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Educational Techniques and Strategies Found to be Effective when Teaching Middle School Boys

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Educational Techniques and Strategies found to be Effective when Teaching
Middle School Boys

by

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August 2011

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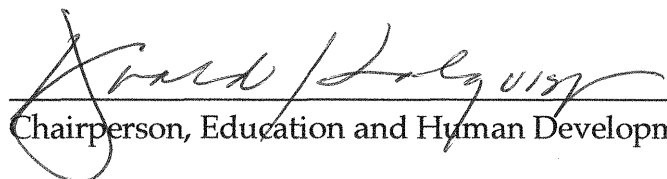
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Abstract

In all fifty states, in urban and suburban schools, from kindergarten to college girls are outperforming boys in all subject areas. The achievement gap between girls and boys is widening and boys are falling further and further behind. This study was conducted to research teaching strategies that can be used to teach boys effectively. A questionnaire was administered to a total of five middle school teachers who currently teach at an all-boys school. The questionnaire included teaching strategies and participants were to rate each one to determine the most effective strategy and least effective strategy (out of the strategies given).

The results from the questionnaire indicated that using multiple forms of directions and the use of visuals were the two strategies that the participants found to be most effective when teaching boys. The other strategies were less effective, some more than others. It is important for every child to learn, no matter what gender. It is apparent that boys are not measuring up to girls at all levels and subjects. As a result, teachers need to learn what strategies work best with boys in order to be more effective in the classroom. Overall, more research needs to be conducted in the area of boys' education. A larger participant group would enhance this study greatly and also administering it in different settings and levels.

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Chapter 1: Introduction

There is a crisis in boys' education worldwide. Men were once among the majority to graduate high school and go to college, however in the past ten years this has shifted. Girls have now outperformed boys in all areas of the curriculum and are now among the majority attending colleges, not only nationwide, but worldwide. Many teachers, administrators and parents of boys are extremely concerned about these young men's futures and how they will succeed.

Boys have amazing energy, however many teachers feel overwhelmed and at a loss for what to do within the classroom to improve boys' learning. Recently I've been subbing at an all boys urban charter school and have witnessed first hand that teaching boys requires a special set of strategies and techniques. Many of the teachers at the school have prior teaching experience in co-ed suburban and urban schools, so they all came in with their own strategies. After observing different teachers and classrooms, there are very different styles of teaching boys that seem to work and others that don't. It is essential for teachers, since they are the main educators for these boys, to learn strategies to use in the classroom that will enhance boys' knowledge and understanding. Research has shown that boys and girls learn very differently. This research can aid educators in understanding the differences in the brains of boys and their implications on the way they learn in the classroom.

It is the first time in history that males make up less than 44% of those attending college in the United States (Gurian & Stevens, 2007). This is a crucial fact when investigating and researching strategies to help boys. Educators in the United States don't want to leave any child behind and it should be a priority to ensure that all children have the best education they can have. It is essential for teachers to be aware of the learning differences in boys and girls and what strategies they can use in the classroom to help all children succeed. There are many simple strategies that teachers can implement immediately that may benefit students and there are other strategies that may take time and a bit of tweaking in order to work for the students. It is the role of educators to not leave any child behind.

Research Questions:

- Which of the strategies, from my research, do teachers find most effective when teaching boys?

Which of the strategies, from my research, do teachers find least effective when teaching boys?

What strategies, that were not included in my research, have teachers found to be useful when teaching in an all boys setting?

Definitions

An effective teaching strategy or technique will be determined by the behavior observed, the amount and quality of discussion, control over the classroom and the overall understanding of classroom content by the end of the lesson.

Chapter 2: Review of Literature

A little more than a decade ago the main concern was that schools were not addressing the needs of girls. As a result many strategies and programs were created to put girls on an equal playing field as their male counterparts. Many of these programs and strategies favored cooperative learning environments and non competitive teaching styles, which were more conducive in teaching girls (Mulvey, 2009). Many believe that this “feminization” of schools has now put boys in a precarious academic situation.

