

University of Wisconsin- Whitewater
Whitewater, Wisconsin
Graduate School

The Effects of Criterion Referenced Feedback on Intrinsic Motivation of Students with Learning
Disabilities

A Project Submitted in Partial Fulfillment
Of the Requirements of the
Master of Science in Education – Professional Development

Christopher Persick
May 2011

This Capstone Project was approved by:

Seminar Instructor & Advisor: _____
Dr. John Zbikowski

Table of Contents		
Chapter		Page
I.	Introduction	5
II.	Review of the Literature	7
III.	The Process of Implementation	12
IV.	Survey Results	15
V.	Conclusions	17
	References	20
	Appendix	21
	Student Survey	22
	Parent Survey	23
	Survey Results	24
	Weekly Checklist	25

List of Figures

Figure	Page
2.1 Student Survey	22
2.2 Parent Survey	23
2.3 Survey Results	24
2.4 Weekly Checklist	25

Abstract

Students with learning disabilities (LD) tend to have less intrinsic motivation than their counterparts who are not considered to have LD. This project examines the role criterion referenced feedback has on the intrinsic motivation of four students with LD in a 7th grade self-contained math class. It asks the question, will providing criterion-referenced feedback, through differentiated instruction increase the intrinsic motivation of 7th grade students with LD in their self-contained math class? Surveys were given to the students and their parents before and after a Connected Math Project (CMP) book was completed to determine if intrinsic motivation increased. This project found that there were no significant gains in intrinsic motivation from the beginning of the project to the time it was concluded. The relatively small sample size combined with a brief implementation period may have resulted in there being no change. Results from this project highlight the need to research the need for more understanding on how to increase motivation in students with LD.

Chapter One

Introduction

Motivation is an important characteristic for every student. Those students with LD have a bigger need to develop intrinsic motivation than students without due to their lack of self-efficacy and attitude toward school. Feedback, when immediate, has proven to be an effective method to increase student motivation. Will providing feedback to students with LD increase their motivation toward school?

The development of intrinsic motivation within students varies throughout ability levels. Students who are considered to have a learning disability (LD) have a greater tendency to lack the ability to motivate themselves intrinsically. There are multiple possible reasons for this lack of motivation. Students with LD tend to rely on the help of others more so than other students. Oftentimes, they encounter more instances of failure in and out of school. The expectations of teachers can be lessened and emphasis on developing that motivation is not evident. When success is seen, motivation is seen through extrinsic rewards. No matter the cause, students with LD are in most need of developing intrinsic motivation if they are to make gains in their academics and develop into a self-motivator once out of school.

In order to be an effective special education teacher, or more yet, general education teacher, knowing how to motivate your students is essential. "Creating a foundation for academic success involves a number of factors, and in the forefront is motivation" (Sanacore, 2008, p. 40). This is even more imperative for students who are considered to have a learning disability (LD). Students with LD have a hard time being motivated in school and their poor academic achievement is the result. This poor motivation is a factor in poor homework completion (Bryan,

2004, p. 213). “Motivation is a key factor in promoting academic success, and intrinsic motivation is especially important for developing autonomous learners” (Sanacore, 2008, p. 40).

Increasing this motivation in students with LD through feedback responses can have a positive impact. Within the confines of differentiated instruction, formative feedback responses can produce an increase in motivation and self-efficacy. It’s not enough to just say feedback is important. Providing this feedback in a timely manor is just as important. “Students who receive infrequent or delayed feedback regarding their independent seatwork often continue to make academic errors” (Rock & Thead, 2009, p. 183). If those errors continue, then motivation will drop.

Chapter Two

Review of Related Literature

Special and general educators alike need to be successful motivators of students in order to be effective. “Creating a foundation for academic success involves a number of factors, and in the forefront is motivation” (Sanacore, 2008, p. 40). It is even more important that students with learning disabilities (LD) have motivation to learn. Students with LD have a hard time staying motivated often resulting in poor academic performance. Struggles in academics is typically correlated with poor quality work. (Bryan, 2004, p. 213). “Motivation is a key factor in promoting academic success, and intrinsic motivation is especially important for developing autonomous learners” (Sanacore, 2008, p. 40).

