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## **Effects of Actively Involving Students with IEPs in the Progress Monitoring Process**

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**Effects of Actively Involving Students with IEPs in the Progress Monitoring Process**

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Northwestern College

An Action Research Project Presented  
in Partial Fulfillment of the Requirements

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**Abstract**

Special education teachers are trying many ways to help students with IEPs achieve their goals. This action research study looks at one way educators might do that with the involvement of students with IEPs in the progress monitoring process, specifically students with math goals. Instead of having the progress monitoring process as something done to them, students with disabilities were encouraged to take an active role by goal setting, getting feedback, reflecting, and graphing their scores. The five fifth-grade students that this study followed showed signs of growth over the six weeks of this intervention. The findings of this action research support the literature reviewed that involving students in this process yields positive results. The data shows that students from a variety of backgrounds were able to make slight to substantial growth over that period. Although the findings suggest that the students were positively impacted by this intervention, future research should continue in this area to broaden the scope of students in terms of size as well as other academic areas such as reading or behavior.

*Keywords:* progress monitoring, student involvement, IEP, self-determination, goal setting, mathematics, probes

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### **Effects of Actively Involving Students with IEPs in the Progress Monitoring Process**

Special education teachers use data daily to determine how to best meet the needs of their students. Often this is so routine and scripted that data collection or progress monitoring is looked at as something done to students “instead of a collaborative process that is completed with students” (Furey & Loftus-Rattan, 2021, p. 1). Working with students who have Individualized Education Plans (IEPs) and having them be involved in the process as much as possible leads to many positive outcomes including having a better understanding of their disability and an increase in self-determination skills. (Biegun, et al., 2020). Although educators know that actively involving students leads to positive educational opportunities, it is not carried out in the classroom as frequently as it should be. Due to this, much of the research is lacking real student data. Many of these studies list the steps, procedures, and explanations as to why actively involving students with IEPs in the progress monitoring process is important but few have conducted research in an actual classroom. This study looks to address that gap in the research. The question that will be discussed in this paper is how actively involving students with IEPs in the progress monitoring process affects their scores.

The purpose of this action research is to better understand how students with IEPs can be actively involved in data collection during the progress monitoring process and how that will affect their scores. This understanding will hopefully lead to more knowledge about how educators can best help students achieve growth and meet their IEP goals in math. Making any sort of progress on probes can be very motivational for students who have a history of struggling in math and looking into ways that teachers can help in that progress is the ultimate goal of this study. (Rojo, Nozari & Bryant, 2021).

The scope of the research found to back this study was done through the DeWitt Library and various journals. The DeWitt Library through Northwestern College is a vast online database containing educational journals and research papers about a variety of topics. A majority of the articles that are referenced in this study were published within the last ten years and look at all kinds of students in a variety of settings. These articles were not only focusing on mathematics, but on student involvement with reading and writing as well. This scope of research better lends a broader knowledge of how implementing this intervention has worked for other educators who are trying to achieve the same result. However, narrowing it down to students with IEPs, goal setting, progress monitoring, and involvement in their education helped to refine the scope of the research.

The belief is that actively involving students with IEPs in the progress monitoring process positively affects their scores making improvements towards their math goals. This will be because when students are involved they take ownership of their learning and begin to think they are capable of achieving their goals. Increasing student ownership, setting academic goals, progress monitoring, and self-assessing student performance leading to student independence is the ultimate goal of education (Chan, et al., 2014). With this being the ultimate goal, it leads to the question that this paper is trying to answer of how the involvement of students with IEPs in the progress monitoring process affects their scores.

The literature review topics were chosen to best give the overview of current research that involves working with students with disabilities or IEPs, including how students with disabilities in math are affected by this process and how they can take part in their learning. Going over progress monitoring best practices, then using that data and involving students in the process by taking ownership of their learning, increases their self-determination. This paper hopes that in

putting these topics together educators will better understand the information that is currently available to them. The ultimate goal of this study is to better understand how actively involving students with IEPs in the progress monitoring process affects their scores.

### **Review of the Literature**

#### ***Working with Students with Disabilities***

Research states that there are special considerations when working with students with disabilities, especially with those in math. “Although many typically achieving students learn well independently special education students cannot” (Vaughn & Swanson, 2015, p. 21). Students with disabilities continue to show poorer math performances even if they do not have a recognized math disability (Wei, Lenz & Blackorby, 2012). Due to this “Many schools are using multitiered systems of support for students with mathematics disabilities” (Powell & Stecker, 2014, p. 37).