In all fifty states, in urban and suburban schools, from kindergarten to college, girls are outperforming boys in all subject areas. Reichert and Hawley (2006) found that ninety percent of students, even at the most prestigious schools, who are at the bottom of their graduating class are males. This trend is not only seen in the United States but also worldwide. The Organization for Economic Cooperation and Development conducted a three year study in France, Canada, Australia and England that measured literacy, math and science. In all the countries there were similar outcomes. Girls performed better than boys in reading and writing and boys were in need of additional academic help (Gurian and Stevens, 2005). Teachers of boys get frustrated and often feel they are failing at effectively teaching boys within their classroom, however Reichert and Hawley (2010) believe that these teachers who overcome the stress and eventually are able to reach boys become true experts at teaching boys. Teachers,

administrators and parents are at a complete standstill and are rethinking the ways children are educated, especially boys. Some districts have implemented single sex classrooms, others have created single sex schools, and research is still being done to determine how to get the best education for all students.

Brain-Based Research

Additional research has focused on a more logical and scientific approach to explain why and how educators can improve learning and knowledge in boys. Michael Gurian, a New York Times bestselling author, family therapist and international researcher in the area of gender differences in the brain, believes that educators and parents need to understand and consider the structural and functional differences in the brain to help us better educate children. He has come to the conclusion that there are areas in a boys brain that are “hard wired” differently than girls that may explain why boys are not succeeding academically, especially in the areas of math and literacy (Gurian, 2007).

There are many reasons why teachers are unable to effectively teach boys. One reason is that teachers are not aware and educated about the physiological differences between boys and girls and assume that they learn the same way. Another reason may be because boys are more apt to behavior problems in the classroom. Often teachers’ attention is focused on disciplining students and less focus on teaching them. Boys also

lose focus extremely quickly and shut down if they get frustrated. After researching the brain based differences between boys and girls it is now important to know what teachers can do not only in their lessons but also in structuring the environment and rules in their classrooms.

With the help of brain scanning and brain imaging, scientists and researchers, like Michael Gurian, have discovered some distinct features that make it harder for boys to experience success in the classroom. For example, the hippocampus is an area of the brain responsible for memory storage and spatial mapping, along with where the skills of reading and writing are developed. This part of the brain matures earlier in girls than in boys which explains why boys have a lot more difficulty with literacy and have more trouble recalling information (2007). A somewhat obvious, but effective way to help boys to enjoy and improve in the area of literacy is to provide and surround them with reading material they enjoy and are interested in. A startling statistic is that “the average boy is two years behind the average girl in both reading and writing” which may be a result of boys not wanting to read (Wiens, 2005). Boys like to read “books that make them laugh and appeal to their sense of mischief,” materials that focus on actions and not on emotions, and books that are based on things they want to be or do. It is also shown that reading materials such as magazines, comic books and newspapers interest boys and the best part about these is that when they read these boys really don’t consider themselves to be reading (Ontario Ministry of Education, 2004). When giving

writing assignments it may be necessary to differentiate the assignment so that boys are able to describe actions or invent stories. It is important to let boys express their creativity, which may include violence, and somewhat raunchy themes such as farting or burping. It is also important for teachers to allow boys some leverage while reading. Having a “noisy-time story-time” and a “quiet-time story-time” every now and then enables boys to tap, lie down or stand up while reading. Encouraging boys to read and write is essential to not only improving their literacy skills but also their language skills as well, especially at a young age (Sax 2007b).

Another part of the brain, the corpus callosum, is a bundle of nerves that connects the two sides of the brain. The corpus callosum is thinner in girls than boys which may explain why males take a more linear approach to solving problems and often prefer math and science because of their concrete answers (Skelton, Francis, & Srulvan, 2006). It also may give insight into why girls are more able to multitask, for example listening, watching, and taking notes at the same time during a lesson (Gurian, 2007). There are several things teachers can do to overcome boys’ difficulty with multitasking. Gurian and Bellew suggest training boys to take notes by using a note-taking strategy they’ve developed. First teachers hand out a full copy of the notes and go over them all together, then they make outlines with spaces to fill in and finally the students take notes themselves. Using a multi-sensory approach, hearing the information, reading the copy of the notes, writing an outline and then taking notes

themselves, helps boys to use a combination of senses in order to retain and understand information (2003).

