

Educators Perceptions of Schema Based Instruction and Academic Self-Concept of their
Learning Disabled Students

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ABSTRACT

The purpose of this study was to examine how teacher implemented strategies and interventions for solving mathematical word problems can help improve the academic self-concept of students with learning disabilities. This study attempted to find out if teachers have utilized a particular problem-solving strategy and if they have found providing constructive feedback in combination with the intervention has helped students have the confidence to solve word problems independently and successfully. The method used in this study was a free response online survey administered to three middle school math teachers who have experience teaching students with learning disabilities. It was found that teachers were unaware of the Schema-Based Instruction strategy but did incorporate aspects of the strategy into their teaching. It was also found that teachers primarily provide words of encouragement as a means of improving academic self-concept but did not consider that the interventions they choose to use is also a factor in students' academic self- concept. More research in Schema-Based Instruction and how it impacts student academic self-concept is needed.

CHAPTER I

INTRODUCTION

Overview

Mathematical word problems challenge students to synthesize their knowledge of multiple contents and topics to be successful. Due to this requirement, many students become frustrated by word problems and may develop maladaptive behaviors to avoid the problem (Hanich, 2011). This can be especially true for students with learning disabilities who struggle to decode, identify relevant information, and know which math procedure to use given what they identified as significant in the word problem (Xin, Jitendra, & Deatline-Buchman, 2005). Students with learning disabilities feel they have little control over their academics and thus disengage, therefore experiencing repeated failure in mathematics. This can result in a lower academic self-concept which reinforces those attitudes of disengagement and learned helplessness further (Hanich, 2011).

The cycle of failure, lowered academic self-concept and maladaptive behaviors in math, is omnipresent across all levels of math but can be frequently found in inclusion classrooms. Learning disabled (LD) students are trapped in the attitude that word problems and math in general is a content with which they will never see success. This is due to a multitude of factors stemming from their disability, learned maladaptive behaviors, internal and external frames of reference for their academic self-concept, and lack of available correct tools/instruction.

Common Core State Standards have developed Standard Mathematical Practices that describe what skills our students should develop to become college and career ready. Many of these standards focus on the importance of attention to detail and perseverance. These two skills are essential for solving mathematical word problems. These two skills are also areas of

weakness for students with learning disabilities. This school year, this researcher will survey three seventh-grade mathematics teachers on their past experience, strategies teaching word problems to their students with learning disabilities, and how they support students with low academic self-concept.

Statement of the Problem

The purpose of this study is to examine how teacher-implemented strategies and interventions for solving mathematical word problems can help improve the academic self-concept of students with learning disabilities. This study attempts determine whether teachers have utilized new problem solving strategies and whether they have found that providing constructive feedback can help students gain confidence to solve word problems independently and successfully.

Hypothesis

This is a descriptive study using survey methodology. In this particular case, a hypothesis is not appropriate.

Limitations

One limitation in this study is the period of time covered by the literature review. The studies range from 2001 to 2017.

CHAPTER II

REVIEW OF THE LITERATURE

Overview

This review of the literature examines experimental and descriptive studies related to the relationship of academic self-concept of students with learning disabilities and the challenges they face in solving mathematical word-problems. Strategies to improve their mathematical skills will also be reviewed. The following sections will cover (1) how academic self-concept forms, (2) how it differs for students who suffer with learning disabilities, (3) what prevents learning disabled (LD) students from being successful in the mathematics content area, (4) which intervention can be utilized in the classroom to improve students' academic self-concept, and (5) schema-based instruction and how it meets the needs of LD students.

Academic Self-Concept

The following section addresses how academic self-concept develops. This section will consider how peers, teachers, parents, and the student themselves play a role in the development of academic self-concept.

Möller, Streblov, and Pohlmann (2009) describe self-concept as being created due to a person's experiences and their evaluation of those experiences. The opinions and feedback given by others also play a pivotal role in the development of self-concept. How children construct their self-concept during their formative years have significant consequences on their future development and psychological well-being as adults. It was found that people who have a positive self-concept are happier compared to those who do not (Swann as cited in Elbaum & Vaughn, 2001).