Increasing the motivation of students with LD using feedback responses can impact them positively. Increased motivation and self-efficacy are a direct result of formative feedback response under the umbrella of differentiated instruction. It’s not enough to just say feedback is important. Giving timely feedback is just as significant. “Students who receive infrequent or delayed feedback regarding their independent seatwork often continue to make academic errors” (Rock & Thead, 2009, p. 183). Continued decline in motivation will occur if academic errors persist.

The first study comes from Australia. Gilmore and Boulton-Lewis looked at the view parents and teachers have of students with learning disabilities being lazy. The parents and teachers of twenty children, age’s seven to ten, were given questionnaires to measure their level of effort in school. Results showed that while teachers and parents may view their child as lazy, it isn’t necessarily true. Students with LD may appear to be lazy, when in fact, their disability is a factor in inattentiveness or lack of homework completion. “The special needs of an unknown

number of children may be overlooked because they are simply presumed to be lazy” (Gilmore & Boulton-Lewis, 2009, p. 101).

This research shows how important it is to develop motivation in students with LD, and provide opportunities in the classroom to provide feedback to those students. If students with LD are not lazy, then using feedback to increase their intrinsic motivation is a feasible experiment.

The second study compares the achievement, effort, and self-perceptions of students with LD to peers from four different achievement groups. Lackaye and Margalit compared 571 seventh graders of varying levels of achievements including those with LD. A variety of measures were used to categorize and measure the levels of achievement, effort, and self-perceptions between those with LD and without. Measurement tools include: grade reports, questionnaires, and self-rating scales. Results showed that students with LD have lower levels of achievement, effort investment, academic self-efficacy, sense of coherence, positive mood, and hope, and higher levels of loneliness and negative mood (Lackaye & Margalit, 2006, p. 437). In other words, students with LD have less motivation and self-efficacy than those without LD.

This research shows how important developing intrinsic motivation is for students with LD. “The current study also showed the importance of sensitizing teachers to students’ experiences and the need to develop educational programs that will help students to develop skills for integrating feelings with thinking and actions and thereby to promote adjustment, effort, and motivation” (Lackaye & Margalit, 2006, p. 444).

The third study transitions from explaining the importance increasing motivation has to students with LD to how providing feedback is especially necessary to those students. Thirty-one students with LD were given an achievement test and two questionnaires. Teachers of those students were given a questionnaire. The purpose was to measure students’ perceived

competence and the levels of intrinsic and extrinsic motivation. Results of the study showed that students with LD rely more on external feedback from teachers. “Children with learning disabilities feel they want to work as hard as other children, but need more information about the outcome of their efforts” (Lincoln & Chazan, 1979, p. 215).

This article justifies the importance feedback has on students with LD. Lincoln and Chazan explain that since students with LD depend on extrinsic motivators more than intrinsic, feedback from teachers is necessary for success. This leads to the question, can providing that feedback help foster intrinsic motivation in students with LD?

The fourth study measures the effects immediate feedback has on students with LD giving oral presentations. This study is about four female seniors who need to give an oral presentation in order to pass a course and graduate. The effects of what immediate feedback can have on the improvement of the speeches were measured. The results indicated that immediate feedback was more effective than delayed feedback in changing specific behaviors (Scheeler, Macluckie, Albright, 2010, p. 84).

The results of this research backs up claims from others, like Carol Tomilnson, that immediate feedback is necessary if you are to increase learning. This study is, however, very small and only shows feedback verbally from peer tutors. Knowing this limitation helps to justify further inquiry into other methods of immediate feedback and their effects on motivation and academic performance.

The fifth study looks at the effects self-efficacy and attributional feedback has on motivation. “Self-efficacy and attributional feedback are important cognitive factors that influence the formation of motivation” (Zhang & Lu, 2002, p. 281). A group of 146 Chinese undergraduate students were given tasks to perform, negative feedback was given to half the

participants, and finally motivation levels were measured. Results showed that self-efficacy and attributional feedback have the main effects of regulation on motivation, and they also have important influence on the formation of motivation by interaction with each other (Zhang & Lu, 2002, p. 281). This research is important because it shows how integral feedback and self-efficacy are in the development of motivation.

