necessity two times and stated “it can’t just be extra paperwork” and stated “it should be happening everyday.” P5 stated “I totally support differentiation, I’m a big supporter of leveling classes.”

One hundred percent of participants mention strategies they use to differentiate within their classrooms. P1 stated, “I know students who will exceed and I will have things ready for them to see if they can try it,” in response to her thoughts and opinions about differentiation. P3 has co-teachers with her most of the time and stated, “with two teachers in the room, we are naturally doing it [differentiation].” Three out of six participants (50%) mention they do weekly checks on Fridays, and based on those data, students are able to complete a mastery assignment or participate in relearning activities. In P3 and P6’s classes they do weekly checks every Friday, and if the students receive an 80% or higher, they will receive the mastery assignment or an extension activity. If they score below an 80%, they receive a relearning assignment. P4

mentioned doing weekly temperature checks to gauge where students are. All participants articulated various strategies for differentiation in their classrooms. The incorporation of weekly assessments emerged as a prevalent method to track student progress.

In terms of differentiating for special education, all but one teacher works with special education students. When asked how they differentiate for SPED or ELL students, P1 used pair/share techniques with an emphasis on giving “think time.” They stated, “I will start at a baseline and then things get harder and harder.” P2 mentioned using guided notes or pre-filled notes and IXL (a platform that helps students master essential skills at their own pace) for reteaching. P3 expressed the use of Specially Designed Instruction (SDI) for their SPED students, saying “SDI is built into our curriculum and lessons. SDI is built into everything we do.” P4 stated that with their co teacher “We look at pretest data as well as what we’ve seen in the week... moving kids around to work in small groups based on needs.” P6 stated “We follow their education plan with their modification and differentiation. But they are expected to complete the unit, take the test and any other common assessments.”

In terms of differentiation for advanced or accelerated students, P1 stated “more open-ended questions,” in response to how they differentiate for their high-achieving students. P2 admitted they “don’t do it all the time, but might give four easy problems and then the last four will be more challenging, or they might do a different activity.” P3 suggested, when differentiating with higher achieving students, “it’s not as good as it could be” and stated “occasionally we will give them a higher leveled assignment that is more application based.” P4 mentioned “my job is to work on their emotional intelligence....” They also suggested their highest achieving students “are asked to analyze other students’ work, comment on other’s work... they know not to give the answer, but instead they ask good thinking questions.” P5

stated, “I like to challenge them as far as they will go. I give three different levels of prompts, and I just ask them which they want and they will choose, and they usually choose appropriately.” There are a variety of levels in which high-achieving students are receiving differentiated instruction, and some participants felt more confident in their ability to differentiate for high-achieving students than others. However, all participants spoke about some level of differentiation they are providing, whether it was for struggling students or high-achieving students.

Teachers understand the benefits of differentiated instruction and are working to provide it to their students. However, there are still ways that teachers can improve on their differentiating strategies. P2 expressed the need for “good knowledge of the students.” P5 also mentioned “knowing your kids” as an important aspect of effective differentiation. P5 continued by saying, “I’m much better after that first month [of school],” referring to their differentiation abilities. P2 and P3 mentioned the need for formative assessments to help guide differentiation efforts. P3 stated, “More time, more money... more planning time to be intentional because inevitably the planning periods get taken by District PLC or ARC meetings. More time to look at our formative assessments, that would be helpful, but just not realistic.” When asked, in what ways does your curriculum suggest differentiating instruction, three out of six (50%) mentioned the ‘are you ready for more’ sections from their curriculum, but no one really alluded to the fact that they utilize that skill or find it practical. P3 stated regarding the curriculum, “It’s all application based ... it will tell us to make sure you focus on this question or if kids are struggling to use this concept, it’s all very high level in my opinion, at least for my kids.” It is evident that there are limitations that are hindering teachers from effectively or consistently differentiating in their classroom.

P6 summed up the answer to the question “What is missing from the curriculum or your instructional strategies that would be beneficial to your students as far as differentiation is concerned?” with:

I think what's missing is time and guidance on how to successfully manage and successfully integrate differentiation in the classroom. I think there needs to be more training and resources. Give more guidance on what good differentiation looks like and what resources districts are giving teachers to accomplish differentiation without taking what little time teachers left at the end of the day. I think teachers are all willing to change and to make their classrooms more equitable for all.

P6 highlighted the critical need for adequate time, guidance, and resources to effectively implement differentiation in classrooms.