Academic self-concept is just one facet of a person's overall global self-worth, Elbaum and Vaughn (1998) found that academic self-concept is a predictor of "students' academic achievement and behavior in academic settings" (p. 304). Students in middle school are at a stage in their development where their academic self-concept is at its most impressionable. Academic self-concept is not only dependent on a student's achievement but also on the comparisons of skills and achievement students present to their peers. Students who are weaker in content compared to their classmates tend to have a lower academic self-concept (Möller et al., 2009). Möller et al. (2009) found that students compare their academic ability using two perspectives, external and internal frame of reference. In the external frame of reference, the student compares their achievement in a subject to the achievement of their peers in that same subject. With the internal frame of reference, the student compares their achievement in one subject to their achievement in another subject. These frames of reference shape how the student perceives themselves, influence their academic self-concept.

Academic self-concept can be a determining factor in a student's success or failure in a subject; therefore, it is essential that parents and teachers create an environment that is conducive to cultivating positive self-views (Elbaum & Vaughn, 2001). Parents and teachers cannot always control the student's academic performance, but modeling behaviors such as enjoying the process of self-improvement and perseverance can help increase academic self-concept even when the student is not as strong in a particular subject. Gans, Kenny, and Ghany (2003) have found that teachers' judgements play a role in students' academic self-concept so it is vital that teachers provide positive and substantial feedback to help build their students' academic self-concept.

Academic Self-Concept and How It Differs for Learning Disabled Students

This section discusses why the academic self-concept of students with learning disabilities may differ from their non-learning-disabled peers. The significance of academic self-concept on a students' global self-worth will also be addressed.

Students with learning disabilities (LD) are at a higher risk of lower academic self-concept compared to their non-LD counterparts (Elbaum & Vaughn, 2001). Thurlow (as cited in Elbaum & Vaughn, 2001) conducted a study in which 70 teachers who taught LD students were interviewed and 47% of respondents chose self-image as the students' area of greatest need, over academic skills and behavior. Chapman (as cited in Elbaum and Vaughn, 2001) reviewed 21 other studies and found that 70% of LD students had a lower academic self-concept and a more negative view of their own characteristics. Another factor that contributes to a lower academic self-concept is how LD students tend to specialize in a single subject. Students focus on that strength and neglect their weaknesses in other content areas, which causes those weaknesses to escalate further. This widens the skill disparity and causes the LD students to have a lower self-concept when they draw comparisons to their non-LD peers (Möller et al., 2009).

Type of classroom environment also plays a role in LD students' academic self-concept. LD students who receive no services in a mainstreamed classroom have a significantly lower self-concept compared to LD students in inclusion or segregated classrooms where they receive services (Bear, Minke, & Manning, 2002). LD students who are segregated compare themselves to other LD students and conclude that they are doing well, therefore experiencing higher self-perceptions (Bear et al., 2002). Gans et al. (2003) found that lower academic self-concept can negatively affect the students' socialization. Students with LD may feel different and not accepted by their peers, causing a sense of loneliness.

Although learning disabled students tend to have lower academic self-concept, this does not necessarily mean they have a lower sense of global self-worth, compared to non-LD students (Bear et al., 2002). These researchers concluded that although LD students have lower academic/intellectual self-concepts, they are able to overcome their weaknesses and recognize their abilities in other facets of their lives. This results in very little difference in global self-worth compared to non-learning-disabled students. Cosden's (as cited in Gans et al., 2003) conducted a study where students who had less negative perceptions about their disability had a more positive global self-concept, compared to LD students who had more negative perceptions of their disability. This study underscores the idea that students who are taught to value their strengths, accept their disability, and receive positive feedback from role models in their life means that a lower academic self-concept does not determine overall self-worth.

Obstacles Preventing Success in Math for Learning Disabled Students

This section discusses which factors are preventing learning disabled students from being successful in math. Learned helplessness, attitudes toward the subject, mathematical anxiety, and why students with learning disabilities have such difficulty with solving word problems will be addressed.

