Running Head: DIFFERENTIATION AND MOTIVATION

One Size May Not Fit All, But the Right Teaching Strategies Might: The Effects of Differentiated Instruction on the Motivation of Talented and Gifted Students

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Abstract

The purpose of this study was to discover and successfully implement multiple strategies for differentiation that would engage and motivate Talented and Gifted (TAG) learners. Six TAG students from a third grade general education classroom setting participated in this study. Differentiation strategies of a learning style inventory, a project choice board based on learning styles, and Math Exemplars were used to increase the engagement and motivation of TAG students. Student and parent interviews, surveys, and observations were used to determine the effectiveness of this study. Findings indicated that there was a slight increase of student engagement and motivation with the use of a project choice board and Math Exemplars for both general education and Talented and Gifted students. Educators need to plan curriculum that allows student choice and utilizes authentic tasks in order engage and motivate students. (Contains 5 tables)

Problem Statement

"Jack, can you share with us your strategy for solving this problem?" I ask as he seems to recover from a daydream. "Huh? Can you repeat the question?" he replies. This sort of response is common from Jack, a third grade student who is identified as Talented and Gifted (TAG). Even after increasing the size of the numbers used in the problem as indicated as a modification in the curriculum, he knows the answer immediately and has spent the past five minutes of class thinking about the new guitar he had received as a holiday gift. Several episodes occur in class when Jack plays or talks with other TAG students during independent work time and I am left wondering why the differentiation strategies recommended in the curriculum are not engaging advanced learners.

How can teachers keep TAG students challenged in the classroom in ways that are meaningful and engaging for them? During my first year of teaching at this school, I had eight TAG students in my classroom. As a new teacher who earned and undergraduate degree in special education, I felt unprepared to meet the needs of these higher achieving students. Over the past three years, I have developed many practices in my classroom to challenge TAG students such as flexible grouping, higher level thinking and questioning strategies, as well as individualized reading and writing conferences through literacy workshops. While I thought these strategies enhanced the instruction my students were receiving, I found it difficult to embed differentiation on a daily basis in all subject areas without excessive planning time. This year, with a team of third grade teachers, I spent a total of twelve hours brainstorming and planning extensions and challenges for advanced learners for each unit in Mathematics alone. I could not imagine

the time this would take to accomplish for all subjects and concluded that there must be a more practical alternative.

The school's parent population, from a high socio-economic community, was also very concerned with the issue of differentiation. Many site council meetings were spent in conversation on challenging TAG students because parents did not have an understanding of how teachers were accomplishing this in the classrooms. At this school, teachers and parents alike were committed to meeting the needs of each individual child so intensely that it became a SMART goal for school improvement.

The purpose of this study was to discover and successfully implement multiple strategies for differentiation in my classroom that would engage and motivate my advanced learners. Systematic study of various methods for differentiation and applicable strategies addressed this purpose. I surveyed and interviewed students and parents about how well they felt the curriculum met their learning needs. I initiated methods in my teaching gleaned from colleagues and professional reading. To determine the success of the study, I also conducted observations on student engagement.

Through this research, I was able to answer the question: How do Talented and Gifted students' motivation and achievement change when I implement new differentiation strategies while delivering curriculum? At the culmination of this study, I again administered the fore mentioned surveys to students. The data was then assimilated to determine if the perceptions of delivered curricula improved TAG students' abilities. I also looked for data that demonstrated increased motivation for learning based on student and parent responses.

Literature Review

As a teacher who is committed to meeting the needs of every child, my frustration escalated as I continued to observe talented and gifted (TAG) students in my class who had high potential but did not demonstrate their capability in their daily work. The majority of the students who were identified as TAG in my classroom rushed through their work with minimal effort. With good intentions, I spent hours each week developing extension activities in Math, or advanced literacy studies, but students were more motivated to race through the assignments than to demonstrate creativity or innovative thinking in their answers. I struggled with meeting their needs with so many other demands on teacher time. A review of professional reading offers approaches for enhancing the intrinsic motivation and academic achievement of gifted learners.

Concepts of Differentiated Instruction

Rotigel & Fello (2004) claim that instruction in elementary mainstream classrooms often lacks challenge for gifted students since it sometimes covers a relatively narrow range of topics, minimal exploration of concepts, recurring drill and practice, and repetition of concepts. Because of this, Talented and Gifted students benefit from being placed together in a gifted setting. So how do teachers address the needs of gifted students when this is not an option and the majority of the class requires concepts repeated regularly? There are two interconnected themes in literature on educating gifted and talented students: (a) access to challenging opportunities to learn and (b) provisions in classrooms to accommodate their unique needs (Ysselduke, Tardrew, Betts, Thill, & Hannigan, 2004, p. 293) if they cannot be grouped in a purely gifted setting.

