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Effects of external rewards on elementary students' intrinsic motivation to read and reading achievement: an examination of a reading incentive program

Jennifer Deann Jacobson

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EFFECTS OF EXTERNAL REWARDS ON ELEMENTARY STUDENTS’ INTRINSIC MOTIVATION TO READ AND READING ACHIEVEMENT: AN EXAMINATION OF A READING INCENTIVE PROGRAM

An Abstract of a Thesis

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Specialist in Education

Jennifer Deann Jacobson

University of Northern Iowa

May 2000
ABSTRACT

This study was designed to examine the effects of external rewards on students' intrinsic motivation to read and reading achievement. It specifically looked at how a reading incentive program affects students' motivational beliefs, time spent in out-of-school reading, and reading achievement.

Participants included 83 fourth and fifth grade students from a rural elementary school in Midwestern Iowa. Participants were divided into three groups based on time spent in out-of-school reading before the incentive program was implemented. Specifically, the three groups were: high, middle, and low intrinsic reading groups. The dependent variables in this study included time spent in out-of-school reading, motivational beliefs, and reading fluency.

Results indicated that participants in the initial high intrinsic reading group read significantly less out-of-school after the implementation of the reading program than before the program. There were no significant differences between out-of-school reading times for students who initially showed low intrinsic interest to read. Additional analyses were conducted to measure changes in motivational beliefs and reading fluency.

Future research should continue to be conducted in the students' natural environment, the classroom. More research is needed to examine the short term and long term effects of time spent reading after rewards have been removed.
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Entitled: EFFECTS OF EXTERNAL REWARDS ON ELEMENTARY STUDENTS’ INTRINSIC MOTIVATION TO READ AND READING ACHIEVEMENT: AN EXAMINATION OF A READING INCENTIVE PROGRAM

has been approved as meeting the thesis requirement for the Degree of Specialist in Education.

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CHAPTER 1
PURPOSE AND INTRODUCTION

Purpose of Study

Reading incentive programs have been gaining widespread popularity as a tool to increase students’ motivation toward reading. Many politicians, business leaders, principals, and teachers have become advocates of rewarding students to read more. Corporations such as Pizza Hut and McDonalds have teamed up with educators to develop reading incentive programs and programs such as Earning by Learning (EBL), in which students receive money for books read have reached many schools across the United States (Gambrell & Marinak, 1997; McNinch, 1997). Despite the enthusiasm for such programs there has not been solid, replicable research that has supported the continued use of incentive programs to increase students’ future motivation to read (McNinch, 1997). Indeed, there is some research on the effects of external reward on intrinsic motivation that would seem to suggest that the use of rewards are harmful under certain conditions. However, little research has specifically looked at effects of using rewards in reading programs. This study examined the effects of one such reading incentive program, entitled Read-A-Million Minutes, that has been implemented in many schools throughout Iowa. Specifically, this study examined how the reading incentive program affects students’ motivational beliefs, time spent reading, and reading achievement.

Introduction

Developing ways to motivate students is not a recent problem for educators. Since the start of compulsory education in the late 1800s, educators have strived to find ways to successfully motivate students (Lepper, 1983). Students who had perhaps never attended school before were now being forced to attend. Teachers had to develop new ways to
motivate these children to learn such as using corporal punishment. Since then, the tide has greatly shifted to more appropriate ways to motivate students from corporal punishment to the use of rewards (Lepper, 1983). Slapping students’ hands with rulers and spanking has now been replaced with more socially acceptable measures. Rewards such as stickers, free time, and extra credit are now being used in many classrooms to motivate students to perform academically.

Despite the widespread public acceptance of rewards as a means of motivating students, there has been a growing debate surrounding the issues of how and when rewards should be used to enhance motivation and academic performance in the classroom. Fueling the debate has been the work of several researchers that suggest rewards may have detrimental effects on individuals. These researchers argue that rewards may actually decrease a person’s motivation to participate in a desired activity (Deci, 1975). For example, according to these researchers when a student who enjoys reading books is externally rewarded to read books by being given stickers or a longer recess, the student may choose to read less in the future once the application of the reward is discontinued.

Although there is a growing concern over the use of rewards in educational settings, empirical support for the hypothesis that they are detrimental is mixed. For example, a study by Deci (1971) found that tangible rewards can decrease motivation. Offering money for solving puzzles was found to decrease future time spent working on puzzles. However, a study by Vasta, Andrews, McLaughlin, Stirpe, and Comfort (1978) found different results. This study involved students participating in a coloring task. When the subjects were observed coloring they were given praise and a star. Results showed that, with the introduction of the rewards, time spent coloring increased.
Recently, there have been two meta-analytic studies that have attempted to make sense of the conflicting findings. Meta-analysis is a statistical technique used to summarize the results of many studies which have investigated the same topic. The end result of conducting a meta-analysis is to provide an “average” result of all the studies examined (Gay, 1996). Cameron and Pierce (1994) conducted a meta-analytic study and concluded that overall extrinsic rewards do not decrease intrinsic motivation. They also found that under certain conditions, rewards such as verbal praise can increase subjects’ intrinsic motivation. A decrease in intrinsic motivation was found under one specific condition. In 1995, another meta-analytic study by Tang and Hall concluded that intrinsic motivation can be undermined under more than one specific condition.

Despite the conflicting findings and possible negative effects of using rewards in classrooms, reading incentive programs are gaining widespread popularity across the United States, whether it be in classrooms or in public libraries, as a tool to motivate students to read. A survey of five public school districts in a U.S. southwestern metropolitan area was conducted by Gambrell and Marinak (1997). From this research it was discovered that 95% of the elementary school teachers surveyed used a reading incentive program in their classroom. These teachers reported that they provided extrinsic rewards for reading to help develop their intrinsic motivation to read. Kohn (1993) reported that teachers and administrators who advocate reading incentive programs hold a common belief that the use of rewards will lead to students read more, which will expose them to the joys of reading, which will in turn make them want to read for its own sake. It is these educators that believe giving students extrinsic rewards for reading will spark their development of reading motivation. The more motivated these students are to read the more time they will spend reading.
Statement of the Problem

While many educators have reported they have used rewards in their classrooms, research has yet to provide a definitive answer as to whether they should use rewards as a way to motivate their students. Differences in theoretical perspectives, methodological issues, and flawed empirical research has all led to sometimes confusing and conflicting findings. Studies that have specifically examined how reading incentive programs affect intrinsic motivation are sparse. The research in this area has, again, been flawed.