Students who struggle with math may take part in “maladaptive patterns of motivational behavior, such as disengaging in mathematics instruction or demonstrating self-handicapping avoidance behaviors” (Hanich, 2011, p. 41). Combating these behaviors and instilling productive behaviors is essential for students' success, especially if they have difficulties in math. Students who experience repeated failure and feel like they have little control over their mathematical experience can adopt a learned helplessness attitude, a strategy used by students to disengage and avoid the content. Classroom teachers may be unintentionally reinforcing

students' learned helplessness. Teachers do this by indirectly communicating low expectations of the students' mathematical abilities. Teachers have a major role in their students' learning and should encourage students to challenge themselves and make self-improvement a positive experience to counteract any learned helplessness.

LD students' and their attitudes toward math also prevent them from being successful. A poor math attitude affects how the student approaches the subject (Kiss & Vukovic, 2017). For instance, students who have a poor working memory may have a difficult time remembering formulas or ideas that are associated with mathematics. The constant feeling of not knowing what to do can really damage how a student feels about the subject. Students who lack the proper attitude may be intimidated by how to start a problem, unsure of what strategy to use. The researchers stated that a poor attitude could evolve into mathematical anxiety.

Ashcraft and Kirk (as cited in Hanich, 2011), found that children who suffer from math anxiety showed longer think time and more inaccuracies while solving a math problem. Kiss and Vukovic (2017) found that math anxiety is at its highest in middle school, and students with a learning disability are more susceptible. This can be due to LD students having lower executive control, lower working memory capacity, and consistently negative assessments.

Students with learning disabilities struggle specifically with solving word problems in math. LD students struggle in solving these types of problems because they have trouble decoding the meaning of the problem, identifying relevant information, and connecting that information to the proper mathematical procedure (Xin et al., 2005). Students with learning disabilities rely heavily on the key word strategy. This creates misconceptions while solving and only allows the students a surface level understanding of what is happening in the problem,

mathematically, and the student cannot deeply analyze the mathematical operations necessary to solve the problem.

Another reason why students struggle with solving word problems is that word problems are not sufficiently covered in many textbooks (Jitendra & Star, 2011). Most textbooks are organized by topic so that the student knows what operation or strategy to utilize to solve accurately. For example, Section 3 in a book may only focus on multiplying so the student knows they must use that operation to solve the questions in that section. Textbooks do not give opportunities for students to think critically and design their own strategy to solve the problem. Students with disabilities need explicit teaching to understand concepts that are critical for solving word problems (Xin et al., 2005).

Classroom Interventions to Improve Academic Self-Concept

This section discusses which interventions can be applied in the classroom to improve the academic self-concept of students with learning disabilities. Promoting mastery goals and helping students understand their negative attributions will be addressed.

Any intervention designed to help improve students' self-concept have a great effect on students' academic self-concept (Kauffman & Davis, 2001). Promoting mastery of content can improve students' self- concept. Elbaum and Vaughn's (2001) study concluded that interventions that did not focus solely on self-concept but instead were designed to help students' academics still improved their self-concept, increased competence in a subject, and had a positive effect on academic self-concept. To promote mastery in the classroom, teachers must create a safe environment where students feel comfortable taking academic risks, seeking help, and persevering (Hanich, 2011). To do this, teachers should provide opportunities to re-take

assessments, make corrections, give constructive feedback to their students, and create as many opportunities for success as possible (Kiss & Vukovic, 2017).

To improve academic self-concept, students must understand their negative attributions and enhance their self-perception. “Attributions are casual explanations that children make to explain their academic successes or failures” (Hanich, 2011, p. 43). When a student fails, a teacher should explain the underlying cause of their low performance and how to compensate for their weaknesses to succeed in future/similar tasks. Teaching self-regulating and monitoring strategies to LD students is essential for academic success, and strategies covered in the next section aim to achieve this goal.