Good (2006) identifies a common misconception that educating gifted and talented students in the general education setting, differentiation, is a largely unmanageable theory of individualized instruction. Teachers become overwhelmed with creating extra activities for students who are already familiar with the core curricular concepts. Tomlinson (2001) projects a more constructive view of differentiation which focuses on, "meaningful learning or practical ideas for all students." Teachers should plan to address learners' different needs, rather than planning one lesson for everyone and adjusting it when it does not work for some students (Mitchell & Hobson, 2005). Good (2006) suggests planning several activity options for class work rather than alternate assignments for each student. The teacher may then work with the entire class, small groups, individual students, or a combination of the three. Furthermore, Diezmann and Watters (2000) suggest a goal for teachers to provide gifted students with fewer and more complex tasks over a long period of time rather than several alternate assignments.

Enrichment vs. Acceleration

According to Rotigel and Fello (2004) because many mathematically gifted students have already mastered the basic skills, the enrichment activities and advanced projects their teachers plan may not present adequate challenge. Rather than accelerating or compacting curriculum, Diezmann and Watters (2000) encourage teachers to create challenging problem situations that provide numerous opportunities for student "construction of knowledge though inquiry, discussion and argument." These experts also stress interpretive listening as a key role in monitoring student's thinking which leads to dialogue or questioning in which information facilitates student learning. Research also suggests that a key feature of challenging tasks is their authenticity within

a domain. Tasks should provide opportunities for gifted students to emulate the practices of real mathematicians for example, though at a less-sophisticated level (Diezmann & Watters, 2000). According to Baum, Cooper, and Neu (2001) when education focuses on real-world experiences, motivation for learning increases.

Choice Motivates

Not only do teachers need to allow for authentic discovery learning and exploration, Heller (1999), as sited in an article entitled *What's a Teacher to Do?* by Kathy Hargrove, suggests that gifted students should be allowed to pursue topics of interest. This can be accomplished by providing choices to students. Providing alternatives for student products enhances the creativity dimension of curricula (Van Tassel-Baska, 2003 p.3). Tieso (2004) suggests extensive use of preassessment to determine students' strengths, interests, and learning styles. Learning tasks can then be presented to students at varying levels that offer activities for students of all learning styles. Learning Menus, Thinking Tac-Toe options, and cubing are three of many such vehicles. When constructed appropriately, students must focus on important knowledge, understanding, and skill, but may also make choices about how they do so. Such choice is often highly motivating (Tomlinson, 2003, p. 73).

Reviewing literature on differentiation and motivation for gifted students helped me develop a better understanding of how to meet the needs of the TAG students in my classroom. I understand more deeply the meaning of differentiation and that it involves more than providing extra activities for students. Providing students with choices and meaningful, authentic opportunities for them to construct knowledge will not only meet their learning needs, but will also motivate them to achieve excellence.

Methods

After familiarizing myself with strategies for implementing curriculum from reviewing literature, I developed a methodology to use in this study to increase student engagement and motivation through differentiation strategies based on choice, enrichment, learning styles, and authentic tasks. The purpose of this study was to test and successfully implement manageable strategies for differentiation in my classroom that would increase the engagement and motivation of advanced (TAG) learners.

Subjects and Setting

The subjects used in this research were gifted students in a third grade mixed ability classroom. There were six students in my classroom who were identified as Talented and Gifted (TAG): Jack, Jeremy, and Matt who were identified in Math and Reading, Jessie who was identified in Reading, and Henry and Natalie who were intellectually gifted overall. Jack and Jeremy were male third graders who struggled with motivation and rushed through work quickly. Jeremy also received speech services. Henry was a male third grader who had recently qualified for TAG. He was administered academic and intelligence testing because of a referral for special education due to lack of attending, low social skills, and sensory issues. His intelligence testing identified him as talented and gifted. Jessie and Matt were friendly, motivated third graders who enjoyed challenges and put forth extra effort in academic activities. Natalie was a very talented artist who worked with creativity, but completed assignments slowly. The subjects were selected because they are an appropriate representation of gifted students who experience differentiation strategies directly in the classroom.

The setting was in a third grade mixed ability classroom at a public elementary school in Portland, Oregon. There were a total of twenty four children in the class. The school's population is comprised of members from a high socio-economic community. According to the State Report Card for 2006-07, this school was rated exceptional overall in academic achievement, student performance, attendance, and school characteristics. Out of the enrolled 781 students, 11% (86) of them were identified as TAG. This specific setting was selected because of the high representation of TAG students.