The purpose of the present study was developed from examining literature and previous studies that will be reviewed in the next section. While a reading incentive program entitled Read-A-Million-Minutes was examined, an attempt was made to account for limitations of previous studies. In the present study two hypotheses were examined: (a) Participants in the initial high intrinsically motivated reading group will read less after the implementation of the reading incentive program than before the implementation of the program and (b) Participants in the initial low intrinsically motivated reading group will read more following the implementation of the reading incentive program than before the implementation of the program.
CHAPTER 2
LITERATURE REVIEW

There appears to be some major differences in beliefs among theorists as well as practitioners regarding the use of incentives or rewards to increase motivation to read. In my literature review, I will first briefly review two theoretical perspectives which make competing claims about the effects of rewards on behavior. I then will review methodological issues regarding empirical research on the effects of rewards on intrinsic motivation. Finally, empirical research examining the effects of rewards on intrinsic motivation, and research specifically examining the effects of reading incentive programs on motivation to read will be reviewed.

Theoretical Perspectives on the Effects of External Rewards on Motivation

Two different theoretical perspectives which will be referred to as behaviorist and cognitivist frame the debate on the role of external rewards on motivation. Researchers in the behaviorist camp support the notion that behavior can be motivated through the use of reinforcers (rewards) and punishment. Such theorists state that when individuals are given a positive reinforcer (or reward) for displaying a particular behavior, they will be more likely to continue to engage in that behavior in the future (Stipek, 1998). For example, students who are given a reward that acts as a reinforcer for reading a book will continue to read more books in the future.

Behaviorists make no distinction between different reasons an individual may have for displaying a particular behavior. For example, a behaviorist would see no difference between a student who reads a lot because he loves reading and a student who reads a lot to get good grades. From the behaviorist perspective, both read a lot and presumably do so because they were reinforced to read in the past. Cognitivists, on the other hand, do believe that different reasons (or motivations) that people have for displaying a behavior
make a difference. A person’s thoughts, beliefs, and emotions can motivate their behavior. For example, the motivation to read can come from a pleasurable feeling that one receives from reading or from receiving an “A” on a report card. One dimension that some cognitivists focus on is intrinsically and extrinsically motivated behavior.

**Intrinsic vs. Extrinsic Motivation**

Deci (1975) defined intrinsically motivated behaviors as those for which the rewards are internal to the person. Individuals pursue an activity for the pleasure and satisfaction they receive from their performance. “The activities are ends in themselves rather than means to an end” (Deci, 1975, p. 23). They engage in activities freely, and with a sense of personal choice (Deci & Ryan, 1985). If an individual is intrinsically motivated then they do not need external rewards or incentives to begin or complete a task.

Researchers have suggested that there are several advantages to being intrinsically motivated, and there are valid reasons educators should be concerned about undermining it. Individuals that are intrinsically motivated have been shown to select more challenging tasks. They are more likely to learn relatively more on a conceptual level when they rate the material as being intrinsically interesting. Greater creativity has been shown under conditions that also promote intrinsic motivation. Those that are intrinsically motivated have also been shown to display more enjoyment and involvement in activities than those motivated extrinsically (Stipek, 1998).

Extrinsically motivated behaviors, on the other hand, can be defined as those in which the person engages in to receive some reward external to the person. It is “motivation to engage in an activity as a means to an end” (Pintrich & Schunk, 1996, p. 258). For example, a student completes his assignment because he will receive one dollar
from his parents. A person is extrinsically motivated if he or she works on a task purely for the sake of attaining a reward or for avoiding some punishment (Deci, 1975).

**Explaining the Effects of External Rewards on Intrinsic Motivation**

As discussed earlier, some studies have indicated that the use of rewards can undermine an individual’s intrinsic motivation. A classic illustration of this phenomenon was provided by the Lepper, Greene, and Nisbett (1973) study. These researchers conducted a study that examined the effects of rewards on nursery school children. The children were put into one of three experimental conditions: (a) expected reward, (b) unexpected-reward, or (c) no reward. In the expected-reward condition subjects were told they would receive a reward for drawing. In the unexpected-reward condition the subjects received the reward, but they were not told in advance they would receive one, and in the no reward condition the subjects did not expect or receive a reward. Following the experimental condition in which the participants either received a reward for drawing or not, a free play session was implemented. During the free play session the participants were able to choose an activity to do, one of which was drawing. Results showed that in a free play session, when the reward was no longer present, the children in the expected-reward condition spent significantly less time drawing than the other two groups (Lepper et al., 1973).

According to Lepper et al. (1973), the extrinsic rewards lead to a perceptual shift in causality. Before rewards are presented, participating in an intrinsically interesting activity is perceived as self-initiated. You are doing the task because you want to. When a reward is introduced, participation in that activity becomes based on receiving that reward. The reward, in fact, “overjustifies” their participation. When that reward is removed people lose their justification, or motivation for participating in the activity.
Therefore, it is thought that future intrinsic motivation to perform that activity will decrease.

This phenomenon known as the "overjustification effect" poses a direct challenge to some of the basic tenants of the reinforcement view of motivation explained by the behaviorists. According to a behaviorist, when a reinforcer for a particular behavior is withdrawn, the behavior should return to the same level before the reinforcer was given. It should not decrease below that as Deci (1971) and Lepper et al. (1973) suggest in their studies (Stipek, 1998). From a cognitivist perspective, the negative effect of external rewards on behavior can occur because of the internal shift in reasons for displaying that behavior.

Several alternative explanations have been offered by behaviorists to explain why a decrease in a desired behavior might occur after the presentation of a reward. One explanation is that what may be seen as a decrease in intrinsic interest may be satiation. Children may not want to continue an activity following immediate and repeated performance. Behaviorists suggest that satiation would not be a factor if there was a substantial interval following the initial rewarded behavior. Another explanation is labeled as "negative contrast." When a reward is suddenly removed it could produce a temporary, but not permanent, lower level of performance due to an aversive emotional reaction (Eisenberger & Cameron, 1996).

Behaviorists have also critiqued many of the studies which provide the empirical basis for the overjustification effect for failing to make a clear distinction between reward and reinforcement. The term reward is often used interchangeably with positive reinforcement and reinforcer. While rewards are assumed to increase or strengthen a desired behavior, they have not been identified so empirically. Reinforcers, on the other hand, are only considered so when shown through observation to increase behavior.
Research that has examined the overjustification effect has rarely empirically demonstrated
the rewards used as actual reinforcers (Pittenger, 1996). According to this argument,
when rewards are shown to decrease intrinsic motivation than a possible explanation could
be that the rewards used were not actually reinforcers.

External Reward Effects on Intrinsic Motivation: What the Empirical Research Says

In this next section empirical findings on the effects of external rewards on intrinsic
motivation will be reviewed. Findings have been influenced by how researchers have
chosen to examine the research question of how rewards influence intrinsic motivation.
Therefore, I will first review methodologies used and discuss implications of using specific
research designs. Then I will look at the research findings. Two meta-analytic studies
were chosen for review due to differences in how they examined the data and their
conflicting findings.