Schema-Based Instruction and How It Meets the Needs of Learning Disabled Students

This section discusses what schema-based instruction (SBI) is and how it is unique to other problem-solving strategies and how it specifically meets the needs of students with learning disabilities. The math frame, and how it helps students organize their thoughts and processes will also be addressed.

Schema-based instruction (SBI) benefits LD students as well as students at risk of failure in math, primarily with algebraic concepts (Xin et al., 2005). SBI focuses on helping students conceptually understand the structure of word problems and aids in retrieving information needed to solve with reading comprehension strategies (Xin et al., 2005; Jitendra, 2008). SBI emphasizes the importance of a dialogue between a teacher and their students. Students are encouraged to read aloud, question, clarify, and summarize. The teacher should restate what students say while inserting proper vocabulary and technique to help students adjust any misconceptions. SBI recognizes that many LD or at-risk students may have a weak foundation,

and developing schemas for various types of problems provides students with the structure they need (Fuchs & Fuchs, 2005). Clearly worked out examples and peer mediation all help LD students process and work through word problems.

The math frame provides students with the additional structure necessary to organize the information in a problem. It allows students to effectively paraphrase given information and break it into components to create the most appropriate schema (Wilson, 2013). The math frame should also open up the dialogue in a classroom, allowing students to observe and discuss the elements involved in the problem. The format and elemental breakdown allows the math frame to be adaptive, and it can be used for any level or mathematical concept.

Schema-based instruction meets the needs of students with learning disabilities. In fact, a study conducted by Xin et al. (2005) found that LD students who received SBI perform better in solving arithmetic word problems. The schematic diagrams utilized provide an illustrated link to the problem and highlights mathematical structure, helping students visualize which strategy would be most effective (Xin et al., 2005; Jitendra, 2008). The same study found that SBI enhanced students' conceptual understanding of problem solving, a skill that was identified as needing the most improvement for learning disabled students, SBI provides LD students with a tool to be more accurate problem solvers (Xin et al., 2005). Creating schematic diagrams takes the pressure off of LD students, because they no longer have to rely on working memory, a skill that is difficult for many LD students (Jitendra, 2008). SBI also moves away from key word translations and guides LD students toward deep cognitive thinking in a scaffolded environment.

Summary

There has been significant research focused on the academic self-concept of LD students and how mathematical problem solving plays a role. Research has suggested that LD students have a lower academic self-concept, but their global self-worth varies little from their non-LD peers. Research has suggested that LD students struggle in math for various reasons and that they particularly struggle in solving word problems. To help students, researchers have developed schema-based instruction and the math frame to help students' reading comprehension, identifying important factors in the problem, and choosing the correct strategy by creating diagrams and correcting misconceptions from classroom discussions. Improving students' skills in mathematical content can have positive repercussions on their academic self-concept.

CHAPTER III

METHODS

Design

The design used for this research is descriptive. Teachers selected are middle school math teachers with experience teaching learning disabled students. The researcher will provide teachers with a survey to determine whether they have any experience teaching schema-based instruction, and if so, with which students they found the strategy most effective. Teachers will also be asked to describe the academic self-concept of their LD students and what they do in their classroom to improve the academic self-concept of their students. The researcher will compare and analyze teacher responses to determine whether schema-based instruction and teacher feedback have an impact on student success and academic self-concept.

Participants

The participants for this study are math teachers in multiple middle schools across Harford County. All three teachers have over ten years of teaching experience. All three teachers also have extensive understanding teaching in inclusive classrooms and students with learning disabilities.

Instrument

The descriptive research will be conducted via an online survey. The survey will consist of eight short-answer questions. Teachers will share any past experience they have with teaching schema-based instruction and what strategies they use to help students improve their academic self-concept.

Procedure

Teachers will complete the survey electronically via Google Forms. The goal is to gather information and establish whether teachers who are using schema-based instruction in their classrooms find it is effective in helping students with learning disabilities solve word problems and which strategies they implement in their classroom to improve academic self- concept for their learning disabled students. If teachers have no knowledge of schema-based instruction, they will be prompted to watch a summary video and then asked whether they would consider implementing SBI in their classroom instruction.