Making use of this multitiered system is one way for special educators to develop more individualized interventions for students with disabilities to make sure their needs are met (Vaughn & Swanson, 2015). Powell and Stecker (2014) outlined ways to intensify interventions with “smaller steps, precise language, repeat language, the student explains, modeling, manipulatives, worked examples, repeated practice, error correction, fading support, fluency and move on” (p. 32). Those strategies can be used when working with those students trying to meet their goals. Through their research on improving the quality of interventions for students with disabilities, they found that “students are expected not only to meet IEP goals but also to perform well on standardized assessments aligned with the Common Core State Standards (CCSS); teachers, therefore, need to be able to individualize instruction to help students meet or exceed



individual and district goals” (Powell & Stecker, 2014, p. 37). This overwhelming requirement of students with disabilities and their teachers makes their finding ways to intensify learning beneficial when working with this population of students.

Using individualized instruction, the growth rate of learning for students with disabilities is going to increase. However, if that intensification of instruction doesn't happen, students can plateau. According to the research done by Wei, Lenz & Blackorby (2021), math growth trajectories for students with disabilities need to be taken into consideration when working with these students. Lacking knowledge of expected growth trajectories for these different types of learners can lead to inaccurately deeming what a student's needs are and where they are at academically. Their study followed students with disabilities over the course of several years and found that “most researchers and educators agree that MD (math disabilities) encompasses poor computation skills, difficulties with long term and working memory, poor conceptual understanding, poor strategy selection for problem-solving, and impaired self-monitoring and self-regulation of thinking during problem-solving” (Wei, Lenz, & Blackorby, 2012, p. 154). With this amount of difficulty that students with disabilities face in math, it is up to the teacher to monitor progress and change instruction if needed. If a student is continuing to struggle there is no need to continue just monitoring the progress and an intervention needs to take place (Van Norman, Christ & Newell, 2017).

### ***Best Practices in Progress Monitoring***

“The repeated collection of data on student behavior over time, or progress monitoring is an essential feature of determining the impact of instructional interventions” (Shapiro, Dennis & Fu, 2015, p. 470). When reviewing the literature for this study trends for using best practices in progress monitoring emerged. These best practices include selecting the method used to conduct

progress monitoring, goal setting within progress monitoring, and the steps needed to complete the process.

In 2021 a study done by Rojo, Nozari, and Bryant looked at the variety of ways to progress monitor students in mathematics and what tools to use to do so. They found that Curriculum-Based Measurements (CBMs) "are a viable method for monitoring the progress of students because they are reliable, valid, and feasible measures of instructional effectiveness and student growth. Moreover, they are effective progress monitoring tools because they are able to predict end-of-year outcomes without assessing every skill" (Rojo, Nozari & Bryant, 2021, p. 2). With the use of CBM probes teachers were able to select the type of assessment that best fit the needs of their students from a variety of probes available. "For example, mathematics teachers can choose from CBMs in early numeracy, computation, concepts and applications, word-problem solving or algebra readiness, depending on the student's area of improvement" (Rojo, Nozari & Bryant, 2021, p. 2). Knowing that CBM probes are an assessment that is efficient and reliable, Shapiro, Dennis and Fu (2015) looked at three specific CBM probes to compare against one another for use in progress monitoring. They looked at STAR-Math (STAR), AIMSweb Math Concepts and Applications (MCAP) and AIMSweb Math Computation (MCOMP) probes. From their study "results suggested that all three measures are sensitive to students' mathematics growth and the results support the use of STAR-M as well as M-CAP and M-COMP as progress monitoring tools for mathematics" (Shapiro, Dennis & Fu, 2015, p. 481).

After completing the selection of CBM probes, setting a goal for the student around using that probe to measure growth is the next step in best practice. Following this process to progress monitoring can ensure that students are receiving an "educational benefit through their IEPs and that the benefit is reflected through measurable and appropriate growth toward ambitious goals"

(Rojo, Nozari & Bryant, 2021, p. 2). Not only do studies suggest that educators should set ambitious but attainable goals, but students who are also invested in their goals help in their academic progress (Koenig, Eckert & Hier, 2016).