The research articles provide a good foundation for why a study in how effective feedback can have on the intrinsic motivation of students with LD is important. Motivating students is, arguably, the most important aspect of a teacher's job. In the case of students with LD in a math setting, it is even more important. "Motivating students to complete math tasks is important because students with special needs often require extensive practice to master essential skills. Increasing students' motivation is a complex and ongoing process, especially for students with disabilities who have often experienced extensive failure with math in the past" (Banda, Matuszny, & Therrien, 2009, p. 146).

Self-efficacy has been brought up in both studies and articles as a main factor in motivation development. If a student has good self-efficacy, then their motivation and drive to do well in school increases. If you increase a student's self-efficacy, then you increase their intrinsic motivation.

A suggestion made by numerous authors to increase self-efficacy incorporates feedback under the umbrella of differentiated instruction (Chen & Weiland, 2007, p. 47). "Also important for understanding motivation is the differentiation of instruction for academic diversity" (Sanacore, 2008, p. 41). Tomlinson agrees saying "Modifying instruction to draw on student interests is likely to result in greater student engagement, higher levels of intrinsic motivation,

higher student productivity, greater student autonomy, increased achievement, and an increased sense of self-competence” (2006, p. 151).

Reading many articles that discuss the legitimacy of providing feedback to increase motivation legitimizes the value of my project. “Formative assessment is currently a ‘hot topic’ among teachers and administrators and is now recognized as one of the most powerful ways to enhance student motivation and achievement” (Cauley & McMillan, 2010, p. 1). Formative assessment is another type of feedback. These formative assessments can take on the form of self-evaluation cards, rubrics, learning strategy reference cards, and learning strategy checklists (Margolis & McCabe, 2004, p. 246).

The timeframe of when feedback (formative assessment) is important as well. If students get feedback often and on a regular basis, then it allows students to better monitor and self-regulate their progress (Nicol & Macfarlane-Dick, 2006, p. 208).

Chapter Three

Process of Implementation/Methodology

People have a natural propensity towards being motivated intrinsically (Cohen, 1986, p. 258; Dev, 1996, p. 2). Students with learning disabilities (LD) commonly share problems with intrinsic motivation. LD children are characterized by high rates of off-task behavior, inattentiveness, poor concentration, and lack of persistence, particularly when faced with difficult tasks (Licht, 1983, p. 483). Students with LD have delays in one or more of: mathematics, reading, and written language. Because of these delays, their skills are not at grade level. This leads to a large number of academic disappointments. Since these disappointments occur over and over students with LD begin to doubt their intellectual abilities (Licht, 1983, p. 483). When they doubt their abilities, they begin to give less effort and believe that they will never succeed. Motivational orientation is considered to be an important factor in determining the academic success of children with and without disabilities. Those with LD are able students who must learn how to accommodate or overcome their disabilities in order to meet future societal demands independently and efficiently (Cohen, 1986, p. 258). To help students with LD meet society's demands independently, educators need to assist students by developing confidence and a plan of action with decisions. Without effective motivation methods, these students can continue down the slippery slope of decreasing motivation, confidence and eventually develop learned helplessness. When confidence is low any type of success students with LD experience, in their mind, is attributed to "external" factors such as the ease of the task, the teacher's help, or luck (Licht, 1983, 484).

The requirements for a differentiated classroom include a constant monitoring of student

readiness as well as providing students with appropriate feedback at opportune times through either formative or summative assessments. Tomlinson and McTighe (2006, p. 77) suggest giving feedback to students early and often so long as it is timely, specific, understandable to the student, and allows for the student to make adjustments. What I intend to do with my project is explore how criterion-referenced feedback effects the intrinsic motivation of students with LD through the context of a self-contained math class taught in an understanding by design method of instruction.

Will the intrinsic motivation of students with LD increase after having been exposed to numerous attempts to provide feedback through a unit of mathematics? By the end of the study, I hope to see a significant change in the students' motivation toward math and other subjects.

The study took place in the rural setting of the Township of Beloit at Beloit Turner Middle School. One Connected Math Project unit entitled, "Variables and Patterns," was the curriculum used during the study. The class was taught in my classroom within the first two semesters of the 2010-2011 school year.