The brain is divided into two hemispheres, the right and the left. Speaking, reading and writing are controlled by the left hemisphere while the right hemisphere is responsible for measuring, spatial skills and sense of direction. Boys rely more on the right hemisphere while girls use the left more, explaining why girls are more proficient at reading and writing than boys (Gurian & Bellew, 2003). According to the Ontario Ministry of Education (2004), there are several factors that educators need to take into account when dealing with literacy and boys. It has been proven that skill-wise most boys take longer to read than girls, they read less than girls, girls comprehend narrative texts better than boys do, however boys are better at information retrieval than girls while reading. With respect to attitudes toward reading boys express less enthusiasm and excitement than girls; boys do not consider reading to be a leisure activity and overall boys don't think of themselves as readers as much as girls.

Since boys rely more on the right hemisphere of the brain, which is responsible for spatial skills, boys are more prone to movement and using their hands. As a result of this fact, boys are more apt to move objects, any and all objects, through the air or just move their arms and legs (Gurian & Bellew, 2003). Creating lessons with movement or projects using motion gives boys more opportunity to learn and succeed. They enjoy

using blocks and manipulatives to solve problems. When boys work it is essential that they have enough room to work, boys like space and need ample space to complete tasks (Hughes 2006).

The male sense of hearing is less developed at birth than girls. As a result males are less sensitive to noise and sound than girls (Sax, 2006). It may be necessary to speak louder to boys than girls. The nervous system in males and females has also shown differences in personal temperature. Joyce Evans (Evans et al., 2001) found that males learn better in cooler temperatures while females prefer warm temperatures. Teachers may not always be able to control classroom temperature, however if available opening windows or using fans if the temperature is too warm may help boys focus more.

In the book Boys and Girls Learn Differently, Gurian and Bellew (2003) have uncovered many hurdles that educators and parent of boys have stumbled upon. They have also come up with possible solutions and ways to help boys overcome these hurdles in the classroom. As many educators of boys know, they become bored more easily than girls and once bored are more likely to give up on their own learning and act out in a way that disrupts others' learning. To reduce boredom in the classroom teachers need to provide more and different stimulants within the lesson. Teachers can use movement and brain breaks in positive ways. These brain breaks are short, only about one to three minutes, and allows boys to get up and move around, throw a *Nerf* ball or

just provide a break from the lesson. These brain breaks can help boys by preventing overstimulation, attention span problems, and acting out. What many teachers are unaware of is that, “The male brain is designed to go into rest state in which it renews, recharges and reorients itself” which can happen at any time (Gurian & Stevens, 2007).

There are many other factors that may explain why boys learn differently than girls and how educators can cater to these differences. Many educators or parents of boys know how hard it is for boys to concentrate sometimes and how they sometimes seemed to be “tuned out” or a little “off.” There are many different factors that could explain this behavior in boys. Scientists have found that boys have more dopamine in the bloodstream which increases impulsive behavior, which may explain why boys learn less well than girls while sitting still (Gurian & Stevens, 2007).

Listening and processing information is more difficult for boys and one strategy that Gurian and Stevens suggests is using verbal repetition when giving directions and giving directions in several modalities; verbal, visual, or written (2007). Teachers may also ask several students to repeat back to the class what the directions are so that students can hear the same directions several times; it also gives teachers a way to grasp how many students understand what they are supposed to be doing. Often teachers only give verbal directions, yet it is more advantageous to give students directions visually; maybe on a powerpoint or whiteboard students can refer to as they work on

the task. Another strategy to use when giving directions is to simplify them as much as possible it may benefit boys more to bullet them so they are easy to follow and not too much to read, using pictures or diagrams may help as well (Chadwell, 2007).

All of these strategies are a result of using brain based research to understand the differences in the brains of boys and girls and what we as teachers can do to solve them. Nevertheless there are many other strategies that teachers have found successful when teaching boys that based purely on experience.

Teacher Approved Strategies

Brain imaging and research provides much insight into differences in the brain, however teachers who work with boys on a daily basis for ten months at a time during the school year have learned many tried and true strategies that work with boys. These strategies are not the end all be all, however, teachers have to be patient and understand that not all strategies are going to work for every student or class. Boys are like fingerprints, they are all unique and have different characteristics. In the article written by Gurian and Stevens (2010) called *10 Essential Strategies for Teaching Boys Effectively*, they explain strategies that they found throughout the schools involved in their research. One of the major strategies was the use of graphics, visuals, and pictures in literacy based assignment. Teachers found that boys write more and provide more detail when writing about things they see. Another strategy that would benefit boys in a

literacy setting is that at least half of the reading and writing choices should be left to the students. Reading materials other than books or writing about different things is a great thing for boys as long as they are engaged and learning. As mentioned earlier, boys are not stationary and they need movement, therefore project-based assignments with hands-on learning is best for boys. When boys move they retain information better and since they are moving they less likely to become bored and more likely to stay on task and be engaged.