In summation, the findings discovered from the interviews offer valuable insight into the diverse approaches and challenges in modern educational practices. It is evident that teachers are engaged with a range of assessments and differentiation strategies to determine student knowledge and meet the learning needs of each student. However, a consistent theme emerged, regarding the necessity of greater support and resources. These insights serve as valuable considerations for ongoing professional development and policy initiatives aimed at enhancing educational outcomes for students across diverse settings.

Discussion

The purpose of this research study was to answer the question *How do teachers use preassessment data to differentiate instruction?* Through interviews of six middle school teachers, four themes were evident: 1.) Teachers are using alternative strategies to assess student

learning. 2.) Teachers are effectively using preassessments. 3.) There are limitations to using preassessments. 4.) Differentiation strategies are evident in teaching practices.

Discussion of Theme 1 : Teachers are Using Alternative Ways to Assess Student Knowledge

Teachers are using formative assessments to guide their instruction, provide interventions as needed, and differentiate their instruction. Formative assessments are a way to aid students in understanding their current level of learning and provide feedback for continuous growth (Irons & Elkington, 2021). The use of formative assessments are used by 50% of teachers interviewed to guide their instruction for the following week. Examples of formative assessments that the teachers mentioned were weekly checks, quizzes, bell-ringers, reflection activities, and temperature checks. Any evaluation possesses the potential to be formative and serves formatively when it enhances the instructional decisions made by teachers or students (Barton, 2018).

All teachers are actively involved in PLCs throughout the week. Common goals of PLCs are analyzing student data, creating common assessments, and planning. P1 stated that during their PLC time “we bring specific data on assessments and talk about our learning goals for the next week.” Their PLC also decides on their assessments, specifically their formative assessments, and what scaffolds they need put in place for students who may need extra help. P2 also stated that part of their PLC is to “look at student data to best proceed and think about our next steps.” They also mentioned figuring out ways to help students that are still struggling. P3 mentioned they ask the question “What are we going to do for the students that didn’t [meet the goal]?” P4 said they look at the current performance of students and look for any students that might need intervention. For the first four participants, the goals of PLCs seem to focus on using formative assessments and finding students that need intervention or more support. P3 does say

their PLC asks the question “What are we going to do for the students that did meet the goal?”

This showed evidence that they are not only focusing on students who are not meeting the standard, but they are also focusing on students that did meet the standards. DeFour (2016, p. 69) has created four questions for an effective PLC:

- 1.) What do we want students to know and be able to do?
- 2.) How will we know if they learn it?
- 3.) How will we respond when students don't learn?
- 4.) How will we extend the learning for students who are already proficient? Based on the

interviews, teachers are effectively answering the questions one to three during their PLC.

However, teachers are falling short on extending the learning of students who are already proficient.

Teachers are using formative assessments to guide their instruction through ongoing monitoring of student progress and understanding. They are utilizing their PLC time to analyze student data and adjust their lessons accordingly. The focus on formative assessments seems to be finding students who are struggling and determining ways to meet their needs. They are using a variety of techniques to provide formative assessments as a means to give feedback to students. By integrating formative assessments, teachers are able to effectively adapt their instruction to meet the evolving needs of their students, ultimately enhancing student learning outcomes. In order to enhance the effectiveness of their use of formative assessments, teachers should begin focusing on not only the students that are struggling, but also using formative assessments to identify students who would benefit from enrichment activities.

Discussion of Theme 2: Teachers are Effectively Using Preassessments

Teachers are using preassessment data to assign students to intervention classes or to ensure students are placed in the most appropriate advanced class. For three of the participants, preassessments are used for lower-level students. P2 said they use preassessments specifically for students that are scoring below the 40th percentile, using them to place kids in an intervention class and using the data to group students who perform similarly. While using preassessments for placement of students should not be the only use of preassessments, it is a start. The goal is for teachers to use preassessments for individual units. P3 also mentioned that preassessment data is useful to place students in smaller groups. For P1, P2, and P3, preassessments are used for lower level students, and there is no mention of using preassessments for high-achieving students.

P5's situation is unique and unlike the other teachers interviewed. They are a high school certified teacher, teaching advanced classes to 8th grade students in a middle school. Specifically they teach Algebra and Geometry. They mentioned that they used to give their students the end-of-year final so students could see their growth, but realized it was a waste of time. The students they teach are already performing at one to two grade levels ahead of their peers. Many of the concepts taught in Algebra and Geometry are brand new to the students. They stated, "Preassessments weren't showing me much; my kids are mostly leveled, and I'm teaching something so different." They continued to state that "the amount of time it was taking... I wasn't getting a lot out of the results." Although P5 does not utilize preassessments, they stated they could benefit their teaching methods by "...finding the few that are already there...I could work towards having items for them prepared...[and] they could gain information and have inquisitive time instead of just checking the boxes."