Following the selection of a progress monitoring method and setting a goal, there are a few other steps to finish this process. Preparing and gathering the necessary material to complete the probe is a crucial part as well as “a conversation about the nature of the assessment and its intended purposes to make the student feel more at ease” (Rojo, Nozari & Bryant, 2021, p. 3). Students should know that probes are timed and that they may not finish every time. However, as they grow in academic skills, their score will improve. Once this conversation takes place the teacher should administer the probe to collect baseline data. This “allows a teacher to determine a student’s current performance levels; this procedure is done by taking the median of at least two scores from the same kind of measure near the beginning of the course” (Foegen et al., 2017, p. 109). Collecting this baseline data allows for educators to complete the next steps in the intervention process of modifying instruction for students with IEPs.

Upon completion of the probe, typically the score and results are not shared with the students, however, Furey and Loftus-Rattan (2021) argue that many at-risk students are progress monitored yet they remain unaware of their improvement. “This missed opportunity to actively involve students in their learning can be addressed by implementing a brief performance feedback and goal-setting routine with students following each progress monitoring session” (Furey & Loftus-Rattan, 2021, p. 1). Furey and Loftus-Rattan (2021) also completed their study on self-graphing, self-monitoring, and self-evaluation practices and how those led to meaningful improvements in academic outcomes. In a large-scale study of third-grade students, they found that the use of self-regulated strategies led to greater math achievement when compared to a

control group. Self-graphing and self-monitoring support on-task behavior, academic productivity, motivation, and performance (Furey & Loftus-Rattan, 2021). Other research supports this stating that “students enjoyed participating in self-assessment, students liked seeing their ‘steps’, as they called their progress on the graphs” (Brookhart, et al., 2004, p. 225).

Research supports that the use of best practices within progress monitoring is a valid, effective, and efficient method to improve the outcomes of a student with IEPs academically. (Furey & Loftus-Rattan, 2021). “Progress monitoring practices provide a natural (yet often missed) opportunity to actively involve students in understanding and improving their academic outcomes” (Furey & Loftus-Rattan, 2021, p. 7). This is important as student involvement in their goals, probes, and progress monitoring help boost their overall educational experience.

### ***Student Involvement***

Student involvement is a very important piece of the progress monitoring process. “Students should never be mere spectators during the IEP process. When an IEP is developed solely by educators and family members, a student may come to believe that important life decisions will be made for them. As educators, we must work to address any barriers that limit a student’s voice from being at the forefront of the IEP” (Biegun, et al., 2020, p. 350). Research shows that giving students a voice in their learning and education has positive results for all students, especially those with learning disabilities. There are many evidence-based best practices to promote student ownership of learning. In their study Chan, et al. (2014) found that students being informed about their learning goals, using assessment information to become confident in themselves as learners, receiving feedback that provides them with how to improve, engaging in self-assessment so they can watch themselves grow over time and communicating with their teacher and families about achievements are all ways that teachers can promote student

ownership of learning. Specifically looking at students with disabilities, a review of the literature done by Montague (2008) shows that incorporating self-regulation and self-monitoring strategies in instruction is best for mathematics learning and working with that population of students.

With the research in this study focusing specifically on involvement in the process of progress monitoring and student involvement, understanding best practices in mathematical problem solving and teaching it to students is key. “One method to promote mathematical problem solving is to help students regulate their learning, that is to become more metacognitively, motivationally and behaviorally active in their learning” (Fuchs, et al., 2003, p. 306). Skill development in this area includes planning and performing a task, monitoring and assessing actions, analyzing and problem-solving, and setting goals (Bruhn, et al., 2015).

Involving students in the process of goal setting can increase student awareness in many academic areas. Setting these goals can increase self-assessment skills of their current performance and decision-making about academic priorities. They also facilitate self-evaluation of achievement and growth (Chan, et al., 2014). Students can become involved by setting their goals, scoring performance, and placing scores on graphs (Fuchs, et al., 2003). “Teaching students to track their progress is another way to invest students in their education” (Chan, et al., 2014, p. 108). Chan et al. (2014) found that charts help make learning clearer to students while also encouraging them to take ownership by tracking their learning. These self-monitoring methods “were not only found to be effective but were considered low cost and easy to implement across tasks, genres, content areas, and settings” (Joseph & Eveleigh, 2011, p. 51).