Cameron and Pierce Review

The Cameron and Pierce (1994) meta-analytic study will be reviewed in terms of
design considerations, research questions, independent and dependent variables that were
examined, and their overall findings. Ninety-six experimental studies were used in their
main meta-analytic study. Their stated purpose for conducting the meta-analysis was to
make a causal statement about what effects rewards and reinforcement have on intrinsic
motivation. They presented three research questions: “(a) Overall, what is the effect of
reward on intrinsic motivation? (b) What are the effects of specific features of reward on
intrinsic motivation? (c) Overall, what is the effect of reinforcement on intrinsic
motivation?” (Cameron & Pierce, 1994, p. 373). The studies used in the meta-analysis
were chosen by conducting a computer search of psychological literature. The term
intrinsic motivation was used to start the search. To address the first two questions only
studies with between-group designs, in which the measure of intrinsic motivation of
rewarded subjects were compared to nonrewarded subjects, were included. To address
the third question, a separate meta-analysis was conducted on five studies that used a
within-group design.

Methodologies of Studies on the Effects of External Rewards on Intrinsic Motivation

Types of Designs: Between-Group vs. Within Group Design

In a between-group design, different subjects participate in different levels of the
independent variable. Typically, one half of the subjects participate in the experimental
group in which they receive an external reward, and the other half of the subjects are
assigned to a group where they do not receive the reward. Within this design there has
been one of two methods used: before-after designs and after-only designs (Tang & Hall,
1995 refer to them as three session designs and one session designs respectively). In the
before-after design the researcher first collects a baseline measure of all the participants’
intrinsic motivation for a particular task. The baseline measure is collected in order to
determine which subjects show interest in the task. Typically, those that spend the most
time on the task are chosen to participate in the study. Subjects are then assigned to a
reward or no reward condition, and an external reward is given to the experimental group
only. In the final session the reward is withdrawn and the subjects’ intrinsic motivation is
again measured. The difference in the after-only design is that the researchers do not get
an initial baseline measure of the subjects’ time on task. The experiment begins with
presenting the subjects with a task that is assumed to be intrinsically interesting (Cameron

In a within-subject design all subjects participate in all levels of the experimental
treatment. Subjects are exposed to both nontreatment and treatment conditions. During
each phase performance is repeatedly measured. Initially, subjects’ intrinsic motivation for
a task is repeatedly measured. Then an external reward is presented to all subjects over a
number of sessions. In the final phase, the reward is withdrawn and intrinsic motivation is measured over a number of sessions by the time spent working on the task. Differences in intrinsic motivation are measured by comparing pre- and postreward levels of intrinsic motivation. Differences are presumed to be due to the extrinsic reward (Cameron & Pierce, 1994).

**Advantages and Disadvantages of Between vs. Within Group Designs**

One advantage of the between-group design is that, generally, they employ a comparison group so the subjects do not have to serve as their own controls. There are also critics of between-group design research. Mawhinney (1990) argued that in this design, measurement phases tend to be too short in time to detect temporal trends or transition states. Another criticism is that some researchers will assume the external reward is presented is a reinforcer. The problem occurs when the researchers have not initially established that the reward actually increases the frequency of desired behavior. If the reward does not increase frequency of behavior then it can not be considered a reinforcer (Cameron & Pierce, 1994).

One cited advantage of the within-subjects design is that it can be determined whether the rewards used are indeed reinforcers. The rewards are presented over a number of sessions to determine the effect on behavior. According to behaviorists, if it increases behavior then it can be considered a reinforcer. Researchers can then make statements referring to the effects of reinforcement rather than reward (Cameron & Pierce, 1994). One disadvantage of the within-subject design is the lack of a comparison group. Deci and Ryan (1985) suggested that because the sample is generally much smaller than that used in between-group design, it could be more difficult to get a representative sample and statistically significant effects. If researchers are unable to get a representative sample then results are not as generalizable.
Types of independent variables. In the studies analyzed by Cameron and Pierce three independent variables were manipulated: (a) reward type, (b) reward expectancy, and (c) reward contingency. The type of rewards used in the studies were either tangible or verbal. Examples of tangible rewards would include money, candy, or awards. Verbal rewards refer to praise or compliments. According to cognitivists, reward type is considered a variable that will affect intrinsic motivation. Rewards can serve two functions. They can either be controlling or informational. Rewards are considered controlling if they are perceived by someone as exerting control over their behavior. They engage in the activity because they will receive a reward. Informational rewards are those that provide feedback about how well one is doing on the task or how one’s performance compares to others. In this situation, it is assumed people will continue working on the task because they are being informed about their performance. While tangible rewards are predicted to serve a controlling function, verbal rewards can be informational. When rewards are controlling the overjustification effect is predicted to occur because when rewarded, people perceive themselves as doing the task because they will get a reward. When the reward is removed, they no longer have a reason for doing the task.

Reward expectancy refers to whether or not the subjects know ahead of time that they are going to receive a reward. If the reward is expected, then the subjects know before they participate in the activity that they will receive the reward. If the reward is unexpected, then the subjects do not know before participation in the activity that they will receive a reward. According to cognitivists, the overjustification will occur when the reward is expected because subjects are more likely to make the connection between receiving the reward and doing the task. When the reward is unexpected, the
overjustification effect should not occur because the subjects are not able to make a connection between the reward and task.

Reward contingency refers to the conditions the subject must satisfy in order to receive a reward. When subjects are given a reward just for participation, regardless if they complete the task, it is referred to as a noncontingent reward. An example would be giving a reward for spending ten minutes looking at a book. Task-contingent rewards are those given to subjects for simply completing a task. A task-contingent reward would be giving a reward for reading an entire book. Performance-contingent rewards are given for attaining a specified level of performance. In this situation the person would have to read the book and be able to explain the plot of the story correctly in order to receive the reward. According to cognitivists, reward contingency is thought to be an important variable in affecting intrinsic motivation because people must be able to make a connection or link between the reward and what they are asked to do in order for them to shift their reasons for participating in the task.

**Measures of intrinsic motivation.** In the studies reviewed by Cameron and Pierce intrinsic motivation was measured one of four different ways: (a) time spent on task during free time, (b) attitude toward the task, (c) level of performance during free time, and (d) the willingness of subjects to volunteer for future projects without being rewarded. The time spent on task during free time refers to how long subjects spend on task during a free time period. The free time period refers to when the subjects are given the opportunity to choose an activity to engage in. They either spend time on the same activity they engaged in when the reward was presented or choose to engage in other activities. The researchers are assuming that when a subject chooses a task to work on it is a task that they enjoy and want to work on regardless if they will receive a reward for working on it.
The attitude toward the task measure refers to a self-report that is filled out by the subjects. They report on such things as task enjoyment, interest, and satisfaction. Performance during free time is measured by the number of tasks completed, such as the number of puzzles solved. Willingness to volunteer in the future is measured by whether the subjects state they would volunteer for a similar study in the future without receiving rewards. These four measures are taken after rewards have been presented and removed from the experimental group (Cameron & Pierce, 1994).