P4 and P6 also brought to the table an interesting perspective. P4, during the time of interview, was in the process of working on a specialist degree in gifted education. P6 had 30 years of experience and spent their time as a teacher working under a principal and district that put a lot of focus on using preassessments. P4's perspective on preassessment was unlike any of the other participants. They spoke about preassessments saving time, where everyone else mentioned they take time. They said they preassess at the beginning of each unit and based on the results, might use the data to "take half of the unit off." They also stated that their PLC group hinders their use of preassessment and suggests that "they're stuck in their ways." They have an advanced class and a co-teaching class. For their co-teaching class they used preassessments to group students together that are struggling with the same material. For their advanced class they expressed being able to cut sections out by using preassessment data.

P6, as mentioned above, has 30 years of teaching experience, and has taught in two different districts in Kentucky, as well as working in Tennessee and Arkansas. Their years of teaching and experience with different school districts gave them more of a varied perspective. In one school district they stated they did preassessments for every unit. In another school district that placed emphasis on teachers using preassessments: "We were proactive in making sure the students knew where they stood before the unit was taught." They stated that her current district does not place emphasis on using preassessments and instead believes "that the end-of-year MAP testing is assessing students and placing them in a class for the next year If a student is correctly placed according to their percentile ranking, then preassessments are not needed."

Discussion of Theme 3: Limitations of Using Preassessments

All but one teacher made a comment about lack of time to give and analyze preassessments. This information is consistent with research from (Guskey & McTighe, 2016,

p.39) that said “...evidence from research is hard to find to show that teachers consistently use preassessment data in planning instruction or that the use of such data leads to improved student learning....”

The same curriculum was used by all participants in some capacity. Participants were asked if they used the preassessments from the curriculum and how did the curriculum instruct them to use the preassessments. The common curriculum does have preassessments provided, yet none of the teachers use them for that purpose. Participants questioned the effectiveness of the preassessments and were confused about what they were supposed to show. Teachers are not using preassessments from their curriculum, and therefore having to take time to create their own. While this is doable, it goes back to the time issue, and needing time to create and plan for effective preassessments.

P4, who said “preassessments save time,” is the participant who is receiving education on this very matter – is receiving the proper training needed to effectively implement preassessments. P6 felt the most successful preassessing when they worked at a school that encouraged and expected the use of preassessment in guiding their teachers’ instructional strategies. Teachers understand the benefits of using preassessments, and teachers want to challenge their students, but with lack of time and guidance, they are placing emphasis on other teaching strategies such as formative assessment to track their students.

Discussion of Theme 4: Differentiation Strategies are Evident in Teaching Practices

The teachers interviewed, regardless of experience, found differentiation necessary. The suggested differentiation strategies from the participants included: offering challenging problems, tier leveled prompts, open-ended questions, individualized projects, analysis of mathematicians, self-analysis of assignments, and intentional grouping. These strategies are

aligned with effective methods of differentiation mentioned from (Reis & Renzulli, 2018; Roberts & Inman, 2023; Tomlinson, 2015).

Based on the interviews, there is evidence to suggest that all participants are differentiating for students of all levels. Perhaps there is more focus on the lower-level students with a touch of differentiation for advanced students, as suggested by Swanson et al., (2019), stating educators are falling short in meeting the specific needs of gifted learners. SPED students are receiving scaffolds and support in the classroom, and provided opportunities to work in small groups. For gifted students, all teachers have some way of differentiating, even if it is not very intentional or effective. For example, P2 said they do not do it all the time and might provide a different activity or challenging problems. P3 also admits they don't do the best job with their advanced students, and they occasionally provide a higher-level activity. P5, who has all advanced students, recognized the importance of differentiation and does not want their students to be bored, but they admitted that there are times they have to focus on their students that are not meeting the standards. P4, the teacher on track to get a specialist degree in GTE, noted the importance of their advanced students' emotional well being saying "my job is to work on their emotional intelligence."

All teachers are doing something to differentiate for their students; however, the interviews conducted line up with Seedorf's 2014 study wherein participants expressed a lack of belief in their ability to allocate the necessary time for differentiation, documentation, and progress monitoring at the required level. In order for teachers to successfully and consistently implement differentiation efforts, they need time and support. P3 said they could use more planning time and more time to review formative assessments to improve their instructional strategies, but realized that is not realistic. P6 said they believe "what's missing is time and

guidance on how to successfully manage and integrate differentiation in the classroom.”