The participants in this study included parents of the students and the students themselves. Four of the 7th grade students in the self-contained math classroom were classified as having a learning disability in mathematics. The other student has emotional or behavioral concerns that require an alternative classroom setting than the general education classroom. They were administered the same feedback methods, but will not be included in the results. During the implementation of the project two of the students were removed from the classroom for behavior issues. One student moved to another district, and the other was placed in a homebound setting with a one-on-one instructor.

The study began with a questionnaire given to both the students and their parents in order

to determine the students' present level of motivation (See appendix for details). This questionnaire was administered two weeks into the beginning of the school year when student's became more comfortable and settled into their routine. This will also give time to refresh basic math skills before beginning with the unit on variables and patterns. During the teaching of this unit different forms of feedback were given to the students. Rubrics with the same format were given to students before the major project was assigned describing, in language they can understand, what was expected. Checklists were given to students when multi-step processes, such as making a graph, were presented to show what was mastered or still might need work. At the conclusion of the unit, students and parents were given the same questionnaire from the beginning of the unit (See appendix for details).

Data collected consists of the pre- and post- questionnaires and teacher observations by way of a checklist that monitored changes in student behavior (attendance, classroom preparedness, and task completion). I analyzed the data by comparing the results of the pre-survey to the post-survey to determine if there were any changes in the responses. I also looked at the changes in behavior through the checklist (See appendix for details).

Chapter Four

Results

The three students were Emilie, Monica, and Collin. After the conclusion of the first two weeks of school the initial motivation surveys were mailed to the parents and passed out to the students. The students were not aware of the actual purpose of the surveys, only that they are for the teacher to get to know them better. The eleven question survey asked the students and parents to give responses from one to five. A response of one meant the question was completely false or not true about the student. A five response meant the question was absolutely true about the student. Parents were also under the impression that the survey's purpose was to get to know the students. The students were aware that the checklists were used to monitor how organized and prompt they are on a daily basis.

The initial surveys passed out to parents and students came back with results that were expected. Students and their parents had fairly consistent results. Both the student and parents answered each question similarly. At times students' views of their own motivation were lower than the opinion of their parents. Between the three students, there was a wide disparity of motivation levels. Emilie's results showed she already has developed an intrinsic motivation. Monica has similar results to Emilie, but her answers to the math specific questions show a lack of motivation. Collin's results showed a broad, unmotivated view toward all questions.

As the weeks of math instruction went on, feedback was given. There was not a set style or required amount of feedback required for each day. When opportunities for feedback were presented, feedback was provided. Rubrics, tests, informal assessments, and checklists were used as types of feedback. There were consistent instances of checking for understanding and mastery

of skills. While the weeks went on, the checklists stayed consistent. Emilie always came prepared, participated, had no behavior issues, and was attentive. Monica, similar to Emilie, came prepared, had no behavior issues, but was not eager to participate. Collin was consistently inconsistent. At times he was prepared, participated, and exhibited appropriate behavior. Other times those same characteristics were not evident.

The post-project survey results showed very little disparity between from the initial survey from both the parents and students. Many of Emilie's responses were fives and had no chance of increasing. Similarly, Collin's responses were ones and could not be any lower. Monica's responses fluctuated within one point of her and her parent's previous responses.

Chapter Five

Conclusion

Based on the results of the surveys and checklists, no change in motivation was evident in the three students. There are many possible reasons for this conclusion including, but not limited to: not allowing enough time, using too small of a sample, improving the quality of feedback, too many variables altering the outcome, and using a grade level lower than seventh grade.

The timeline of this project was less than a semester long. Developing intrinsic motivation may take longer than a few months. A couple of months seemed like a good amount of time to see an actual change in students motivation, but after doing this project, students with LD can remain unmotivated for a long period of time. Looking at other students from previous caseloads and their work ethic is evidence to support that claim.

Along with not using enough time, not having enough participants is another reason for no change. Originally this project was to include six students. Then it was trimmed to four, and finally three by the time it started. A bigger sampling could have produced a wider variety of results.