A rationale has been made for why these variables are used to measure intrinsic motivation. The general operational definition of intrinsic motivation is that “an activity is intrinsically motivated if there is no apparent external reward for the activity” (Deci, 1975, p. 148). This definition, and the measure of time spent on task during free time, seem to concur. In the free choice situation there is no external reward to be gained by participating in the task. Time on task is a relevant measure because people will spend more time on activities they find intrinsically motivating, rather than activities they do not like.

Being intrinsically motivated also refers to enjoying the activity and finding it interesting. In this case, self-report measures of task enjoyment and willingness to volunteer in future studies would seem to be appropriate measures of intrinsic motivation (Deci, 1975). If intrinsically motivated then one would participate in an activity they would not get rewarded for. Therefore, if a subject stated they would volunteer for another study without receiving a reward it can be assumed that they found that task intrinsically interesting.

A study by Kruglanski, Freedman, and Zeevi (1971) used both a performance measure and self-report measure to determine intrinsic motivation. The rewarded subjects showed a lower performance level as well as provided lower ratings of task enjoyment.
than nonrewarded subjects. This would provide some support that performance level could also be an effective measure of intrinsic motivation. If a subject finds a task intrinsically interesting then they would care about how well they perform. They would want to do a good job. Those that take time to perform the activity correctly would be intrinsically motivated because of the satisfaction they would receive from their performance.

Summary of empirical findings on the effects of rewards on intrinsic motivation. When looking at specific reward conditions, Cameron and Pierce found that tangible rewards, when received unexpectedly, did not produce a decrement in intrinsic motivation. When examining the effects of tangible, expected, task-contingent rewards, no significant effect was found on either the time on task or attitude measure. Tangible, expected, performance-contingent rewards did not produce a significant effect according to the time on task measure, however, an increase in intrinsic motivation was found according to the attitude measure. The only situation in which a decrease in intrinsic motivation was found was when subjects were given expected, tangible noncontingent rewards. This decrease in intrinsic motivation was measured by time on task after the reward was withdrawn. The same condition had no affect on intrinsic motivation when measured by self-report of the subjects' attitude.

It is difficult to explain these findings using the overjustification hypothesis. While those that support the overjustification effect would predict the effect to occur in several situations, Cameron and Pierce's findings did not show this. For example, verbal rewards produced an increase in intrinsic motivation. Because these rewards did not lead to a decrease in intrinsic motivation they could have provided information to the subjects such as how they were performing. The verbal rewards could have been provided unexpectedly
so the subjects were unable to make the connection between the reward and participation in the task.

According to these findings tangible, expected, task-contingent, and performance-contingent rewards did not decrease intrinsic motivation. A possible explanation could be that these situations were not separated by initial high or low interest level. The overjustification effect would be most likely to occur when subjects participate in high interest activities. High interest activities would be those that subjects would be most willing to spend their time doing. Possibly, the majority of the studies involved low interest activities where intrinsic motivation was already low.

**Tang and Hall Review**

Tang and Hall (1995) used 50 experimental studies to examine the overjustification effect. As stated earlier, the overjustification effect occurs when the withdrawal of a reward leads to a decrease in intrinsic motivation. Like Cameron and Pierce, they conducted computer search to find studies. They used the key terms: overjustification, reward(s), intrinsic motivation, and extrinsic motivation.

Tang and Hall tested ten specific combinations of variables that they believed were important in understanding the overjustification effect. They reported their findings in terms of the ten situations as well as the age of the subjects. The age of subjects ranged from preschoolers to college students. For each situation tested, separate results were presented for preschoolers, students in grades 1 through 6, 7 through 9, 10 through 12, and college students. Overall results for each situation was also presented.

**Types of independent variables.** In contrast to the Cameron and Pierce meta-analysis which looked at three variables, Tang and Hall looked at five different aspects of reward to examine the conditions under which rewards influence intrinsic motivation. In addition to reward type and reward expectancy, and reward contingency,
Tang and Hall also included studies in which intrinsic motivation, or initial interest in a task, was directly manipulated. In these studies, two levels of interest were compared: high and low. If the experimenter provided evidence that the task was intrinsically interesting, or told the subjects it was, then the task was considered to be high interest. If the experimenter provided evidence that the task was less preferred than other tasks, or claimed that the task was not interesting then, it was considered to be low interest. For example, the experimenter could initially have the subjects rate activities according to what they enjoy the most and least. If they then had them participate in the activity they chose as enjoying the most they would consider the task as high interest. If they had the subjects participate in an activity they stated they did not enjoy, then that activity would be considered as low interest. When interest is initially high the overjustification effect is thought to occur because receiving a reward will shift the subjects' reasons for doing the task. When interest is initially low the effect is unclear, but not thought to have as much of a negative effect.

The fifth independent variable was additional post-task feedback. In this manipulation feedback was provided to subjects in the experimental group following completion of the task. Feedback was classified into four categories: (a) positive informational (‘you did good’), (b) negative informational (‘you did not do good’), (c) positive controlling (‘you did well, you should try as hard next time’), and (d) negative controlling (‘you did not do well, you should try harder next time’; Tang & Hall, 1995). How the feedback is perceived will be an important determiner of what effect it will have on intrinsic motivation.

Summary of Tang and Hall's review. Results indicated that when intrinsic interest was initially high, the reward was tangible, expected, and task-contingent with no additional feedback the overjustification effect did exist. This finding was consistent over
age of subjects, research design, and dependent measure. When interest was initially low, tangible, expected, task-contingent rewards were found to increase interest, though only in college students.

The overjustification effect was also found when interest was initially high, the reward was tangible, expected, contingent on performance level, and was not followed by comparative information to the subject. In the same situation, except for interest being initially low, no significant effects were found.

When noncontingent rewards were presented to subjects they showed significantly more interest in the task than the control group. When the reward was presented unexpectedly there was no change in intrinsic interest from before the rewards were presented to after they were removed. When subjects were given positive post-task feedback results showed that intrinsic interest increased. While it was predicted that either controlling or negative post-task feedback would lower intrinsic interest, the results showed that this situation did not affect intrinsic interest. Overall, the overjustification effect was demonstrated in situations where it was expected to occur (Tang & Hall, 1995).

These findings can be explained by cognitivist theory. In the two situations where Tang and Hall found a decrease in intrinsic motivation, initial interest was high. Subjects displayed initial interest in the task when they were not being rewarded for it. When they were rewarded, subjects shifted their reasons for doing the task. They now did the task because they were being rewarded for it, not because they enjoyed it. When the reward was removed the subjects lost their reason for doing the task, therefore they either spent less time on the task or had a less favorable attitude toward the task. The subjects also knew they were going to receive the reward, it was connected to the task, and it was
tangible. These situations would also be expected to lead to a decrease in intrinsic motivation.

When interest was initially low, overall no significant effect on intrinsic interest was found, however, an increase in intrinsic motivation was found on the attitude measure for task-contingent, expected, tangible rewards. When a reward is offered for doing a low interest task a shift in reasons for doing the task is not negative because the subjects were not initially intrinsically motivated to work on the task.