CHAPTER IV & CHAPTER V

RESULTS AND DISCUSSION

The purpose of this study was to examine how teacher-implemented strategies and interventions for solving mathematical word problems could help improve the academic self-concept of students with learning disabilities. This study attempted to determine whether teachers have utilized new problem-solving strategies and whether they have tried providing constructive feedback to help students have the confidence to solve word problems independently and successfully. The design of the study was a descriptive self-report free response survey; survey can be found in Appendix A.

Analysis

The open response survey consisted of eight questions and was completed by three teachers employed by Harford County Public Schools. The first questions asked how long they have been teaching middle school mathematics. They responded 14, 21, and 8 years, respectively. Given the amount of time dedicated to the profession, these three teachers have implemented countless strategies in their classrooms and have had the opportunity to improve and modify their pedagogy that best benefits their students.

The second question in the survey asked what experience they had teaching word problems using the Schema Based Instructions (SBI) strategy. If respondents weren't familiar with SBI, they were directed to watch a brief video describing the strategy (Boniello, 2017). Respondents all answered very similarly; they have never heard of SBI but after watching the video realized the other strategies that they used to teach how to solve word problems shared many similarities with SBI. Some were responses were: "I have used this strategy throughout

my years of teaching but never knew it had a name! I watched to see exactly what strategies were covered in this approach” and “I feel like I have been teaching a version of this for years but I did not know it had a name!”

Question three asked if respondents had any experiences with SBI, with what kinds of students was the strategy most successful. Again, responses were consistent. Although all agreed that they haven’t specifically used SBI, their version that they have developed throughout their years of teaching works well for everyone, but the procedure and organization aspects that both strategies share are beneficial for struggling learners.

The fourth question asked specifically what other strategies they used to teach word problems and reflect upon whether those strategies are successful. The respondents gave brief descriptions of their approaches and there were a few notable similarities; “Identifying the parts [of a problem] to create an equation,” “Identifying key terms and information, using the final statement/question as guidance through solving the problem,” and “drawing pictures, highlighting, pulling out important information and crossing out extraneous information.” These responses fall into the understand and plan stages of the math schema. Identifying the key information given, discerning what is not vital to solving, and understanding what is being asked to solve are all components of schema-based instruction.

Question five was conditional, telling the respondents to watch a video on SBI, as previously mentioned, and whether they would consider implementing the strategy in their own classroom. Two respondents said that they liked that their current strategies share similarities with SBI and would like to incorporate the other aspects covered in the video into their own lessons. One teacher had this to say about the framework SBI provides students; “I think it is very helpful approach to give the students strategies for solving problems and slowly removing

our assistance so that they can feel successful solving the problems on their own.” One teacher expressed concerns about how pre-teaching the schema strategies may be time consuming, but that they would still consider using SBI.

The sixth question asked the teachers to describe the academic self-concept of their students in their inclusion classes. Again, all three responses were very similar. All agreed that students in the inclusion classroom typically have a low opinion of themselves. This is because by the time students reached middle school, they have been struggling with math for years. Two teachers both mention that students have convinced themselves that they “don’t have a math brain” or they aren’t a “math person.” One respondent says this low confidence in math becomes a part of their identity.

Question seven asks what teachers do to improve their students’ academic self-concept. All three respondents mentioned scaffolding, small goal setting, and words of encouragement to improve the self-confidence of their students. The final question asks if the respondents were to be assigned a teacher to mentor, what advice about teach math at their grade level they would give. Two teachers included advice surrounding curriculum pacing, to not be attached to the county pacing guide and do what is best for their students’ learning. The other piece of advice offered was to develop engaging activities for your students; this can help build a rapport and a better classroom environment for learning.

Threats to Validity

There are a few different factors that could have threatened the validity of the results to this case study. During the time at which the survey was distributed and taken by the respondents, curriculum and daily school life were upturned by COVID-19. Teachers across the

nation found themselves starting from scratch. The majority of their lessons that they have fine tuned over years of experience were not applicable to their new virtual classroom. Planning new lessons, adjusting to new daily routines, and negotiating technology, teachers are stressed and overwhelmed. These feelings may have affected the responses teachers gave to the free response survey.