Gurian and Stevens (2010) also found that when teachers move around the room as they teach boys are more engaged. Along with that strategy they suggest allowing students to move around in the classroom. This not only allows them to move around but also teaches self-discipline because if teachers give them that choice they should use it wisely and show that it is helping them stay on task. In many classrooms boys are tapping on the desk, or drumming, or somehow moving. This may seem hard at first to teach while boys are moving but if they are engaged then it shouldn't inhibit their learning.

Lastly Sax talks about how boys are drifting away from education and are almost giving up. His belief is that boys and girls both benefit in different ways from single-sex classrooms or schools. Most importantly he stresses that teachers and administrators need to ensure that they are showing these boys that doing well in school is going to

help them succeed in the future and also help them start believing that success in school is cool (Sax 2007a).

As seen throughout this research it has been proven that boys and girls' brains are quite different and research is still being done to determine how it affects their learning. Researchers need to focus on how to help teachers and educators improve their strategies so they are able to reach boys and help them succeed in the future. There is a crisis in boys' education at this time. It would benefit boys around the country and world if scientists, teachers and administrators worked together to develop strategies and programs to improve boys' education. The female education crisis came to end with the collaboration of many people and organizations, and its about time the boys' crisis turns around for the better.

Chapter 3: Methods

Assumptions

There are several assumptions the researcher made while carrying out this study. First, the researcher was fairly certain the participants would be willing to complete the questionnaire. This assumption was made based on the relationships the researcher has formed with many of the participants. The researcher also knew that the administrators at the school were extremely supportive of the study because the study has a direct relationship with the goals of the school. Since the school is an all boys' middle school the administrators and teachers were very interested and willing to participate in order to gain insight into this topic. With the support of both the administrators and participants the researcher was confident that she would be able to conduct and carry out a successful study.

Research Questions

- 1) Which of the strategies and/or techniques, from my research, do teachers find most effective when teaching boys?

- 2) Which of the strategies and/or techniques, from my research, do teachers find least effective when teaching boys?

3) What strategies and/or techniques not found in research, have teachers found to be effective when teaching boys?

Participants

In this study there were eight potential participants. These potential participants were teachers in a first year urban all-boys charter school. I chose the four core subject teachers; one English, math, science and social studies from both seventh and eighth grades. The potential participants ranged in age from 25 to 50 years old and all are Caucasian, except for one who is Hispanic. There were a total of two female and six male teachers participating. The basis for participating was strictly voluntary, the participants did not receive anything to be a part of the study. A summary of the potential participants, their age, sex and years of experience are shown in Figure 3.1. It is important to note several characteristics about the participants. There are majority male teachers, and many of these teachers are young with very few years of experience. This could impact the results of the research, however these potential participants all have experience teaching in an all-boys setting which enables them to complete the questionnaire.

Table 3.1

Select Demographic Characteristics of the Participants

Participant	Age	Sex	Experience
1	25	M	First year
2	27	F	2 years
3	27	F	First year
4	30	M	3 years
5	48	M	15+ years
6	50	M	20+ years
7	28	M	2 years
8	26	M	2 years

Procedure/Design

I have been teaching with and often for the teachers for approximately six months and have talked with these teachers about this research. I sent out an email asking the teachers to read over the statement of consent and if they agreed to participate then to return the questionnaire (which was attached) in a blank envelope to my mailbox at the school. The statement of informed consent detailed the purpose of the research and why they were chosen to participate. The consent also disclosed how confidentiality was going to be upheld during the research, described that participating

was completely voluntary, and it outlined the questionnaire and estimated how long it would take to complete. The participants were asked to read over this consent and make sure that they understood the conditions before completing and returning the questionnaire to the researcher.

This study took place within the school; teachers completed the questionnaires on their own time in their own classrooms individually. In the email I asked them to work alone to complete the questionnaire because I did not want any other teacher to influence or change any answers of the others. On average the questionnaires only took about 5 minutes to complete and longer if they had additional strategies to include or any comments.