Theorists that support the overjustification effect might explain that verbal rewards had no effect on intrinsic motivation because the subjects did not perceive the rewards as controlling, which would be expected to decrease intrinsic motivation, or as informational, which would be expected to increase intrinsic motivation. In the situation where post-task feedback produced an increase in intrinsic motivation, the rewards would have had to be perceived as informational.

Comparison of Cameron and Pierce and Tang and Hall Findings

When comparing the findings of Cameron and Pierce (1994) and Tang and Hall (1995) there are two similarities. Both found that unexpected rewards does not affect subsequent intrinsic motivation. They also agree on the effects of positive post-task feedback. Tang and Hall analyzed this variable separately and found that it increased intrinsic motivation. Cameron and Pierce included post-task feedback with verbal rewards and found that it also increased intrinsic motivation.

Several areas of disagreement were found. One point of disagreement was when tangible, expected rewards were given contingent on task performance. Tang and Hall found that this situation led to a decrease in intrinsic motivation, whereas, Cameron and Pierce found that it did not produce detrimental effects. Tang and Hall found that there was an increase in intrinsic motivation when rewards were provided not contingent on
performance. This was the only situation in which Cameron and Pierce found decreases in intrinsic motivation. Tang and Hall did not find a significant effect when verbal rewards were presented, whereas, Cameron and Pierce found that verbal rewards increased intrinsic motivation. (See Figures 1 and 2 for a summary of findings.)

An important distinction between the two meta-analyses that could provide a partial explanation for these different findings is that Tang and Hall (1995) examined how rewards affect high and low interest participants separately. Cameron and Pierce collapsed all subjects when examining the effects. For example, when Tang and Hall (1995) looked at the effects of tangible, expected, task-contingent and performance-contingent rewards they separated the studies into studies that involved initially high and initially low interest activities. Cameron and Pierce (1994) did not separate the studies on tangible, expected, task-contingent and performance-contingent rewards.

The two meta-analytic studies attempted to collapse many studies together and then give general, overall conclusions about the effects of different types and presentations of rewards on intrinsic motivation. There were critics that spoke out toward the two meta-analytic studies. Lepper, Keavney, and Drake (1996) stated that to examine the “overall” effects of rewards was meaningless and misguided considering the vast amount of research that has provided varied effects depending on numerous circumstances. The more appropriate question would have been under what conditions do rewards affect intrinsic motivation differently. Another problem found with both meta-analytic studies were that studies were being combined that might have appeared to be examining the same thing, but with a closer look, they were really not that similar. When looking at studies across the literature there are many different variables and procedures that are involved in one study. While it might seem like a researcher is trying to make a distinction between
Figure 1. A summary Cameron and Pierce’s findings on the effects of different reward types on participants’
time spent on task and attitude toward task.

+ = Increase in intrinsic motivation
- = Decrease in intrinsic motivation
NE = No significant effect
Figure 2. A summary of Tang and Hall’s findings on the effects of different reward types on participants’
time spent on task and attitude toward task.

+ = Increase in intrinsic motivation
- = Decrease in intrinsic motivation
NE = No significant effect
the effects of tangible rewards to verbal rewards, often you must also consider issues of contingency, expectedness, and additional feedback. Therefore, it seems useless to try and combine studies that have many confounding variables which could ultimately affect the outcome of the study (Lepper, 1995; Lepper et al., 1996; Ryan & Deci, 1996).

A review of individual studies will look more closely at specific conditions and factors that might impact intrinsic motivation differently. Rather than an exhaustive review, selective studies that are relevant to issues of intrinsic motivation in a classroom setting will be reviewed. Two areas will be highlighted: (a) the effects of tangible rewards on initially high and initially low interest activities, and (b) the effects of tangible rewards used in reading incentive programs.

**Research on Effects of Rewards on High Interest versus Low Interest Tasks**

When attempting to determine how rewards might affect students' intrinsic motivation in your classroom there are numerous conditions to consider. Researchers have suggested that the use of rewards will affect intrinsic motivation of students differently depending on whether they are working on high or low interest tasks. Considering that students find certain subjects or classroom activities more or less interesting than others it would be valuable for teachers to know how rewards might affect each of these situations.

McLoyd (1979) conducted a study that examined how rewards affect interest in high and low interest activities. A second purpose of the study was to determine the effect of reward value on subsequent intrinsic interest. The researcher hypothesized that both high and low value rewards would decrease intrinsic interest in the high interest reading activity, but would increase intrinsic interest in the low interest activity. It was also hypothesized that in a high interest activity, high-value rewards would cause a greater
decrement in interest than low-value rewards. In low interest activities, high-value rewards would lead to a greater increase than low-value rewards.

Subjects consisted of 54 second and third grade children. There were 27 girls and 27 boys. All subjects were Caucasian and predominantly from middle class families. Eight children were excluded from the study due to reading difficulties.

The experimenter began by individually showing each subject pictures of six storybooks. Subjects were asked to pick in succession which story they would want to read the most. Subjects in the high and low value reward conditions were also asked to choose in succession which rewards they would want the most out of six. Those in the no reward were not made aware of any rewards. Subjects in the high interest condition were given their first choice storybook to read and those in the low interest condition were given their last choice storybook to read.

The experimenter told subjects in the high-value reward condition that they would receive their first choice reward while those in the low-value reward condition were told that they would receive their last chosen reward for reading the story. Each subject read the first 250 words of their book. A bookmark was placed in each book to indicate how far each subject was to read. A free-play session followed that lasted 10 minutes. Subjects had the choice to finish reading their story or play with other games and puzzles in the room.

As predicted, of the children who engaged in the high interest reading, those who did not receive a reward spent significantly more time with the book in the free time period than those who received either the high-value or low-value reward. Within the high interest group there was not a significant difference between those who received the high or low-value reward. Within the low interest group, subjects who received the
high-value reward spent significantly more time with the book and read more words than those who received the low-value reward or no reward.

These results indicated that both high and low-value rewards decreased students' intrinsic motivation in high interest activities as compared with students who did not receive rewards. On the other hand, high-value rewards were effective in increasing students' intrinsic motivation to participate in low interest activities (McLoyd, 1979).

Loveland and Olley (1979) also wanted to look at effects rewards have on high and low interest activities. Their sample included 24 preschool children from a laboratory school. Twelve boys and 12 girls participated. The procedure was a replication of the Lepper et al. study (1973). There was an initial observation period of how many seconds the children engaged in a drawing activity. Those that spent above the median time were placed in the high in initial intrinsic motivation group and those that fell below were placed in the low group.

The two reward conditions were expected rewards and no rewards. Half of the subjects in each the high or low interest groups were randomly assigned to the reward or no reward condition. The reward was a "Good Player" award. The time spent drawing and quality of drawing was measured at one week and seven week intervals where drawing was reintroduced to the children as a choice.