Data Gathering Instruments

Data gathering instruments used in this research were surveys, interviews, and observations. Surveys were directed toward all students in the class to measure their motivation and engagement (Appendix A). Using surveys in this way provided patterns in student views of choice as well as knowledge of their learning styles. Interviews were conducted with both gifted students (Appendix B) and parents (Appendix C) in a semi-structured format. This was intended to gain additional feedback on the engagement and motivation levels of the students in my classroom. Observations were conducted to compare with the data gathered in surveys, inventories, and interviews because it provided data on student behavior rather than opinion. These three instruments were appropriate for answering the research question because they presented uninfluenced data on how students' needs were being met in the classroom and raw information on what their primary motivation was for completing class assignments.

Two interventions were used in this study to increase student engagement and motivation in Social Studies and Mathematics. Prior to implementation, students were given a learning styles inventory (Appendix D) so that the author could ensure that

choices provided would appeal to all types of learners and to increase the individual student's understanding of his or her learning. During a Social Studies unit about Portland, Oregon, Tomlinson's (2001) suggestion for "The Flow of Instruction in a Differentiated Classroom" was implemented. This method followed a "repeated rhythm of whole-class preparation, review, and sharing followed by opportunity for individual or small group exploration, sense-making, extension, and production." The group exploration was presented using a Tic-Tac-Toe method which offered choice and was differentiated by learning style and multiple intelligences. The Tic-Tac-Toe format included activities for visual, auditory, and kinesthetic learners (Appendix E). In Mathematics, the author utilized a program entitled Exemplars. These were authentic problem solving questions that encourage critical thinking and questioning skills. The Exemplars were correlated to the district's adopted Math curriculum and offered tiered options for producing solutions to the problems. "The Differentiated Best of Math Exemplars I CD-ROM contained 100 assessment tasks and 80 instructional tasks that were differentiated. Each task included a more accessible and more challenging version. Different levels of the same task could be used at varying developmental levels within the same classroom" (Differentiated Best of Math Exemplars I CD-ROM, K-8). These were executed during choice time within the general curriculum. These interventions were the best way to address the research question and purpose because they directly related to methods for increasing motivation such as choice and authenticity, while integrating themes of differentiation based on students' needs and learning styles.

Procedures

Data were initially gathered through student survey. I provided 20 minutes of class time for students to complete the survey. The survey was anonymous; however they were color coded to distinguish which surveys were taken by TAG students. A total of 24 surveys were taken, 6 by gifted students. Interviews were conducted after school or during prep time with 5 out of the 6 TAG students, then with each of their parents on a conversational basis. Three unscheduled observations occurred to measure student engagement and motivation during Math time in the classroom. The Tic-Tac-Toe intervention was carried out over five weeks, or the duration of the Portland unit. The Exemplars problem solving enrichment extended for approximately eight weeks. Upon completion of the interventions, the initial survey was repeated with all students.

Parents and students were assured that all data collected remained confidential. All of the participants completed the surveys anonymously to protect privacy and enhance honesty. In order to protect the identity of the students who participated in this study, pseudonyms were used. To decrease bias, the study used separate data gathering instruments (survey, interview, and observation) to provide triangulation.

Timeline for procedures:

1. Initial student survey- March 12, 2007
2. Student and parent interviews- March 19-31, 2007.
3. Student Observations- March 21, April 18, and May 2, 2007.
4. Administration of learning styles inventory- March 19, 2007
5. Tic-Tac-Toe intervention- April 2, 2007-April 27, 2007.
6. EXEMPLARS intervention- April 2, 2007- May 24, 2007.
7. Final student survey- May 29, 2007

Results

Data gathered through interviews, surveys, and observations support research findings gathered in the literature review and provide critical information on methods that increase the motivation and engagement of talented and gifted students. Students were selected as participants because they were an appropriate representation of gifted students who experience differentiation strategies directly in the classroom.

Instrument 1: Student Interviews

These interviews confirmed that there was a need in my classroom for some changes to be made that would increase the motivation and engagement of TAG students. Although, most enjoyed school, their motivation for completing learning activities were generally because they were told to do them, not because they were excited about learning the content. Most students enjoyed learning in my classroom and felt that they were challenged at times, but not all of the time. Most students indicated that they would enjoy school work more if they had more choices, but that they did not know what their learning styles were.