Limitations

With this study, like all research, there are limitations. One of the greatest limitations was the size of the staff. This was a small school, with two grade levels, and a total of 12 teachers. The questionnaire was given to eight potential participants, and a total of five decided to participate. If this were a larger school with more available staff, the study would have benefited from more participants completing the questionnaire. Another limitation was the timing. The questionnaire was given out in the last two weeks of school and teachers were extremely busy with testing and grades, which may explain why some decided not to participate. One other possible limitation is that the

majority of the potential participants were beginning teachers or first year teachers. This fact could have some influence on the responses to the questionnaire and many may not have had enough experience with many of the strategies. To improve these limitations it would be beneficial to find many participants, somewhat equal number of veteran and beginning teachers and to give participants enough time to complete the questionnaire. It would help to give the questionnaire out earlier or send an email or letter out beforehand to give them a “heads up.”

Instrument

The teacher questionnaire was an instrument I designed to get information about effective teaching strategies that work with boys. I wanted to know whether the teaching strategies I found in my research that were effective with boys were found to be effective in the charter school as well or not. I also had an open ended question asking if the teachers had any other strategies that were not mentioned in the questionnaire that they found to be effective when teaching boys.

Overall, the teacher questionnaire had a total of eight items. Seven items were strategies that the participant had to rate (highly effective, effective, not effective, never used) and an open-ended item as mentioned above. There was also a space for comments or questions for the participants if they had anything they wanted to add. The instructions for the seven items were fairly straight forward and said, “Please check

one of the boxes for each strategy to indicate its effectiveness. ” The open-ended question’s instructions read “Please list any additional strategies, that weren’t already listed, that you have found to be effective when teaching boys.”

This questionnaire relies on human judgment from the participants. Each participant has different ideas, teaching styles, and experience which may influence how they rate certain strategies. However it is my belief that this questionnaire is valid and reliable. The items are straight forward and I think they hold true if it were administered to another set of teachers at a different school. The only aspect that may make a difference is whether a researcher is going to ask teachers of single sex schools or teachers of both boys and girls. This instrument could be altered as well; items could be added or deleted to fit the setting or participants. Either way it would be an easy and consistent instrument to use to find out what strategies work at a particular school with a particular set of students.

Many educators read about so many teaching strategies “that work” in books, online, articles, etc. However, I really wanted to know, from real teachers, with actual classrooms whether these strategies that I’ve been reading about are effective or not. It is important not to believe *everything* one reads, but this opportunity enables me to research a question and use real subjects to investigate teaching strategies.

Data Analysis

The data was analyzed to see any correlation between the published research about teaching boys and the effectiveness of certain teaching strategies from what teachers found to be most effective in their own classrooms. The data will be ordered based on the teacher responses on the questionnaire. Each of the first seven items will be rated from zero points (never used) to four points (highly effective), the strategy with the most points will be considered to be the most effective strategy and the one with the least amount of points will be considered to be the least effective. The last item on the questionnaire which asks the participants to list any additional strategies that were not listed already they found most effective was very valuable. There are so many strategies available and new strategies developed each day that it was interesting to see what the participants contributed in terms of effective strategies that have not been researched. The open-ended question offered participants a chance to share a strategy that worked in their classroom.

In summary some responses included strategies that involved student taught lessons or parts of lessons and lessons that involved students' favorite sports, teams, and/or specific athletes. A key theme that was evident in many of the responses was that the relationships and rapport that teachers have with students is sometimes just as, if not more important than learning a slew of teaching strategies. Overall the responses were

enlightening and provided the researcher with several strategies that could be researched in the future.

Chapter 4: Findings

Many teachers find it difficult to teach boys effectively. As stated earlier there are various factors attributing to the differences in the way boys learn and the way girls learn, some brain based and others teacher tested. It was my goal to compare whether some of the teaching strategies found most frequently during the research really work within a classroom full of boys. The potential participants were initially eight teachers (four-seventh and four-eighth grade), however, only five agreed to participate, who completed a questionnaire reflecting on past and present teaching experience while teaching boys. I analyzed the data and found that I was able to successfully answer all of my research questions based on my teacher questionnaire.