It would have been beneficial to layout specific feedback methods and implement them on a specific schedule. Students are then guaranteed to have consistent feedback throughout the project. It was difficult to be consistent with feedback on a daily and weekly basis. Mastering the use of differentiated instruction and providing criterion-referenced feedback is an important aspect to this study. A teacher with more experience could provide better feedback.

Seventh grade may be a time when students are less moldable than previous years. This could be a broad generalization however, students in the elementary grade levels are more impressionable and eager to please those in authoritative roles. In past experiences, middle

school aged students tend to scoff at teacher's directives or praise. This project may have been more effective at a lower grade level.

The biggest reason for why this result may be flawed is the amount of variables that could have altered the results. Life outside of the forty-seven minute math class plays a major role in how students act and develop their core beliefs and priorities. What a student sees at home, on TV, who their friends are, and what their life is like at school, their view of being in special education, all have a role. An example came out of this project. Collin is a funny, happy go lucky student, until you mention to him anything about being in special education. Then he gets mad and begins to shutdown. Collin hates having LD and an Individualized Education Plan (IEP). He wants out and does a large amount of complaining and acting out until he gets his way. This self-contained math class is a reminder of his IEP everyday. He does not enjoy coming to class and his constant shutting down affects his motivation. It is this kind of variable that, until dealt with, will hinder any chance of developing intrinsic motivation.

Even though this study did not produce the result expected, it does not discredit the importance that criterion-referenced feedback has on the overall success of students with LD. Immediate feedback will still be utilized regardless of these results. The issue of developing intrinsic motivation in students with LD needs further exploration. More research needs to be done specifically in students identified as having LD. Response-to-Intervention (RtI) is being implemented in schools around Wisconsin, and this leads to the use of differentiated instruction. With differentiated instruction comes criterion-referenced feedback and the possibility of developing intrinsic motivation. With added research and refined skills in providing feedback, there is hope that students with LD can better develop the intrinsic motivation and see that they have the ability to be successful.

References

- Banda, D., Matuszny, R., & Therrien, W. (2009). Enhancing motivation to complete math tasks using the high-preference strategy. *Intervention in School and Clinic, 44*(3), 146-150.
- Bryan, T., & Burstein, K. (2004). Improving homework completion and academic performance: Lessons from special education. *Theory Into Practice, 43*(3), 213-219.
- Cauley, K., & McMillan, J. (2009). Formative assessment techniques to support student motivation and achievement. *Clearing House, 83*(1), 1-6.
- Chen, J., & Weiland, L. (2007). Helping young children learn mathematics: Strategies for meeting the needs of diverse learners. *Exchange (01648527), (174)*, 46-51.
- Cohen, M. (1986). Intrinsic motivation in the special education classroom. *Journal of Learning Disabilities, 19*(5).
- Dev, P. (1996). Intrinsic motivation and the student with learning disabilities.
- Gilmore, L., & Boulton-Lewis, G. (2009). 'Just try harder and you will shine': A study of 20 lazy children. *Australian Journal of Guidance & Counselling, 19*(2), 95-103.
- Lackaye, T., & Margalit, M. (2006). Comparisons of achievement, effort, and self-perceptions among students with learning disabilities and their peers from different achievement groups. *Journal of Learning Disabilities, 39*(5), 432-446.
- Licht, B. (1983). Cognitive-motivational factors that contribute to the achievement of learning-disabled children. *Journal of Learning Disabilities, 16*(8), 483-90.
- Lincoln, A., & Chazan, S. (1979). Perceived competence and intrinsic motivation in learning disability children. *Journal of Clinical Child Psychology, 8*(3), 213.
- Margolis, H., & McCabe, P. (2004). Self-Efficacy a key to improving the motivation of struggling learners. *Clearing House, 77*(6), 241-249.
- Nicol, D., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199-218.
- Rock, M., & Thead, B. (2009). Promote student success during independent seatwork. *Intervention in School and Clinic, 44*(3), 179-184.
- Sanacore, J. (2008). Turning reluctant learners into inspired learners. *Clearing House: A Journal of Educational Strategies, Issues and Ideas, 82*(1), 40-44.