Among TAG students' favorite activities were Math, Art, Writing, Technology, and Silent Reading. All five students answered that they "kind of" liked Social Studies. When asked what would make them enjoy it more, three out of the five students said having more choices on how to demonstrate their learning. Three out of five students also mentioned that they would like more projects where they could create things or, "do things instead of watching." One student replied that he didn't like learning from the text book. When students were asked if they knew what their learning style was, all five

replied “no.” Interestingly though, three out of the five stated that they felt they were able to engage in activities based on their learning styles. Three students stated that they completed work because they were supposed to and because their teacher told them to. One student replied that she completed work because she wanted to learn, but also because she had to. Another student said that he completed work because it was fun!

Most of these TAG students indicated that they enjoyed Math. When students were asked if they liked Math, four replied yes and one replied, “Sometimes.” Two students declared that Math was easy for them, one student said that Math was hard, and another replied, “in between.” Another student said, “Usually, I can get though it quickly, but the challenge problems make me think.” When I asked the students what they enjoyed most about Math, four students mentioned specific kinesthetic activities such as using shapes and pattern blocks as well as a three dimensional activity we did in class. One student said that he liked worksheets. Two students mentioned that they had to think carefully in Math, one student said that he did not have to think carefully in Math, and two students said they had to think carefully sometimes. When asked if they were learning new information, three students replied “Yes,” and two students said, “Sometimes.”

Instrument 2: Parent Interviews

I interviewed four parents of TAG students. All parents stated that their students like school and are happy. Two parents mentioned that their children enjoyed the social aspect of school and that they talk about their friends or other children often. I asked parents what their children say about school at home. Three parents said that their children do not talk about what they learn in school. One student sometimes talks about

events at school such as our Dr. Suess Tournament or Science projects. One parent said that her child talks about school because they ask him to tell one good and one bad thing that happened that day. This student also shares something he learned if his parents discuss a familiar topic. Another parent reported that her daughter discusses school all of the time and gets excited about the topics she learns about.

When I asked parents to tell me about their sense of their children's engagement in school I received a variety of responses. One parent said that her child is very engaged in school. Another parent talked about school not being challenging enough for her child. Two parents seemed to be unaware of their students' engagement. A mother stated, "It probably varies greatly depending on the topic, mood, and what is going on in the classroom… he can be a great leader, disruptive, or shut down." One child's parents requested emails to inform them of their child's engagement.

Most parents had an awareness of what a learning style is, and made a guess what their child's learning style or styles are. Two parents referred more to their children's learning patterns. The answers to my question, "Do you think your child's learning needs are being met in school?" were positive from all but one parent. Most parents stated that they felt their children's basic needs were being met and that activities were appropriate. The other parent mentioned that she wanted her child in a challenge group. This response made me wonder because this child has been in challenge groups for Math and Reading and this parent was informed of this placement at the beginning of the year. One of the parents who answered positively did say that she felt her student's needs would be better met if he were in a classroom of all TAG students.

Perhaps the most interesting responses I received during this interview process were of information I acquired about how teachers communicate the level of instruction, or activities that meet their child's learning style and academic level, to parents. Two parents listed many ways in which they felt informed about their children's level of instruction including conferences, inquiries, TAG planning forms, and a TAG newsletter that I created that outlined various ways I challenge TAG students. These are parents who felt their children's needs were being met. One of those parents requested that the TAG newsletter be updated more frequently. She added that she thinks I handle TAG students well. Her daughter did not feel held back because of other students learning level and that other parents say the same. She feels that all kids get what they need. Another parent who felt that her child's needs were not being met responded that she keeps informed, "through the regular monthly newsletter, and the homework calendar." She mentioned that the assigned homework was too easy. I asked her if she was having her child complete the homework challenge extensions that were attached to the homework calendar, and she said that she didn't know about them. Another parent mentioned that they do not look at newsletters or notes that come home because his child is doing well. He stated that if his child was not doing well, then he would pay more attention to the information that came home.

The final question I asked parents was, "What do you think motivates your child to learn?" The first parent I interviewed listed technology, new topics, and new ideas. The next parent said that her student is self motivated, "she just wants to learn." Other parents mentioned sports, reading, math, interest in new topics, and praise. Lastly, a parent concluded that her student would be more motivated if he was in a class with only

gifted students. She mentioned that her child views extra or harder work as a punishment. She felt that if all students were doing harder work, then he would automatically be pushed to excel because the standard expectation would be higher.

Instrument 3: Student Surveys

Responses to initial and final survey questions gathered from all twenty-four students are shown in Tables 4.1 and 4.2. The mean for questions regarding class enjoyment, motivation, learning styles, student choice, and engagement all increased after the implementation of Tic-Tac-Toe choice boards, Math Exemplars, and learning style inventories. The mean decreased for 3 questions only: "I complete my work because my teacher tells me to," "My teacher gives me work that is too easy," and "My teacher gives me work that is like the real world." Responses to initial and final survey questions gathered from the six TAG students who participated in this study are shown in Tables 4.3 and 4.4. Results followed a similar pattern as the whole class.