Using the questionnaire provided to the participants it was somewhat easy to see which strategies the participants found to be most effective when teaching boys. There were some “ties” between strategies for both most and least effective. The questionnaire asked participants to rate each strategy on a scale from not effective, effective, highly effective or never used. The strategies were chosen based on my literature review. They were strategies that frequently came up during research and that researchers and teachers found to be most effective. These strategies included: use of visuals, multiple forms of directions and instructions (verbal, visual, etc.), use of real world situations, use of movement in the classroom or during lessons, cooperative learning groups, lessons structured as games, and use of competition. The last item on the questionnaire

asked each participant to list any additional strategies that weren't already mentioned within the questionnaire. My first research question was *Which of the strategies and/or techniques, from my research, do teachers find most effective when teaching boys?* Using the data from table 4.1 there were two strategies that were found to be most effective when teaching boys. The participants in the study found that use of visuals and use of multiple forms of directions are two strategies that they found to be most effective when teaching boys. On average, the use of visual and multiple forms of directions are the strategies with the highest mean score, which ultimately means that the participants found these to be very effective strategies when teaching boys. The second question asked *Which of the strategies and/or techniques, from my research, do teachers find least effective when teaching boys?* table 4.1 shows that using cooperative learning groups and lessons structured as games had the lowest mean score. In other words, out of the strategies that were a part of the questionnaire, cooperative learning groups and lessons structured as games were less effective than the others. The last question asked *What strategies and/or techniques not found in research, have teachers found to be effective when teaching boys?* This question was the one that I, as a researcher, was really interested in. Since I had done so much research on strategies already studied, I wanted to know what other strategies that may not have been studied do the participants found to be useful when teaching boys. The participants provided some eye opening strategies and techniques that I have seen in the classroom, but never really analyzed. One participant

suggested tying in athletics or using athletics within the classroom. This strategy goes hand in hand with movement, but using the interests of the students is a huge strategy and it also connects to using competition. Student-led lessons were another strategy that a participant suggested. This is a great strategy that I have used before and that students really love. Along with those strategies just mentioned I received some other strategies that focused a lot on building relationships with students. One participant responded by stating, “understanding and respecting the culture within the City of Rochester, where these students live, allows teachers to create meaningful relationships.” Creating meaningful relationships is probably the most effective strategy within a classroom. Research has shown that building relationships with students is essential; teachers *need* to form these bonds with students to be successful when educating them.

Table 4.1

Summary of Results

Rating	Points
Highly Effective	2
Effective	1
Not Effective	0
Never Used	none

Participant	1	2	3	4	5	Total	Mean Score
Use of Visuals	2	2	2	2	2	10	2
Multiple forms of Directions	2	2	2	2	2	10	2
Use of Real World Situations	2	1	2	1	2	8	1.6
Use of Movement in Classroom	2	1	2	2	1	8	1.6
Cooperative Learning Groups	1	2	2	1	1	7	1.4
Lessons structured as games	2	1	2	1	1	7	1.4
Use of Competition	2	2	2	1	1	8	1.6

Chapter 5: Conclusion & Recommendations

There is a wide gap in achievement between girls and boys and it is getting even wider. For the first time in history females make up the majority of those attending college. From kindergarten to college girls are outperforming boys in every subject area. It is time for a change. Since completing my research I have concluded that teaching boys and girls requires different strategies. Many teachers have difficulty teaching boys effectively, boys are very active with a lot of energy, they also have more behavior problems than girls. Educators seem to find themselves disciplining more than teaching. It was my goal to find out what makes boys learn differently than girls and what implication that has for teachers. There was a lot of information about brain-based gender differences, which ultimately explains why boys learn differently than females. In a nutshell, the development of different areas of the brain occur at different times, some areas are more developed or larger than others and hormones play a big role in gender differences as well. As a result of these brain differences research has been conducted to find out what teachers can do to eliminate the struggle that boys have in the classroom. Throughout the research I found many strategies that have been researched and found effective when teaching boys. There were several recurring strategies at the end of the research that I decided to focus on. These strategies were discussed most frequently in the research and seemed to be used most often in classrooms. With these strategies I created a questionnaire for teachers, in an all-boys