However, P6 made an important point when mentioning the software programs that are available to teachers that incorporate the differentiation piece already. There are resources available, but there needs to be sufficient training on how to best use those resources. Overall, the use of preassessments are evident in some teaching practices; however, there is work to be done to establish routines and strategies to best implement preassessments before every unit and in every class.

Limitations

Some limitations should be considered in relation to this study. The sample size of six math teachers is relatively small compared to other research methods and results. Several quantitative studies (Gubbins et al., 2021; Swanson et al., 2019) use larger sample sizes that may prove more useful for uncovering results across a broader population. The subjects interviewed for this project may be more helpful to those considering research specific to suburban schools in the state of Kentucky.

In addition to having a smaller sample size, it should also be noted that three of the teachers interviewed were providing instruction at the same school. Moreover, all subjects were in the same school district, except for one. This individual previously taught in the same school district but no longer does. All subjects had different levels of experience and taught different grade levels. Teachers were all expected to use the same curriculum, which posed its own limitations to the study.

Future research should incorporate additional questions about each subject’s teaching background, including but not limited to demographics of their current and previous classes taught, IEP and 504 information in their classes, and statistics of students identified as gifted and

talented. It would also be useful to have documentation of differentiation strategies observed during a real-life lesson or multiple lessons across different units of instruction. The researcher concluded at the end of the study that more questions should be asked regarding the types of services available to gifted and talented students and those considered “at risk” within each teacher’s school.

Implications

Throughout this study, it was mentioned multiple times from all subjects that minimal use of preassessments in the classroom was primarily tied to a lack of time, support, and access to resources. Teachers often realized the value of preassessments at the beginning of the unit but found it to be more practical to use formative assessments throughout the unit. In other words, several subjects implied that there were more practical ways to determine student knowledge. In addition, several cited that PLC time was utilized for other aspects of planning and rarely used to plan for common preassessments.

The future body of research may benefit from more studies tied to how preassessments and differentiation are used in advanced classes where students are often more leveled or have to take an entrance exam in order to qualify for enrollment. This could be extended to Advanced Placement classes, honors courses, and/or International Baccalaureate programs. Interviews with teachers who are actively providing instruction in one (or more) of these subjects may provide more depth to how differentiation is used in the classroom.

Several schools offer instruction solely to students who have been identified as gifted and talented, with gifted and talented endorsed teachers. (*Kentucky School Report Card*, 2023). Future research may wish to answer these questions: “How do gifted and talented teachers differentiate their instruction compared to those who teach regular placement classes?” and

“How do teachers with contrasting levels of experience differentiate instruction for their students?”

Conclusion

This study attempted to reveal how preassessments are used to differentiate instruction in middle school math classrooms. A small sample of teachers from a suburban district in Kentucky were interviewed. These interviews gave insight into how teachers are (or are not) using preassessment data, as well as showing their understanding of differentiation and strategies employed. The findings reveal a notable gap in the widespread implementation of preassessments, suggesting missed opportunities for teachers to meet the diverse needs of students. The research revealed that teachers are not consistently using preassessments; however, they are using formative assessments and student data to drive instruction. There are benefits to providing daily or weekly feedback through formative assessments (Bakula, 2010).

Findings by Latz et al., (2008) suggest that teachers understand the importance of preassessments but are not confident in incorporating them into their daily teaching. This aligns with the research conducted in this study, as teachers expressed a lack of time, training, and/or curriculum hindered them from utilizing preassessments. Although teachers are given PLC time, preassessments are not being discussed during these meetings. Based on this evidence, it appears that PLC time is not consistently being used to answer the question, “How are we extending the learning of our students who are already considered proficient?” (DuFour & Reeves, 2016).

Furthermore, while differentiation strategies are evident in teaching practices, particularly in accommodating the needs of struggling learners, there remains the challenge of differentiating for high-achieving students. This highlights the importance of fostering a classroom environment that values and nurtures the potential of all learners.

Moving forward, it is imperative that we are providing teachers with the support needed to effectively use preassessments and differentiation strategies. Differentiation strategies should be used equitably to include gifted and talented learners and students of varying ability.

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Appendix A

Interview Questions

1. What grade do you currently teach?

Follow up questions:

- a. How long have you been teaching?
- b. How long have you been teaching in the district?

2. How often do you work with your PLC?

- a. Please describe the main goals of your PLC.

3. Please describe the curriculum and/or resources you use for your math classes.

4. What are your thoughts and opinions about preassessments?

5. What are your thoughts and opinions about differentiation?

6. How do you use preassessments in your class?

If preassessments are not being used:

- a. Can you elaborate on why you do not currently incorporate preassessment data into your instruction?