Table 4.1

Winter Results

Whole Class Number of Students Who Chose

Student Survey	**5** **(Strongly Agree)**	**4** **(Mostly Agree)**	**3** **(Neutral)**	**2** **(Disagree Mostly)**	**1** (Strongly Disagree)	**Mean**
1. I like learning in this class.	7	9	6	2		3.8
2. I complete my work because I want to learn.	8	10	4	1		3.95
3. I complete my work because me teacher tells me too.	2	7	9	3	3	3.08
4. My teacher gives me many choices on how I can complete my work.	2	8	8	6		3.37
5. I would like it if my teacher gave me more choices.	5	7	5	6	1	3.37
6. I know what my learning style is.	4	8	4	4	4	3.16
7. My teacher gives me work that lets me use my learning style.	5	4	5	6	4	3
8. I usually finish my work as quickly as I can.	1	2	12	7	3	2.7
9. I usually put my full effort into my work.	4	12	5	3		3.7
10. My teacher mostly gives me work that challenges me.	2	5	10	6	1	3.04
11. My teacher mostly gives me work that makes me think carefully.	4	9	9	2		3.62
12. My teacher gives me work that is too easy.		5	13	6		2.8
13. My teacher gives me work that is like the real world.	4	8	8	3	1	3.45

Table 4.2

Spring Results

Whole Class Number of Students Who Chose

Student Survey	**5** **(Strongly Agree)**	**4** **(Mostly Agree)**	**3** **(Neutral)**	**2** **(Disagree Mostly)**	**1** (Strongly Disagree)	**Mean**
1. I like learning in this class.	8	11	5			4.12
2. I complete my work because I want to learn.	6	12	4	1	1	4.29
3. I complete my work because me teacher tells me too.	2	4	8	8	2	2.83
4. My teacher gives me many choices on how I can complete my work.	13	7	2	2		4.29
5. I would like it if my teacher gave me more choices.	3	7	14			3.54
6. I know what my learning style is.	20	3	1			4.79
7. My teacher gives me work that lets me use my learning style.	6	9	6	3		3.75
8. I usually finish my work as quickly as I can.	1	0	8	11	4	2.29
9. I usually put my full effort into my work.	7	13	3	1		4.08
10. My teacher mostly gives me work that challenges me.	3	11	8	2		3.62
11. My teacher mostly gives me work that makes me think carefully.	4	11	8		1	3.7
12. My teacher gives me work that is too easy.	1	1	6	14	2	2.37
13. My teacher gives me work that is like the real world.	1	7	12	4		3.2

Table 4.3

Winter Results

TAG Students Number of Students Who Chose

Student Survey	**5 (Strongly Agree)**	**4 (Mostly Agree)**	**3 (Neutral)**	**2 (Disagree Mostly)**	**1 (Strongly Disagree)**	**Mean**
1. I like learning in this class.	1	3	1	1		3.6
2. I complete my work because I want to learn.	1	1	2	1	1	2.8
3. I complete my work because me teacher tells me too.		2	3		1	3
4. My teacher gives me many choices on how I can complete my work.	1	1	1	3		3
5. I would like it if my teacher gave me more choices.	1	2	1	2		3.3
6. I know what my learning style is.	1	3			2	3.1
7. My teacher gives me work that lets me use my learning style.	1	2	1	1	1	3.1
8. I usually finish my work as quickly as I can.	1		5			3.3
9. I usually put my full effort into my work.	1	2	1	2		3.3
10. My teacher mostly gives me work that challenges me.		1	2	3		2.6
11. My teacher mostly gives me work that makes me think carefully.		3	1	2		3.1
12. My teacher gives me work that is too easy.		2	2	2		3
13. My teacher gives me work that is like the real world.	1	2	2		1	3.3

Table 4.4

Spring Results

TAG Students Number of Students Who Chose

Student Survey	**5 (Strongly Agree)**	**4 (Mostly Agree)**	**3 (Neutral)**	**2 (Disagree Mostly)**	**1 (Strongly Disagree)**	**Mean**
1. I like learning in this class.	1	4	1			4
2. I complete my work because I want to learn.	3		1	1	1	3.5
3. I complete my work because me teacher tells me too.	2		1	1	2	2.83
4. My teacher gives me many choices on how I can complete my work.	2	3		1		4
5. I would like it if my teacher gave me more choices.		4	2			3.66
6. I know what my learning style is.	5	1				4.83
7. My teacher gives me work that lets me use my learning style.	1		3	2		3.5
8. I usually finish my work as quickly as I can.	1		3	2		3
9. I usually put my full effort into my work.	2	1	2	1		3.5
10. My teacher mostly gives me work that challenges me.	1	1	3	1		3.33
11. My teacher mostly gives me work that makes me think carefully.	1	1	3		1	3.16
12. My teacher gives me work that is too easy.	1	1	2	2		3.33
13. My teacher gives me work that is like the real world.		2	3	1		3.16