After the initial setup of teaching students to set goals and monitor their progress, they become efficient strategies for promoting student ownership because they decrease the time teachers need to devote to progress monitoring. By increasing student ownership of learning

teachers can increase the ease of using formative instructional practices (Chan, et al., 2014). The short amount of time it takes to teach students how to progress monitor and giving them opportunities to practice doing so makes teaching more efficient (Joseph & Eveleigh, 2011). Thus when teachers take the time to do this for their students not only is it beneficial to them but also the students by teaching them to take an active role in their education contributing to the overall goal of improving student achievement (Chan et al., 2014). Such as increasing “school completion, teaching students valuable skills like setting and attaining goals can help students develop independence” (Chan, et al., 2014, p. 106). Beyond the advantage of creating a superior educational program, student leadership can also enhance other important life skills. Branding et al. (2009) found students who are involved with planning their IEP have a better understanding of their disability and increased self-determination skills.

### ***Self-Determination***

According to research someone who has self-determination is a person who “makes or causes things to happen in her or his own life instead of someone or something else making or causing things to happen for or to that person” (Wehmeyer, et al., 2017, p. 295). Self-determined students "assert themselves when appropriate, take pride in their accomplishments and abilities, and can act as self-advocates" (Hart & Brehm, 2013, p. 40). In this students can gradually assume a more proactive role in their IEP by knowing their strengths, needs, and interests and be able to effectively communicate their own choices and decisions and evaluate their behavior (Hart & Brehm, 2013). Findings from Hughes, Cosgriff, Argan, and Washington’s (2013) study of the level of self-determination that students with disabilities have based on teacher opinion suggest that the degree to which students are involved in school affects their opportunities to make choices, set personal goals, express preferences and develop other self-determination skills.

However, a significant lag is remaining in the area in which students have daily opportunities to practice IEP experiences in classrooms (Hart & Brehm, 2013).

How educators can help students promote self-determination is by providing the opportunity through teaching skills such as goal setting, problem-solving, decision making, and self-advocacy (Wehmeyer, et al., 2017; Cho et al., 2011). With this research study looking at goal setting and progress monitoring, data collection is a key part of completing that and teachers need to make sure that students are part of that data collection process through self-monitoring and self-evaluation (Wehmeyer, et al., 2017; Konrad et al., 2007). By looking at how educators can facilitate this in their classrooms, Wehmeyer, et al., (2017) created a three-phase model of instruction for self-determined learning. They found that if a teacher creates an autonomy-supportive classroom, implements strategies to promote learning and motivation, and adjusts as needed, there are positive academic outcomes for students with disabilities. “Autonomy-supportive classrooms are learning communities in which students have meaningful roles in setting classroom rules, feel safe to explore and take risks, are supported to solve problems and set personal goals, and are responsible for monitoring and evaluating their progress” (Wehmeyer, et al., 2017, p. 296). With student involvement in their progress monitoring, students with IEPs can practice their self-determination skills which ultimately have a positive impact on both their academic achievements as well as their personal goals.

## **Methodology**

### **Research Question**

1. How does actively involving students with IEPs in the progress monitoring process affect their math probe scores?

**Variables**

The variables analyzed in this action research will be as follows; student performance reflected in progress monitoring scores and students' skills in self-monitoring through graphing, reflecting, and teacher feedback. Providing changes in teaching practice with interventions to assist in those skills. These interventions were provided by the researcher depending on the needs of the student. Other variables to consider would be gender and age as they vary depending on the student.

The intervention happening alongside progress monitoring probes being given will be, additional teacher feedback, guided student reflection, and student graphing of the data. This data will be collected through scoring of the probes points earned and inputted in a Google form along with other qualitative data about how the probe went that week. Scores will also be graphed by the student and displayed on a poster in the classroom so they can look back on previous weeks' scores.

**Participants and Research Site**

This research is being done at a small rural middle school serving grades five through eight in the state of Iowa. All progress monitoring will be done during the 42-minute resource class, that all students with IEPs in fifth grade attend instead of a study hall period. The participants in this study are all fifth-grade students who have an IEP with a goal area in math. There are three boys and two girls ranging in ages from 10-11 years old. All five participants will take math probes based on their written IEP goals.