Follow up questions:

- b. Are preassessments included in your curriculum? (If no, go to follow up question c)
- c. If yes, what content is included in the preassessments?
- d. How does the curriculum suggest using the preassessments to differentiate instruction?

7. How are your preassessments created?

- a. What resources do you use when creating preassessments?

9. What limitations have you encountered that hindered you from using preassessment data?

10. What information do you look for when reviewing preassessment data?

Follow up question if preassessment data is not used:

- a. Please share your thoughts on how incorporating preassessment data could benefit your teaching methods or student outcome.
- b. Do you use preassessment data to guide differentiation efforts?

Follow up questions:

- c. How do you differentiate for special education students or EL students?
- d. When do you differentiate and why?
- e. What needs to be in place to differentiate in your classroom?
- f. How are students grouped in your math class?
- g. How do you differentiate with your most high-achieving students?

11. Please share any examples of how preassessment data has influenced your instructional decisions?

Follow up question:

- a. What do you use to plan or guide your instruction?

b. In what ways does the curriculum you use differentiate instruction?

Follow up question:

c. What ways do you prefer to differentiate?

12. Do you supplement with additional materials or enrichment opportunities not provided by your curriculum? If so, please provide examples.

13. Do you feel there is anything missing from the curriculum or your instructional strategies that would be beneficial to your students as far as differentiation is concerned?

Appendix B

IRB Approval



INSTITUTIONAL REVIEW BOARD
OFFICE OF RESEARCH INTEGRITY

DATE: January 12, 2024

TO: Brittany Mitchell

FROM: Western Kentucky University (WKU) IRB

PROJECT TITLE: [2145645-1] Preassessment Data and Differentiated Instruction in a Middle School Math Classroom

REFERENCE #: IRB# 24-168

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: January 12, 2024

REVIEW TYPE: Exempt Review

Thank you for your submission of New Project materials for this project. The Western Kentucky University (WKU) IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Exempt Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a *signed* consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project has been determined to be a MINIMAL RISK project.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Robin Pyles at (270) 745-3360 or Robin.Pyles@wku.edu. Please include your project title and reference number in all correspondence with this committee.

Appendix C Informed Consent Document

INFORMED CONSENT DOCUMENT

Project Title: How teachers use preassessment data to differentiate instruction.

Investigator: Brittany Mitchell, graduate student, Western Kentucky University – Center of Gifted Studies email brittany.mitchell2@jefferson.kyschools.us

You are being asked to participate in a project conducted through Western Kentucky University. The University requires that you give your signed agreement to participate in this project.



You must be 18 years old or older to participate in this research study.

The investigator will explain to you in detail the purpose of the project, the procedures to be used, and the potential benefits and possible risks of participation. You may ask any questions you have to help you understand the project. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have.

If you then decide to participate in the project, please sign this form in the presence of the person who explained the project to you. You should be given a copy of this form to keep.

- Nature and Purpose of the Project:** The purpose of this study will be to understand how middle school math teachers use preassessment data to differentiate instruction for gifted learners.
- Explanation of Procedures:** You are being asked to participate in a study regarding your current perceptions about using preassessment data to differentiate instruction. Your participation will involve the completion of an interview that will require 30 to 45 minutes of your time to complete.
- Discomfort and Risks:** There are no foreseeable risks or discomforts to participants as a result of their participation in this study. The risks associated with participation in this research are minimal and no more than that encountered in everyday activities.
- Benefits:** The benefit of your participation can help teachers determine appropriate strategies to differentiate instruction by using preassessment data.
- Confidentiality:** All data will be kept in a secure manner. Publications or presentations related to this study will not include identifiable references to subjects' identities. Records will be viewed, stored, and maintained in private, secure files only accessible by the P.I. and advising faculty for a minimum of three years following the study.
- Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.

Signature of Participant

Date

Witness

Date

- I agree to the audio/video recording of the research. *(Initial here)* _____

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD

Copyright Permission

Name: Mitchell, Brittany

Email (to receive future readership statistics): bnseaman@gmail.com

Type of document: ['Specialist Project']

Title: PREASSESSMENT DATA AND DIFFERENTIATION IN MIDDLE SCHOOL MATH CLASSROOMS

Keywords (3-5 keywords not included in the title that uniquely describe content): Gifted Education

Committee Chair: Dr. Julia Roberts

Additional Committee Members: Dr. Mary Evans

Dr. Janet Tassell

Dr. Tracy Inman

Select 3-5 TopSCHOLAR® disciplines for indexing your research topic in TopSCHOLAR®: Gifted Education

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