Their findings showed that at the one week follow-up the children in the high interest group who received the reward displayed significantly lower interest than those who did not receive the reward. An opposite effect occurred in the low interest group. Rewarded children displayed significantly higher interest than their non-rewarded counterparts. At the seven week follow-up both the high and low interest groups returned to virtually their baseline measures of interest level. At the time the reward was presented, both the high and low interest children who received a reward drew more drawings then
the subjects who did not receive the reward. Only the children’s drawings in the high interest group were judged to be of lower quality then the nonrewarded subjects in the high interest group. The quality of drawing in the rewarded, low interest group was not affected (Loveland & Olley, 1979).

A study conducted by Daniel and Esser (1980) also examined how rewards would affect intrinsic motivation for interesting and uninteresting tasks, but these experimenters used college students as their sample. One of their hypotheses was that rewards would undermine intrinsic motivation for highly interesting tasks and enhance intrinsic motivation for uninteresting tasks.

Subjects included 64 college undergraduates. They worked on puzzle tasks that were either of high or low interest. The puzzles that were of high interest were pictures from magazines. They were colorful and of various shapes and sizes. The low interest puzzles were solid, bland colors. All of these puzzles were identical. Subjects were either in the high or low task structure condition. In the high structure condition the instructions presented were much more explicit then in the low structure condition. Subjects were either in the reward or no reward condition. Those in the reward condition were told they could earn up to two dollars depending on how quickly they finished the puzzles.

Following the completion of the puzzle task, the subjects were given a three minute free choice period in which they could work on more puzzles or engage in another activity made available. Intrinsic motivation was measured in three different ways: (a) amount of free time spent on puzzle task, (b) questionnaire response, and (c) willingness to participate in a similar study.

The results indicated that the subjects rewarded in the high interest group spent significantly less time on the puzzle task then those not rewarded. There was not a significant effect for free time spent on the puzzle task for the low interest group who
were rewarded or not rewarded. Subjects in the high interest, rewarded condition rated
the puzzle task as less exciting and stimulating than their nonrewarded counterparts. The
presentation of a reward did not affect the ratings of the subjects in the low interest
condition. These findings supported the first part of their hypothesis that rewards would
undermine the intrinsic motivation toward interesting tasks, but did not support their belief
that rewards would enhance the intrinsic motivation toward uninteresting tasks (Daniel &
Esser, 1980).

Eisenstein (1985) also conducted a study that looked at the effects of different
rewards on high and low interest tasks. Participants included 94 preschool children from
two different public schools. Baseline data was initially collected in order to divide the
subjects into high and low interest groups. This was determined by the number of minutes
the children spent doing the target activity. The target activity was dot to dot puzzles.

Within the high and low interest groups, subjects were assigned to one of four
conditions: (a) contractual condition, (b) endogenous condition, (c) unexpected reward
condition, or (d) no reward condition. In the contractual condition subjects were told if
they finish the puzzles they would get a toy. In the endogenous condition subjects were
told each of the puzzles will look like one of the toys and they could exchange a finished
puzzle for one of the toys like it. In the unexpected reward condition the subjects were
told only after they finished the puzzles they could choose a toy. There was no mention of
offering a reward in the no reward condition. Follow-up data was collected one and three
days following the experiment.

Results indicated that in the initially high interest group, the contractual reward
group spent significantly less time on the drawing activity in the follow-up than the no
reward, unexpected, and endogenous reward groups. In the low interest group, the
unexpected and contractual reward group spent more time on the drawing activity in the
free time period relative to the no reward and endogenous reward group. These results indicated that the initially high interest contractual reward group was the only group to show reduced interest in the puzzle activity. On the other hand, receiving contractual rewards increased subsequent interest for the subjects with initially low interest in the puzzle activity (Eisenstein, 1985).

There appears to be a general consensus that providing extrinsic rewards for engaging in already interesting activities undermines subsequent intrinsic motivation toward those activities (Daniel & Esser, 1980; Loveland & Olley, 1979; McLoyd, 1979). On the other hand, rewards have shown to be effective in enhancing motivation to participate in uninteresting tasks (Eisenstein, 1985; Loveland & Olley, 1979; McLoyd, 1979). This research suggests that for teachers to use rewards effectively in their classroom they must first know which activities students have a high or low interest in.

Research on Reading Incentive Programs

Several different types of reading incentive programs have been implemented in schools and individual classrooms. These programs share two things in common (a) the goal of each is to encourage students to increase the amount of time spent reading, and (b) the use of tangible rewards for meeting specified reading goals (Gambrell & Marinak, 1997). These programs are sponsored by non-profit organizations and major corporations such as McDonalds and Pizza Hut. They specifically target the elementary school-aged population and participating students are rewarded with such things as an “All American Meal” from McDonalds, pizza coupons, and even money. Students can be given the rewards for either reading a specified amount of books or for reading for a specified amount of time. They are able to choose the books that they want to read and some programs allow the students to also read other materials such as magazines or newspapers (Gambrell & Marinak, 1997).
Despite the popularity of these programs there has not been solid research to support claims being made about the benefits of such programs. McQuillan (1997) examined ten studies in which some sort of reward was distributed to students for reading. The researcher concluded that none of the studies established a clear causal relationship between the use of rewards and an increase in reading attitudes, habits, or achievement even though five of the studies claimed to find positive effects. McQuillan stated that there are several problems with these studies such as; poor design and reporting, lack of control groups, confounding variables, and incorrect statistical tests.

In a study by Harrop and McCann (1983) fifth grade students were promised a letter to their parents if they showed "good" progress in English class. The treatment phase lasted five months. There was also a control group who did not receive letters. The researcher reported mildly positive gains by the experimental group on a standardized reading test. McQuillan (1997) identified two problems with this study: (a) the same teacher taught all students so it was possible that the control group knew the other students were being rewarded which could lead to a "demoralizing effect" and (b) the researchers failed to use the correct statistical analysis.

The four other studies that reported positive effects of incentives for reading shared similar problems of confounding variables. A study by Voorhees (1993) included sustained silent reading time, read alouds, book clubs, and rewards. Treatments such as sustained silent reading and read alouds have previously been shown to increase reading achievement, therefore, to say that the incentives were responsible for such increases may be inaccurate. The other studies examined by McQuillan (1997) also shared similar problems.

Of the five studies that found either no significant effects or negative effects of rewards used in reading incentive programs, the study by Adler (1989) was the one study
in which McQuillan (1997) found the research design to be appropriate and confounding variables not a factor in the findings. Two groups of sixth grade students from different schools participated in a five month experiment. The experimental group participated in sustained silent reading as well as the Pizza Hut incentive program. For every 250 pages read a student would receive a free pizza. The control group only participated in the sustained silent reading. At the end of the treatment a standardized reading test was administered to both groups. Results indicated that both groups showed small gains in reading achievement yet there were no significant differences between the groups.