Another factor that potentially could have impacted the validity of this study is the instrumentation used. A free response survey was given to middle school math teachers asking what they knew about schema-based instruction, whether they would consider implementing it, and what trends they have observed in their inclusion classes regarding academic self-concept. There was no posttest to revisit and discuss whether teachers implemented SBI and their and their students' experience with it, and whether it made an impact on students' academic self-concept.

External threats that could have also impacted validity of the study were the Hawthorne effect and situation factors. The researchers has personally worked with and collaborated with each respondent for years at different schools across the county. These preexisting relationships may have caused a reaction to the respondents being studied, and they could have potentially changed their responses. The situation factor for this study is that the research limits the generalizability due to the small number of respondents. The sampling used was judgmental; the researcher chose who to ask to participate. Specifically middle school math teachers who have experience teaching in inclusion classrooms were selected. These respondents were chosen because they have varying levels of experience and work in different socioeconomic areas. This was done purposefully to try to get as wide of a perspective possible with such a small sample size.

Connections to Previous Studies/Existing Literature

A previously completed study by Hanich (2011) found that any intervention designed to help improve students' academic skills also has positive effects on their academic self-concept. This researcher found that the teachers who participated in the survey use words of encouragement, positive reinforcement to improve the self-concept of their students. Moller et al. (2009) found academic self-concept is created due to a person's experiences and their opinion of those experiences. So, although teachers may not be aware, the interventions they use in their classrooms also play a significant role in the development of their students' academic self-concept.

In another study by Jitendra (2008), the researcher noted the schematic designs utilized in schema-based instruction helps students visualize which strategy works best and improves conceptual understanding of word problem solving an area of high need for LD students. A third study conducted by Xin et al. (2005) further explained the strengths of SBI and shared that the strategy conceptually helps students understand the structure of word problems and aids in the retrieval of information needed to solve because students would no longer have to rely on their working memory due the schematic format. This information encouraged this researcher to explore whether fellow teachers have observed a common trend in the academic self-concept of their students in their inclusion classrooms and if those teachers believe SBI could potentially have a positive effect.

Elbaum and Vaughn (2001) found that students with learning disabilities are at a higher risk of a lower academic self-concept. When students feel lost in the curriculum and do not know how to solve problems, this is damaging to a student's perception of a subject. This

researcher found that the teachers interviewed also believe that their LD students have a low opinion of themselves because they have been struggling with math for years.

Implications for Future Research

This study was designed to determine whether teachers were familiar with a mathematical strategy that was new to the researcher that was designed to help students with disabilities solve word problems and discover whether teachers saw noticeable trends regarding the academic self-concept of their students in their inclusion classrooms. The study was successful in finding that, although teachers were not aware of Schema-Based Instruction, after learning about it they would be interested in incorporating the strategy into their classrooms. They also shared from their collective years of experience that students with learning disabilities in their inclusion classroom have a noticeably lower academic self-concept. This can be due to multiple factors but decidedly due in part to extended periods of time of having difficulties and not seeing success in math and comparing themselves to their peers who have an easier time understanding the content.

Further research should be conducted to answer a variety of questions like the following: Would it be possible to have an inclusion math class use primarily SBI? Would it be possible to measure students' academic self-concept at the beginning and end of the school year to determine whether it has improved due to SBI? Would the results of students' self-concept continue to improve throughout the year or become stagnant? Does grade level play a role in how malleable a student's self-concept is?

Conclusion

The free response survey was administered to three teachers with varying years of experience teaching math to middle school students with learning disabilities. The respondents

were asked to share any knowledge they had of schema-based instruction, if they would be interested in implementing the strategy, if they have observed any consistencies of their LD students' academic self-concept and what they currently do to help students with low academic self-concepts. The results show that although teachers were familiar with aspects of SBI, they have not implemented the strategy in full, but were interested in trying it with all their classes.