**Measurement Instruments**



The measurement instrument that is being used to score the data is Achievement Improvement Monitoring System (AIMsweb) Mathematics Concepts and Application probes for fourth and fifth grade as well as AIMsweb Mathematics Computation probes for fourth grade. These probes are sets of math questions that are based on grade-level standards ranging from 30-48 questions with a possible score ranging from 36-72 depending on the probe. The Computation and Concepts and Applications probes take eight minutes to complete. Both sets of probes were tested and deemed valid, reliable, and fair. Pearson, the company behind AIMsweb probes, has released an Efficacy and Research Report in April of 2018, detailing their findings. As for their findings on reliability it “typically met common benchmarks for adequate consistency for measures used to make decisions about individual students” (Pearson, 2018, p. 22). With specifically the math timed measures ranging from 0.78 to 0.93. (Pearson, 2018). For validity five different criterion measures were used the “Iowa Tests of Basic Skills®, Total Math (ITBS®), Illinois Standards Achievement Test (ISAT), New Mexico Standards-Based Assessment (NMSBA), and Northwest Evaluation Association Measures of Academic Progress® (NWEA–MAP®)” (Pearson, 2018, p. 24). Again with 1.0 being the highest positive correlation AIMS web came in average with fifth grade scoring 0.83 and fourth grade 0.76. “Average predictive validity coefficients range from 0.69 to 0.85, and average concurrent validity coefficients range from 0.77 to 0.85” (Pearson, 2018, p. 24).

Data will be collected in three stages, pre-intervention through baseline data, while the intervention is running, and post-intervention interview collection. The data collection will start in February of 2022 and end in April of that same year, running for a total of six weeks, with a week of baseline data and a week for post-data. Data will be collected and stored in a locked classroom on a secure password-protected computer with only the researcher having access to it.

Prior to collecting any data, all Institutional Review Board (IRB) approval protocols will be followed with getting approval from the review board, and obtaining parental consent forms for all students involved prior to starting the intervention as well-child assent forms signed. Post-intervention debriefing forms will be sent to all participants with participation protection in mind.

Data will be analyzed by Dependent Samples *t*-test. Using the baseline data and an average of intervention data collected analysis will take place to see if there is an improvement from having students with IEPs actively involved in the progress monitoring process.

### **Data Collection**

Data collection is an important process in this action research study. The first variable is student performance reflected in their progress monitoring scores. From February to April over the course of six weeks, the quantitative data collected was the AIMsweb Math Computation and Concepts and Application Probes Scores for fourth and fifth grades. Using the AIMsweb scoring guides the raw data was calculated and a score was generated for each student after every probe. Probes were given out weekly and administered by the teacher and completed for eight minutes following testing protocols. Testing protocols were as followed: 1) copies of the probe were made for each student based on which one they were taking 2)the probe was distributed by the researcher to each student while they were seated at their desks 3)the testing administrator made sure each student had the appropriate testing materials 4)a timer was set for eight minutes and verbal instructions were given by the researcher to begin 5)at the end of eight minutes the researcher gave verbal instructions to stop the probe 6) students handed in their completed probe to the researcher 7) and the researcher scored the probes based on the individual scoring guide.

To score each probe the researcher looked at the individual question and the corresponding score sheet that is provided by AIMSweb. Each question is awarded a different point value of either one, two, or three. If the student can correctly respond to the question they are awarded the corresponding point value. Once all the questions that were answered have associated point values they are added together to get an overall score. Questions that were answered incorrectly received no point value. These scores were then entered into an excel sheet for each student each week. Additional testing protocol included probes given at the same time every week, in a quiet testing environment free of distractions and testing materials included a pencil and the probe paper.

Weekly student goal setting with verbal teacher feedback throughout the intervention was documented using a Google form. They answered the following questions: 1) What is the student's name? 2) What is the goal score? 3) What was the probe score? 4) What teacher feedback is being given? 5) What goal do you have for next time? 6) Any additional comments? This electronic reflection was completed weekly immediately following the administration and scoring of the probe. At the end of the six weeks, post-intervention interview questions were asked of each participant and scribed electronically with audio recordings done to ensure validity and reliability. Responses were summarized by the researcher by looking at patterns, trends, and generalizations. Specific information was collected about each student such as age, grade, gender, ethnicity, and IEP level to see if there is any correlation or generalizations to be made about the data.