A study conducted by McNinch (1997) examined the effects of the Earning by Learning (EBL) program. This program was designed to increase attitudes toward reading of children who are considered academically at-risk. In this program, cash rewards and adult attention are used as motivational factors to read. In this study, the researcher specifically examined whether cash rewards would motivate at-risk children to read and change their attitudes toward reading. Participants in the study included 20 second and third grade students who were nominated by their teachers. Criterion used by teachers to nominate students included: erratic school attendance, low grades, low family income, low sibling success, and low rates of school library use. The students participated in a six week summer reading program. Students were taken to libraries on a daily basis and informal activities relating to the books were done. The reward was a cash award of $2.00 per book read and was given at the end of the program.

Students' motivation to read was measured by the number of books read during the six week summer reading program. The students' attitude toward reading was measured by the Reading Attitude Survey (McKenna & Kear, 1990). The survey is a self report measure in which the subjects answer 20 items on a likert scale. Attitudes toward recreational reading and academic reading are measured. The surveys were administered
at the beginning of the summer reading program and at the conclusion of the reading program.

Results indicated that the 20 children read a total of 829 books and all of the children read multiple books. The top reader read 56 books (a total award of $112). Fifteen books was the least number read by one student (a total award of $30). At the beginning of the program the mean response on the attitude survey was 2.8 (neutral). At the completion of the program and after the cash rewards were distributed the mean response on the survey was 3.1 (mildly excited). The researcher also followed up on the students during the following school year by surveying the teachers on the students’ self-esteem, rise in overall school grades, rise in reading levels, and improved school attitude. After the summer reading program, 84% of the teachers indicated an improved self-esteem of the students, 72% noticed a rise in overall school grades, 63% indicated a rise in the students’ reading levels, and 86% noticed improved school attitude. Based on these results, the researcher states that the frequency and amount of reading, as well as attitudes toward recreational reading, of at-risk elementary students can be significantly increased by providing cash rewards.

One limitation of this study is that the sample size only consisted of 20 students. Also the researchers relied only on teachers’ perceptions of student improvement over the course of the year following the program. After the implementation of the reward program the amount of books read or their motivational beliefs toward reading was not measured to note long-term effects of providing rewards for reading. Another limitation of the study was the researchers did not use a comparison group. Without a comparison group claims that the EBL program positively increased reading attitudes can not be made with certainty.
A study conducted by Wigfield and Guthrie (1997) examined how children's motivational beliefs related to the amount and breadth of their reading. Participants included 100 fourth and fifth grade students. While the purpose of their study was not to examine effects of a reading incentive program, the participating school did have an incentive program implemented during one year of data collection. Baseline data was collected one year prior to the incentive program and during the school year in which a reading incentive program was implemented. The Motivation for Reading Questionnaire (Wigfield & Guthrie, 1997) was administered to the subjects twice during the school year, in the fall and spring. The participants answered the questions on a four point scale, with answers ranging from very different from me to a lot like me. The participants also completed The Reading Activity Inventory (Guthrie, McGough, & Wigfield, 1994) on two occasions. Questions are answered according to a four point scale from almost never to almost every day. The questions referred to the following kinds of reading materials: comics, magazines, newspapers, and various kinds of books. Logs of the amount of time the students read outside of the school day were also kept.

A year long reading program was implemented in which participation by the students was voluntary. When the students read 30 hours outside of the school day their names were placed on a map displayed in the school. Students who read up to 100 hours got recognized at the end of the year school assembly and received a free paperback book. Those who read more than 100 hours received additional books and prizes.

Results indicated that the motivation scales, the number of minutes read per day, and the breadth of reading inventory were low to moderately correlated ranging from .21 to .50. During the 1992-1993 school year, when the reading incentive program was implemented, participants with higher intrinsic motivation were found to have read significantly more, and with more breadth, than students with lower intrinsic motivation.
The researchers also found grade level and gender differences in motivation for reading. Fifth graders were less positively motivated on three of the motivation sub-scales than the fourth graders. Females were also found to report more positive motivation for reading than males. These differences were only significant during the fall (Wigfield & Guthrie, 1997).

During the 1991-1992 school year (before the incentive program) students read an average of 14.72 minutes per day and students read an average of 18.40 minutes per day during the year of the incentive program. During the incentive program, average minutes read per day were collected in the fall and spring. In the fall, the highly intrinsically motivated students read an average of 28.60 per day, the average group read 14.44 minutes per day, and the low group read an average of 12.19 minutes per day. In the spring, the highly intrinsically motivated students read an average of 29.80 minutes per day, the average read 18.05 minutes per day, and the students in the lowest intrinsic motivation group read an average of 10.52 minutes per day. While the researchers found that minutes read did increase over the year the incentive program was in effect, they did not examine students' reading patterns after the completion of the reading incentive program to note possible changes in motivation, minutes read, or breadth of reading (Wigfield & Guthrie, 1997).

**Summary and Conclusion**

Research on extrinsic rewards and intrinsic motivation is vast and at times seems complex. It has been a topic of interest for several decades, and the earliest research in the 1970s illustrated that extrinsic rewards could be detrimental to one's intrinsic motivation. An exception was when Deci (1971) found that verbal rewards had the capability to increase subsequent motivation in a task. Since then, numerous studies have been conducted examining different conditions in which rewards affect intrinsic
motivation. With this abundance of research came different opinions and controversy. Research was presented on both sides of the debate. Some researchers concluded that rewards undermine intrinsic motivation under certain circumstances, yet have no effect or even enhance it under other conditions (Cameron & Pierce, 1994; Deci, 1975; Tang & Hall, 1995).

In an attempt to make sense of all the research in this area, two meta-analytic studies were conducted. In Cameron and Pierce's (1994) study the overall conclusion was made that rewards do not undermine intrinsic motivation. The only negative effect found was when expected, tangible, task-contingent rewards were given. Even then, they stated the negative effect to be minimal.

Tang and Hall (1995) concluded that intrinsic motivation is undermined when initial interest is high, rewards are expected, tangible, task-contingent, and additional feedback is not provided. They also found a negative effect on intrinsic motivation when performance-contingent rewards are given without comparative information provided to the subjects.

Several critics in the field spoke out against the two studies. Problems were noted such as the inappropriateness of examining overall effects (Lepper et al., 1996), and that meta-analysis was not the proper statistical tool to use for these types of studies (Lepper, 1995; Lepper et al., 1996; Ryan & Deci, 1996). The problem is that these studies often look at many different variables, so combining these studies could easily lead to comparing studies that are not similar.

From examination of the Tang and Hall (1995) meta-analysis, it was discovered that initial task interest may be an important variable in deciding whether rewards will have a negative impact on intrinsic motivation. A review of individual studies looked at such. This review found that providing extrinsic rewards to subjects that find the activity
interesting undermined their subsequent motivation for participation in those activities (Eisenstein, 1985; Loveland & Olley, 1979; McLoyd, 1979). On the other hand, studies indicated that rewards could be effective in enhancing motivation to participate in tasks that students initially found uninteresting (Eisenstein, 1985; Loveland & Olley, 1979; McLoyd, 1979).