Instrument 4: Observations

Observations were taken of the six TAG students during Math time in the classroom. I checked on the students once about every ten minutes to see if they were engaged. Engagement was measured by noting on-task behavior from each student. On-task was defined as working on the math problem, sharing a strategy with the group, or double checking an answer. The first observation took place before the Math Exemplars were implemented. Students were working on a geometry activity. Two observations took place during a Math Exemplars activity. The amount of on task behavior prior to the intervention and during Exemplars is shown in Table 4.5. All students demonstrated an increase in on-task behavior during the Exemplars intervention.

Table 4.5- Percentage of On-Task Behavior

Student	Pre-Exemplars	Exemplars	Exemplars
Jack	75%	100%	100%
Jeremy	66%	100%	75%
Matt	Absent	100%	100%
Jessie	66%	100%	100%
Henry	33%	100%	66%
Natalie	100%	100%	100%

Discussion

Administering the differentiation strategies, Tic-Tac-Toe Choice board and Math Exemplars, resulted in increased engagement and motivation for TAG students as well as the general classroom population. Students enjoyed the two interventions. During the Tic-Tac-Toe choices, students would ask if they could work on those projects throughout the day, not just during Social Studies time. I did not have to remind students to keep working, and the quality of their final projects was outstanding!

During Math Exemplars, students struggled to find answers to authentic tasks. They worked well in teams based on their ability level and the application to real life seemed to give kids a genuine feeling of purpose to learning math. One interesting finding from the student surveys was that after administering Exemplars, the mean for students' opinion of how much their work was like real life went down from 3.45 to 3.2 for the general class and from 3.3 to 3.16 for TAG students. It is possible that in other areas of the curriculum, tasks seemed less authentic for them. Therefore, the question may need to be reworded so that it specifically asks about Math.

The student survey taken by the entire class had similar means to the surveys taken by TAG students. Initially, most questions resulted in a mean close to 3. It's worth noting that in two areas, the general students and the TAG students means had larger discrepancies. The mean for the general class on the initial survey for item 8, "I usually finish my work as quickly as I can," was 2.7 and 3.4 for TAG students. I wasn't surprised by this data because my general observation of the TAG students in my class was that their motivation for doing the class work was just to get it done, possibly because it wasn't appropriately engaging them. On the final survey, the mean for both

the general class (2.29) and TAG students (3.0) on item 8 (I usually finish my work as quickly as I can) decreased. This tells me that students learned the importance of slowing down and putting their full effort into learning tasks. The other statement that had a large discrepancy was item 10, "My teacher gives me work that challenges me." The mean for the general class was 3.04 and for TAG students the mean was 2.6. This told me that prior to this study, I was doing an okay job of meeting the needs of the general population in my classroom, but not all of my TAG students. On the final survey the mean increased for both populations: 3.62 for the class and 3.33 for TAG students. This increase confirms that the interventions increased my ability to challenge all of my students. However, I was hoping to see more of a dramatic increase of this mean. It seems that the learning style strategy that allows choices and the authentic Math tasks increased motivation and engagement, but did not dramatically increase the level of academic challenge for my TAG students.

Although the survey did not indicate that TAG students thought they were being challenged often, my general observations of these students contradict these findings. During Exemplars, my TAG students struggled to get correct answers. They would approach me several times to share their strategies, and they often had to rethink, or recalculate their work. I found these activities to be extremely challenging for all of my students. Another example is a TAG reading group that I asked a parent volunteer to help facilitate. She reported that students really struggled with the vocabulary activity, and that students needed more practice with dictionary skills. This was the same parent that reported in her interview that her child was not challenged in class. This makes me

wonder what that parent considers challenging, or if this parent needs further explanation on the activities that her child is engaging in during class time.

This parent's disconnect between her answers and what is actually happening in class caused me to wonder if my methods of communicating with parents were not sufficient. However, other parents who listed that they refer to TAG newsletters, and engage in regular conversations with me reported that their students' needs were being met. So I had to think about how to reach the parents who did have time to read through my newsletters or volunteer in the classroom. A parent reported in her interview that emailing about student progress and activities would be helpful. As a result of this, I began sending copies of my newsletters and brief explanations of information about curriculum and activities to parents via email. I have noticed a greater amount of parent response and feedback because of this change. It seems that many parents are inundated with fliers and papers that go home in students' backpacks, some have a routine that allows them to gain critical classroom information despite the overload of school mail and others do not. However, more parents regularly check their email. If I were to further this research, I believe the next step would be to examine this piece in greater depth.