## **Findings**

### **Introduction**

The researcher is a certified teacher with five years of experience in the classroom with all five of those years as a special education teacher. The research was collected by the classroom teacher before the implementation of the involvement of students in the progress monitoring process as well as after six consecutive weeks of this involvement taking place. Collecting this data allowed the researcher to answer the following question; How does actively involving students with IEPs in the progress monitoring process affect their math probe scores? The qualitative data collected in this study allowed the researcher to understand more of the student's perspectives on this process and what their feelings were about it. The quantitative data collected gave the researcher insight into the benefits of involving students in the progress monitoring process.

### **Qualitative Data Analysis**

The qualitative data in this study was collected through the Google feedback form and post-implementation interviews of the students. The researcher reviewed the Google feedback form, see Appendix A, categorized the responses based on answers to the following questions specifically 1) What teacher feedback is being given? 2)What goal does the student have for next time? 3) Any additional comments?

#### ***What Teacher Feedback is Being Given?***

The researcher was able to categorize the responses for this question into three categories; 1) a new math skill to work on for the following week, 2) implementing a test-taking strategy for next time, or 3) a positive response to the student's completed probe. Some of the 30 responses have multiple categories that could fall in with the response that was given. However, in the majority of the responses about 70% mention a new skill to try. An example of this would

be “student needs to work on coordinate graphing” or “work on missing number in an equation”. The next type of response is a suggested test-taking strategy for the student to use next time at about 27% of the responses. Examples of this include, “slow down and read each problem carefully” and “student only attempted to solve adding problems would encourage him to try others”. Finally, for this question about 13% of the responses for teacher feedback to the student mention a positive response to something the student did, such as “student was able to answer all the questions of the skill we were working on”.

### ***What Goal Does the Student Have for Next Time?***

About 60% of the responses mentioned reaching a certain number for their score, whether it was their goal score or another number. Of these responses about 13% of them wanted to reach their goal score specifically or reach the same score they got in the previous probe again for the next one. However, the majority about 73% wanted to increase their score with the average increase they were hoping for being about five points. About 30% of the respondents mentioned that the student wanted to focus on a certain test-taking strategy the next time they took a probe. Finally, about 20% of the responses from the students mentioned wanting to work on a skill such as “try more subtraction problems next time” or “work on reading charts and information to help solve” and to focus on that the next time they take their probes.

### ***Any Additional Comments?***

Only about 5% of the responses came directly from students and questions they had for next time. About 47% of the responses were about observed student behavior for example, “student was very unfocused while completing probe”, or “student was disappointed she got the same score again”. Also, about 47% of the responses mentioned a score or score change,

“student met goal” or “student scored the lowest score yet” as examples. Now looking at all the previous responses from the Google form, one could conclude that working on a new skill and setting a goal around a numerical score was the focus of the students and the researcher with the responses gathered. Those two categories of focus could be beneficial in the involvement of students in their progress monitoring process and could aid in the increase of probe scores

Post-intervention interviews were completed with the researcher and each of the five students involved in the study. Interview responses to the questions were audio-recorded and scribed to be reviewed. To confirm reliability and validity questions were created with the student’s level of understanding in mind as well as the same questions were asked of all participants in the same manner by the same researcher. Question one was general information about the student such as age, grade, gender, IEP level, and ethnicity. Of the five students, all of them were level one IEP students, and in the fifth grade. One out of the five students was ten while the other four were eleven. 20% identified as African American while 80% identified as Caucasian. Two of the students were female and three were male.