- Scheeler, M., Macluckie, M., & Albright, K. (2010). Effects of immediate feedback delivered by peer tutors on the oral presentation skills of adolescents with learning disabilities. *Remedial & Special Education, 31*(2), 77-86.
- Tomlinson, C. 2006. Differentiating instruction for academic diversity. In *Classroom teaching skills*, ed. J. Cooper, 151-84. Boston: Houghton Mifflin.
- Tomlinson, C. A., & McTighe, J. (2006). Integrating differentiated instruction and understanding by design. Alexandria, VA: ASCD
- Zhang, A., & Qian, L. (2002). The regulation of self-efficacy and attributional feedback on motivation. *Social Behavior & Personality: An International Journal, 30*(3), 281.

Student Survey

Name: _____

Date: _____

Directions: On a scale of 1 to 5 (1 being least true and 5 being most true) answer the following responses honestly.

I turn in homework when it is due.

1 2 3 4 5

I do not have missing work.

1 2 3 4 5

I like school.

1 2 3 4 5

I try my best in math.

1 2 3 4 5

I am organized.

1 2 3 4 5

I do not need someone to tell me to get to work.

1 2 3 4 5

I do not need someone to tell me what I need to work on.

1 2 3 4 5

I give my full effort on every assignment.

1 2 3 4 5

I am excited to come to school.

1 2 3 4 5

I do not complain about school.

1 2 3 4 5

I have a positive attitude about math.

1 2 3 4 5

Parent Survey

Name: _____ Date: _____

Directions: On a scale of 1 to 5 (1 being least true and 5 being most true) answer the following responses honestly about your son or daughter.

My son/daughter turns in homework when it is due.

1 2 3 4 5

My son/daughter does not have missing work.

1 2 3 4 5

My son/daughter likes school.

1 2 3 4 5

My son/daughter tries his/her best in math.

1 2 3 4 5

My son/daughter is organized.

1 2 3 4 5

My son/daughter does not need someone to tell them to get to work.

1 2 3 4 5

My son/daughter does not need someone to tell them what they need to work on.

1 2 3 4 5

My son/daughter gives their full effort on every assignment.

1 2 3 4 5

My son/daughter is excited to come to school.

1 2 3 4 5

My son/daughter does not complain about school.

1 2 3 4 5

My son/daughter has a positive attitude about math.

1 2 3 4 5

Pre-Survey

Collin	Collin's Parents
2	1
1	1
4	3
3	3
2	1
2	1
2	1
2	2
4	4
3	1
2	1
27	19

Post Survey

Collin	Collin's Parents
2	1
2	1
3	2
3	2
4	1
2	1
2	1
2	2
3	4
2	1
2	1
27	17

Monica	Monica's Parents
3	4
4	4
3	3
3	4
5	4
4	5
4	5
3	4
3	2
2	3
1	1
35	39

Monica	Monica's Parents
4	4
4	4
3	4
3	4
5	4
5	5
5	5
4	4
3	2
3	4
2	2
41	42

Emilie	Emilie's Parents
5	5
5	5
4	4
4	3
5	5
5	5
5	4
4	3
3	2
1	2
41	38

Emilie	Emilie's Parents
5	5
5	5
4	4
4	4
5	5
5	5
5	4
4	3
4	3
2	3
43	41

Weekly Checklist

Student: _____

Day	M	Tu	W	Th	F
Materials					
Writing utensil					
Asgnt. Notebook					
Asgnt. Completed					
Notebook					
Textbook					
Folder					
Tardy					
Behavior (Discipline)					
On task					
Participation					

Student: _____

Day	M	Tu	W	Th	F
Materials					
Writing utensil					
Asgnt. Notebook					
Asgnt. Completed					
Notebook					
Textbook					
Folder					
Tardy					
Behavior (Discipline)					
On task					
Participation					

Student: _____

Day	M	Tu	W	Th	F
Materials					
Writing utensil					
Asgnt. Notebook					
Asgnt. Completed					
Notebook					
Textbook					
Folder					
Tardy					
Behavior (Discipline)					
On task					
Participation					

Key: **x** = not present, **AB** = absent, **N/A** = not applicable,**BS** = blue slip (to office), **R** = referral (to office), **ISS** = in-school suspension,**OSS** - out-of-school suspension