It was also found that teachers agreed that students with learning disabilities and students in their inclusion classrooms have a noticeably lower academic self-concept. Teachers mentioned the efforts they make to help improve their students' self-concept, and their answers mostly included the teachers giving words of encouragement and positive reinforcement. This researcher found it noteworthy that the respondents did not include the method in which they teach the content to improve their students' academic self-concepts. Future research is needed and should include additional teachers and students where SBI is implemented consistently to determine whether there is a relationship between SBI and the academic self-concept of students with learning disabilities.

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Appendix

Appendix A: Survey Results

1. How long have you been teaching middle school math?

3 responses

14 years

21 years

This is my 8th year

2. What experience do you have with teaching word problems using the Schema Based Instruction (SBI) strategy? See video below if you aren't sure what SBI is.

3 responses

I have not used schema based instruction but instruction that looks and acts very similarly.

I have used this strategy throughout my years of teaching but never knew it had a name! I watched the video to see exactly what strategies were covered in this approach.

I feel like I have been teaching a version of this for years but I did not know it had a name!

3. If you have had experiences, with why kinds of students was it most successful?

3 responses

While it has not been EXACTLY schema based but similar, I found this kind of instruction useful for every level of student but my struggling learners do VERY well with it.

I have used this approach with all levels of instruction. It helps from advanced to on-grade level struggling students.

I find that the version of SBI I have been doing works for everyone but especially those who struggle or students with IEP math goals. They benefit from the organization and routine

4. If you have utilized other strategies to teach word problems what were they and were they successful?

3 responses

It's very similar. Identifying the parts (end result, starting out with, happening repeatedly, etc...) to create an equation. It's a very successful strategy, especially for those that have difficulty.

identifying key terms and information - somewhat successful with engaged students, using the final statement/question as guidance through solving the problem - successful with students who do not struggle with comprehension.

drawing pictures, highlighting, pulling out important information and crossing out extraneous information

5. If schema-based instruction is a new strategy to you, please watch the following video. After watching would you consider implementing the strategy into your classroom, why?

3 responses

I think it is a very helpful approach to give the students strategies for solving problems and slowly removing our assistance so that they can feel successful solving the problems on their own.

I would worry about the time it takes to pre-teach the schema strategies, but it seems beneficial so yes I would consider using it.

I like that my method is similar I think I will incorporate more aspects of SBI like find organize plan solve into my lessons

6. How would you describe the academic self-concept of students in your CC classes?

3 responses

My CC student typically have a low opinion of themselves. Typically they have struggled with math for a long time by the time they get to me.

Many times the students in these classes think "they aren't good at math" or "they don't have a math brain."

many of them strongly believe that they just aren't a 'math person' and have incorporated that as a part of their identity. it makes it very difficult to get them to try, because they convinced themselves that they will never be good at it so why bother?

7. What do you do to improve your students' academic self-concept?

3 responses

Using the scaffolding techniques I've set in place in my classroom, students gain confidence because we do problems again and again repeatedly in order to get them used to the rhythm. When they get used to the rhythm they gain confidence because they see that they can be successful.

words of specific encouragement, scaffolding, small goal setting

I try to give them positive reinforcement and encouragement when they are on the right track or have taken a risk.

8. If a new teacher were assigned to you as a mentor for them; what advice about teaching math at your grade level and based on your experience would you give?

3 responses

You need to find a balance between doing what is best for your students and moving with the pace of the curriculum. I cannot hold the class back for 1 or 2 students but if the entire class is lost, it is worth stopping and reviewing. Try to get to know your students as people instead of just mathematicians, it will help you to build a rapport with them and make them work harder in class.

I believe that it is important as math teachers to help students understand the importance of what they are learning and that it has a life-long purpose, that solving problems can be a fun and engaging activity, and that it is totally okay to love math class!

Don't be attached to the pacing guide, use your teaching gut, if your class needs more time slow down! Do what's best for the kids and always be on the look out for new strategies because that might be the one to cause a breakthrough for one of your students!