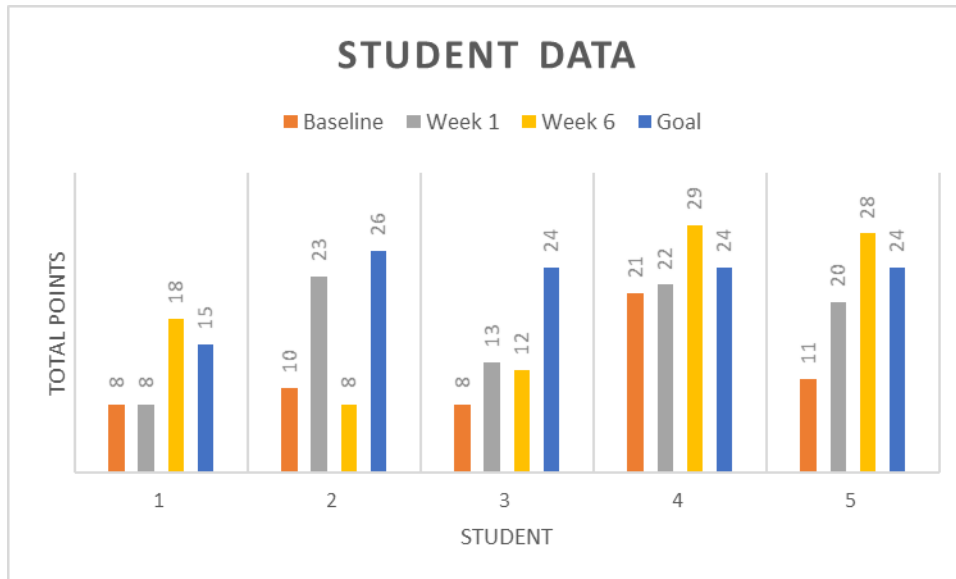
The following eight questions, see Appendix B for the full list, were then related to the past six weeks of their intervention in the progress monitoring process. Question two asked about the process of completion of the probes over the last six weeks. Three of the students responded with “good” and two of them gave answers describing the process. 100% of the students preferred the new way over the old way of how they completed probes before the six weeks. With a variety of reasons as to why they liked it more such as “because it was fun to color” (referring to graphing their score on a poster), “because it helps me”, or “I don’t know I just like it”. All but one of the students had nothing negative to say about it, the one who did state that they didn’t like how they didn’t always get to go first to meet with the teacher once probes were

over. However, all of the students would like to continue to do probes this way and even offered some suggestions to improve such as, offering a reward if you meet your goal, or changing up the order that students receive feedback from the teacher. About 80% of the students reported that doing this process helped them get closer to their goals. With the positive response to the intervention from the students, one could conclude that involvement in the process for these students was beneficial, however, further research should be done on a larger scale to continue to generalize that theory.

### **Quantitative Data Analysis**

Quantitative data was collected using a dependent *t*-test to see the student's progress from their baseline scores to their final scores at the end of the six weeks. The researcher used the AIMSweb math probes set 22 for both of the tests to compare the growth of students. Between the baseline test and final probe weekly progress monitoring was still taking place to ensure adequate growth was happening as well as following their mandated goals as outlined in each student's IEP.

Of the five students studied, 80% showed an increase in their score from the baseline test to their post-implementation score at the end of the six weeks with 20% showing a slight decrease. A visualization of this can be seen in Figure 1. One student showed a significant score increase throughout the intervention by scoring an additional 17 points from their baseline score. However, on average students had an increase in their final score of about seven points. Of the 30 times probes were given, with each of the five students taking one every week over six weeks there were eight times their scores met or exceeded their goal score.

**Figure 1***Student Probe Scores*

The dependent samples *t*-test conducted determined that there was a significant change in the student's academic progress on their probes following the implementation of their involvement in the progress monitoring process. Before the intervention students were able to score an average of 11.6 points on a probe ( $M= 11.6, SD=5.41$ ). Following the intervention, students were able to score an average of 19 points ( $M=19, SD=9.38$ ). Results of the dependent samples *t*-test revealed a significant difference between the baseline test and post six-week test,  $t(4)=-2.34, p < 0.079$ . The progress monitoring process involvement from the students increased the student's probe scores over the time given.

## Discussion

### Summary of Major Findings

Having students with IEPs involved in the progress monitoring process is an important aspect to help support their performance in math probes. Implementing a process to involve them in setting goals, graphing, and providing feedback help students develop those skills that transfer



over to their overall academic success as well. This action research study conducted with a group of fifth-grade students not only helped to see an improvement in their scores but also in their confidence and self-determination as well. Providing them an opportunity to be involved in the process gave the students the chance to know what their goals are and have a voice in them.

The findings of this research support the current literature and the ones reviewed about having students involved in the IEP or progress monitoring process and the benefits of doing so. The research from Furey and Loftus-Rattan (2021) about the involvement of students with disabilities in the progress monitoring process detailed similar outcomes as this study. They found benefits in academics as well as student motivation and self-determination when implementing a progress monitoring routine with active student involvement. These findings were also similar to Joseph's and Eveleigh's (2011) research on self-monitoring and self-graphing progress monitoring data with students. Their benefits saw that students were able to produce more work and perform better at the task. The data from this action research shows that level one IEP students are positively impacted by implementing a process and routine of active involvement during probes. However, the degree to which students are impacted varies depending on the student. The findings suggest that most students see that benefit and can communicate that in both their scores and preferences in completing the process.