In addition to studying the effectiveness of communication with parents via email, there are some other changes that I would suggest if this study were to be implemented again. If possible, a greater number of participants would increase the validity of results. Only having six TAG students to study may not have been an accurate representation of the greater TAG population. Also, the school setting was in a high socio-economic area. It would be beneficial to study TAG students who attend schools in a variety of

populations. It is possible that the community of families at this setting had an impact on how they viewed teacher effectiveness.

Another change I would make is to have a different method for conducting observations because I believe that the student observations yielded more usable data. Classroom observations are crucial to really capturing the effectiveness of classroom learning activities as well as measuring student engagement and motivation for the learning tasks. This is because an observation can truly capture students' behavior and level of engagement, where as asking a student in a survey if they think they are engaged is subject to student bias. I found it extremely difficult to take observation notes when I was in the middle of instruction with my class. Because of this, my observations were infrequent, and often interrupted. Other methods might be to have another teacher record the observations while the researcher is working with students, or perhaps use a tape recorder during instruction, and make observations from the video. I would also suggest having another researcher help conduct observations to increase the reliability of observation data.

A final change would be to interview students and parents either post intervention or during intervention rather than prior to intervention. My interviews gave me useful information about how students and parents felt about their children's educational experiences prior to my study. If I had interviewed parents and students during the intervention portion of this study, I could have asked them how they felt about the differentiation strategies I was implementing and if they had noticed a difference in their (children's) motivation and excitement about school activities. This would have been more useful to me in evaluating the success of my study.

This research was successful at increasing TAG students motivation and engagement overall in the general classroom setting. It implies that educators need to plan curriculum that allows student choice and utilizes authentic tasks in order engage and motivate students. Findings did not conclude however, that these strategies are the best way to ensure that TAG students remain challenged. Perhaps parents and research articles are correct in saying that TAG students' needs would be better met if they were grouped together in a gifted setting. I recommend that teachers group TAG students together when class building. I will continue to offer students choices based on learning styles and providing authentic, differentiated learning tasks to students.

The process of conducting action research was extremely beneficial to my teaching practices. Not only did I learn about methods to differentiate, but I also gained insight on the importance of reflective teaching. As a life long learner, I have to be aware of when I start to feel comfortable with my instructional methods, because I may not be developing myself as a professional. I value the way action research forced me to step out of my comfort zone, and improve my practices. My students also felt that they had a voice in my classroom. By letting them know that I was researching in order to make myself a better teacher, they were immediately excited by the idea that even teachers are learners. They were eager to be a part of the research, and I could sense in my students a feeling of ownership for their learning. Many students wrote positive comments at the bottom of their final student surveys such as, "I love these surveys!" and, "I like how you give me these surveys because it lets you know how we like to learn."

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Appendix A- Student Survey

Please complete the following survey. The purpose of this survey is for me to see how my teaching affects your learning. Read the following questions carefully and **circle** your answer using the scale below. Please read the survey carefully and ask me if you don't understand it.

Yes! I Really Strongly Agree	*I Agree mostly*	*I don't agree or disagree I'm in the Middle*	*I Disagree mostly*	*No, I really Strongly Disagree*
5	**4**	**3**	**2**	**1**

1. I like learning in this class.	5	4	3	2	1
2. I complete my work because I want to learn.	5	4	3	2	1
3. I complete my work because my teacher tells me to.	5	4	3	2	1
4. My teacher gives me many choices on how I can complete my work.	5	4	3	2	1
5. I would like it if my teacher gave me more choices.	5	4	3	2	1
6. I know what my learning style is.	5	4	3	2	1
7. My teacher gives me work to do that lets me use my learning style.	5	4	3	2	1
8. I usually finish my work as quickly as I can.	5	4	3	2	1
9. I usually put my full effort into my work.	5	4	3	2	1
10. My teacher mostly gives me work that challenges me.	5	4	3	2	1
11. My teacher mostly gives me work that makes me think carefully.	5	4	3	2	1
12. My teacher gives me work that is too easy.	5	4	3	2	1
13. My teacher gives me work that is like the real world.	5	4	3	2	1

Appendix B- Student Interview Questions

Today I am going to ask you some questions about school. Your answers will give me information on how I can better teach you. Please answer as truthfully as you can. The more honest you are, the more I can learn.