school, to complete. The teachers were to rate each strategy based on their past and present experience using the strategy, from very effective to never used. Results from the questionnaire showed that there were a couple strategies that, on average, teachers found to be most effective. The use of cooperative learning groups and lessons structured as games had the lowest mean score. In other words, out of the strategies that were a part of the questionnaire, cooperative learning groups and lessons structured as games were the least effective when compared to the others. Other strategies that were found to be somewhat effective were use of movement within the classroom or during lessons and the use of competition. The last question asked participants to list any additional strategies that they have found to be effective that were not mentioned on the questionnaire. Most responses had to do with creating meaningful relationships with students. Overall my findings suggest that some strategies seem to be more effective than others when teaching boys. There is so much to learn about the different ways boys and girls learn. Districts need to be more aware of educating teachers about the brain-based gender differences between males and females. As a result of these differences teachers need to understand that teaching one way may not reach all students. There are many things teachers can do to improve their teaching and in the end teach boys effectively.

Recommendations

The boys education crisis is not improving. Recently it has been found that the achievement gap is widening, so this issue of teaching boys effectively should be studied further. This study can be a great tool in addressing the achievement gap for boys. I would recommend more research in the area of strategies to teach boys. If this study were to be replicated more participants would be helpful for better results and also possibly interviewing students. This could help in order to get their ideas about how they learn best or what they would like teachers to do in the classroom to help them. Another aspect of this study could be to conduct it at an urban and then a suburban school and see if location makes a difference. Future research should be aimed at helping teachers find strategies that will effectively teach boys. If these strategies are found to be effective and used then in the end the gap in achievement should diminish.

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Appendix A

Statement of Informed Consent

The purpose of this research is to investigate teaching strategies that have been effective when teaching boys, past and present. This research is being conducted in order for me to complete my master's thesis for the Department of Education and Human Development at the College at Brockport, SUNY.

In order to participate in this study, your informed consent is required. If you want to take part in this study and agree with the statements below, the completion of the survey signifies your consent. If you choose to be in the study you can withdraw at any time without consequences of any kind.

I understand that:

- 1) Taking part in this study is completely voluntary and I have the right to refuse to answer any questions.
- 2) My consent and participation involves a questionnaire consisting of seven strategies to rate, one open ended question and any comments I'd like to share. This questionnaire should take no longer than five minutes to complete.
- 3) The records of this study will be kept private. My name will not appear on the questionnaire. Any report of this research that is made available to the public will not include my name or any other individual information by which I could be identified.
- 4) There will be eight people completing the questionnaire. The results will be used by a researcher in order to complete a master's thesis.
- 5) There will be no anticipated personal risks or benefits as a result of my participation in this study.
- 6) Data will be kept locked in a filing cabinet by the investigator. Data will be destroyed upon the completion of research and approved for submission.

I am 18 years of age or older and have read and understand the above statements. I agree to participate in the study and understand that I can withdraw at any time. Returning the questionnaire indicates my consent to participate.

If you have any questions you may contact:

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Teacher Questionnaire

Educational Techniques and Strategies found to be Effective when Teaching Middle school Boys

Please check one of the boxes for each strategy to indicate its effectiveness

	Highly Effective	Effective	Not Effective	Never Used
Use of Visuals.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multiple forms of directions and instructions (verbal, visual, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of real world situations.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of movement in the classroom/lessons.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooperative learning groups.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lessons structured as games.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of competition.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B

Please list any additional strategies, that weren't already listed, that you have found to be effective when teaching boys

Comments:

Appendix C

Table 3.1

Select Demographic Characteristics of the Participants

Participant	Age	Sex	Experience
1	25	M	First year
2	27	F	2 years
3	27	F	First year
4	30	M	3 years
5	48	M	15+ years
6	50	M	20+ years
7	28	M	2 years
8	26	M	2 years

Appendix D

Table 4.1

Summary of Results

Rating	Points
Highly Effective	2
Effective	1
Not Effective	0
Never Used	none

Participant	1	2	3	4	5	Total	Mean Score
Use of Visuals	2	2	2	2	2	10	2
Multiple forms of Directions	2	2	2	2	2	10	2
Use of Real World Situations	2	1	2	1	2	8	1.6
Use of Movement in Classroom	2	1	2	2	1	8	1.6
Cooperative Learning Groups	1	2	2	1	1	7	1.4
Lessons structured as games	2	1	2	1	1	7	1.4
Use of Competition	2	2	2	1	1	8	1.6