### **Limitations of the Study**

The current study contained several limitations. First, because this study was conducted only with fifth-grade students at one middle school the extent to which its findings can be generalized to the national population of students with disabilities is limited. The results here may only be limited to schools or classrooms with similar demographics. The second limitation is related to sample size. The sample size of students in this study was very small and limited due

to the number of students in the school, to begin with, and then reduced in number to students who met the qualifications to be included in the study. Finally, the progress monitoring process conducted in this study is limiting as it only occurs once a week. Gathering a significant amount of data is limited to only the six weeks of data that was collected throughout this research.

### **Further Research**

Despite its limitations, the research collected offers an important contribution to the literature on student involvement in progress monitoring as it is one of the few of its kind. Future studies are needed to expand these findings to other areas of progress monitoring such as reading or behavior. Expanding this research to include other areas of progress monitoring would be beneficial to see if implementing the same process elicits the same results. In doing so researchers could conclude that the strategies can be used across other domains ultimately creating ease and efficiency for classroom teachers while progress monitoring. It would also be beneficial to extend the length of the study to allow for more data points to be collected. This study only ran over the course of six weeks adding to the data collected could strengthen the results found if not add to the validity of this research. If the study could be conducted over the course of the school year, it would allow researchers to pull larger trends or generalizations from the data.

A larger sample size of students would also be able to aid in finding more generalizations about the effects this has on students with disabilities. Expanding to different demographics of students in a variety of school settings could offer more insight to generalizing the results gathered to see if this process could be used on a large population of students. In doing this, future researchers may also find interest in exploring the differences among students in gender, ethnicity, age, and race once they have that larger pool of students. Future researchers might also

want to study each component of this experiment individually, to see the effects of each in the progress monitoring process. Looking at the role of goal setting, student graphing, and teacher feedback on their own would allow researchers to isolate key components of the progress monitoring process and their benefits individually.

### **Conclusion**

Many times students with IEPs are not involved in the daily process of goal and progress monitoring. This is a missed opportunity for students with disabilities to take ownership of their learning, work on setting goals, and build self-determination in an academic setting. Including students with disabilities in the progress monitoring process through, goal setting, feedback, reflection, and graphing can help improve their scores as well as their confidence in their mathematical abilities. With limited research currently available on this topic, this paper hoped to add more insight and further the conversation on how to make progress monitoring a more beneficial process. This research paper looked to answer the question How does actively involving students with IEPs in the progress monitoring process affect their math probe scores?

The findings suggested that involving students yield positive results with 80% of students seeing an increase in their probes scores over the six weeks. The dependent samples *t*-test determined that there was a significant change in the progress following the implementation of student involvement. This information is beneficial to researchers and educators alike to be able to continue with future research and be a way for educators to increase ease and efficiency in their classrooms during progress monitoring. Students in this study also were able to see the benefits and enjoyed being a participant in the process. About 80% of students in this study reported that being involved in the process helped them reach their goals and feel confident in their work. With this increase in involvement, the study hoped that it turns a mundane or even

negative aspect of school for them into a more positive and beneficial one. Overall this action research has shown the need to include students with disabilities in the progress monitoring process and the many benefits associated with it.

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**Appendix A**

*Progress Monitoring Feedback Form Google Form*

**Progress Monitoring Feedback Form**  
Used with student after completing probes

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The respondent's email (null) was recorded on submission of this form.  
**\* Required**

1. Email \*

\_\_\_\_\_

2. Student Name \*

\_\_\_\_\_

3. IEP goal score \*

\_\_\_\_\_

4. Student's Actual Score \*

\_\_\_\_\_

5. Teacher Feedback \*

\_\_\_\_\_

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\_\_\_\_\_

6. Goal for next time \*

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7. Additional comments \*

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**Appendix B***Post Intervention Interview Questions*

1. Please state your name, grade and age. \*all personal information will be changed to protect the student's identity; this is just for research records\*
  
2. Tell me about how we completing probes for the last 6 weeks?
  
3. Did you like the new way?
  
4. Why did you like it?
  
5. What didn't you like about it?
  
6. Would you want to continue to do probes this way?
  
7. Would you change anything about the way we did them?
  
8. Did you feel like it helped you get closer to your goals?
  
9. Is there anything else you would like to share about the experience?