1) Tell me about your favorite activities in school?
2) Do you like Social Studies?
3) What would make you enjoy it more?
4) Do you know what a learning style is?
5) Do you feel like you get to engage in activities based on your learning style?
6) Do you like Math?
7) Is Math easy or hard for you?
8) Tell me about the parts of Math you enjoy the most?
9) Do you have to think carefully in Math?
10) Are you learning new information or new ways of thinking during Math time?
11) Tell me about why you complete Math activities?

Appendix C- Parent Interview Questions

I am doing a research study for my graduate degree in curriculum and instruction. Information from you can give me a better understanding of your views about how well you child's needs are being met in school. I really appreciate your time and willingness to assist me in my study.

1) Tell me about how your child feels about school?
2) Does your child talk about school at home? If so, what does he/she say?
3) Tell me about your sense of your child's engagement in school?
4) Do you know what your child's learning style is?
5) Do you feel that your child's learning needs are being met in school?
6) How have teachers communicated the level of instruction your child receives?
7) What do you think motivates your child to learn?

Appendix D- Learning Styles Inventory

DIRECTIONS: For each item, circle "T" if the statement is true for you most of the time. Circle "F" if the statement is false for you most of the time.

1. I have poor handwriting.	T	F
2. I have trouble copying from a book, or the overhead.	T	F
3. I easily forget what I read unless it is talked about in reading group.	T	F
4. I prefer teachers to explain directions out loud instead of having to read the written directions.	T	F
5. I prefer listening to music to watching TV.	T	F
6. I prefer talking on the phone to writing a letter to someone.	T	F
7. I would rather be in a group discussion than read about a topic.	T	F
8. I like to take part in plays or theater. I like to act things out.	T	F
9. I would rather read about a topic than listen to a teacher tell about it.	T	F
10. I like to read ahead in class when material is being read aloud.	T	F
11. I like classrooms that have lots of pictures and posters to see.	T	F
12. I can learn to spell words by simple reading them several times.	T	F
13. I prefer watching TV to listening to music.	T	F
14. I have trouble remembering directions that were told to me.	T	F
15. I would rather go to a movie than to a concert.	T	F
16. I would rather watch a sport than play it.	T	F
17. I would rather participate in a sport than watch one.	T	F
18. I don't understand Math well unless I work through a lot of problems.	T	F
19. I would rather do experiments in Science than read about them.	T	F
20. I like to make models or create things with my hands.	T	F

21. I get bored in class when I just have to sit and listen to the teacher. T F

22. I have trouble remembering directions that are told to me if I have not done a similar activity before. T F

23. I like being outdoors and doing activities like hiking, biking, swimming, horseback riding, camping, etc. T F

24. I don't like going to a museum where I can't touch anything. T F

DIRECTIONS FOR SCORING:

Total the number of "Ts" you circled in questions 1-8 _____
(This is your auditory or hearing score.)

Total the number or "Ts" you circled in questions 9-16 _____
(This is your visual or seeing score.)

Total the number of "Ts" you circled in questions 17-24 _____
(This is your kinesthetic or doing score)

Any area in which you score higher than others is your learning style or strength. Similar scores in all 3 areas mean you can learn things in almost any way they are taught.

Adapted from "Learning Styles Questionnaire", Differentiating Instruction "One Size Doesn't Fit All!", presented by BTSA Support Providers 2003-2004. La Mesa Spring Valley School District.

Appendix E- Tic-Tac-Toe Choice Board

Name: _____ Due Date: _____

Tic-Tac-Toe Choice Board - History of Portland

Directions: Choose 3 activities that you would like to complete this month. You can connect three in any direction. Have fun!

Visual	Oral/Auditory	Kinesthetic
Create a newspaper from Portland's past. It must include at least 3 articles, pictures, subtitles, and the date.	Create a newscast. You should pretend that you are a news reporter, telling the public about an important event in Portland's past. Prepare to be recorded on video tape.	Help create backdrops (scene 1 and 2) and plan/collect props for the play, "How Portland Got its Name."
Create an advertisement or poster about the play, "How Portland Got its Name." It should include a summary of the play, the main characters, and information on when and where the play will occur.	Interview someone who lived in Portland's past. This can be a grandparent, or an older relative or friend. You will document your interview and what you learned about Portland's Past. Take class time to prepare your questions.	Create a Flip book of important events or important people in Portland's past.
Create a piece of art that teaches something about Portland's history. This could be a painting, sculpture, collage, song, or poster.	Be an actor in the play, "How Portland Got its Name." You will be performing this for parents, students, and teachers.	Make a game board of Portland's history. You can create at least 20 questions about Portland's Past and make the game board look like Portland. Game pieces could be important historical people from Portland.