Even though the use of external rewards to motivate students to read more is becoming widespread throughout the country, research examining the effects of such practice is not conclusive in supporting its use. Research examining reading incentive programs is sparse, and research that has been conducted is mixed. McQuillan (1997) examined ten studies that used rewards to encourage students to read and while five of the studies claimed positive effects, the other studies claimed negative effects. Based on these studies the researcher concluded that there was no clear causal relationship between the use of rewards and an improvement in reading habits, attitudes, or achievement. McNinch (1997) concluded in his study that providing cash rewards for reading has the capability of increasing at-risk student’s motivation to read. Several problems with these studies have been cited such as; poor research designs, insufficient analyses, and inadequate reporting. McQuillan (1997) advocates more experimental research be conducted in this area.
CHAPTER 3

METHODOLOGY

Participants

Participants included 83 fourth and fifth grade students from a rural elementary school in Midwestern Iowa. Permission to participate in the study was obtained from the children’s parents. Out of the 88 fourth and fifth grade students in the school, five did not return permission slips, and were not included in the study. Twenty-three of the initial 83 participants were removed from the final sample because of missing pre and post intervention data. The final sample included 60 subjects; 31 fourth graders and 29 fifth graders. Thirty of the subjects were boys and 30 of the subjects were girls. These subjects were from predominantly white, middle-class backgrounds.

Design

The present study attempted to account for some of the limitations in previous studies. First, this study was conducted in the natural environment. The majority of research that has examined the impact of rewards on intrinsic motivation have been conducted in the laboratory setting which may lead to concerns about the ecological validity of the findings. Also, in studies reviewed that pertain specifically to reading incentive programs, measures that were used before and immediately following treatment were not used to measure any longer term effects after the treatment period had ended. Therefore, researchers can only state effects of the treatment during, or immediately following the treatment. They can not state what happens following an extended amount of time after the treatment has ended. This study used the same measures before, during, and two and a half weeks following treatment in order to suggest what changes occurred during treatment and after the treatment had ended for an extended period of time.
To control for what behaviorists refer to as satiation, or a loss of interest in an activity following repeated and immediate performance, a two and a half week interval was used before measuring students' intrinsic motivation to read based on minutes read per day. Another argument that behaviorists made was that previous research does not always demonstrate that rewards used are actual reinforcers. In the present study, data on minutes read per day was collected four times over a period of four weeks to determine whether the rewards in fact were acting as reinforcers.

Based on previous research it has been suggested that rewards might affect students differently depending on their interest and attitudes toward a particular task. The present study was designed in order to examine differences in students who show a high, average, and low interest in reading. This research, on effects of rewards on high and low interest tasks, lent to the two hypotheses in this study. The first hypothesis is that participants in the initial high interest reading group would read less after the implementation of the reading incentive program than before implementation of the program. It was also hypothesized that participants in the initial low interest reading group would read more following the implementation of the reading incentive program than before the implementation of the program.

In the present study, changes in reading achievement were also measured using one-minute reading probes to obtain a reading fluency score. Reading is traditionally characterized as having two components, decoding and comprehension. These components are typically considered when published reading tests are created. In these tests, reading fluency is typically not measured. Despite several studies that have examined the validity of reading fluency measures, critics still question what reading fluency measures. A study by Shinn, Good, Knutson, Tilly and Collins (1992) examined the relationship between curriculum-based measurement, (CBM) oral reading fluency, and
the reading process from a theoretical perspective. Shinn et al. (1992) found a strong correlation between fluency and comprehension.

These reading probes have advantages over standardized tests. One, they are quick and easy to administer, and two they are a more sensitive measure in detecting short term changes. The measure of oral reading fluency has been found through research to be reliable and valid.

**Read-A-Million Minutes Incentive Program**

Students participated in a one month Read-A-Million Minutes incentive program which was developed by the participating school, during the month of March. This program is designed to encourage children to read outside the school day and increase their interest and enjoyment in reading (D. Boehmke, personal communication, January 28, 1999). During this month-long incentive program each participant received a reward at the start of the program. When the students had read for a total of four hours they received another reward. In addition, each student received a reward for each additional four hours read. Any reading material was acceptable to read, including books, newspapers, magazines, comic books, and other such materials. Participants could not include time spent doing homework. Only minutes outside of the school day counted toward the total minutes read over the course of the month. Rewards are chosen by the principal and vary from year to year. This particular year, the rewards consisted of four different colored identification tags. The students were able to personalize them by decorating or writing their name on them.

**Measures**

**The Motivation for Reading Questionnaire-Revised (MRQ-R)**

The MRQ-R (Wigfield & Guthrie, 1995) is a self report measure intended to assess different aspects of reading motivation. Based on a previous study and a review of
motivational theory, Wigfield and Guthrie (1997) identified eleven possible aspects of motivation and grouped them into three categories of motivation constructs: self-efficacy, extrinsic and intrinsic motivation, and social motivation. For the purposes of this study, only the extrinsic and intrinsic scales were administered to the participants. Included in the extrinsic composite are the Recognition, Grades, and Competition sub-scales. The intrinsic composite includes the Efficacy, Curiosity, and Involvement sub-scales. Each item is rated on a four-point scale ranging from very different from me to a lot like me. The Recognition sub-scale consists of five items and scores can range from 5 to 20. This sub-scale measures how one feels for receiving a form of tangible reward for success in reading (e.g., I like having the teacher say I read well). The Grades sub-scale consists of four items and scores can range from 4 to 16. This sub-scale measures the desire to be evaluated positively by the teacher (e.g., I read to improve my grades). The Competition sub-scale consists of six items and scores can range from 6 to 24. This sub-scale measures the desire to do better than peers in reading (e.g., I like being the best at reading).

The Efficacy sub-scale is comprised of three items and scores can range from 3 to 12. This sub-scale measures the belief of having the ability to be successful in reading (e.g., I am a good reader). The Curiosity sub-scale is comprised of six items and scores can range from 6 to 24. This sub-scale measures the desire to learn about a topic of interest (e.g., I like to read about new things). The Involvement sub-scale is comprised of six items and scores can range from 6 to 24. This sub-scale measures the enjoyment of reading a variety of texts (e.g., I like mysteries; Wigfield & Guthrie, 1997).

Reliability coefficients were computed for these sub-scales. Coefficients ranged from .47 to .81. The most reliable sub-scales included: Curiosity, Involvement and Competition (Wigfield & Guthrie, 1997).
Out of School Reading Time

Each student who participated in the reading incentive program completed weekly logs. The logs were designed by the researcher (see Appendix B). The students and/or parents recorded minutes read daily and then tallied the number of minutes read per week. The reading logs were sent home with the students on a weekly basis and then brought back to school when completed. When the logs were returned the researcher recorded them. In addition to recording minutes read per day, students and/or parents recorded their breadth of reading. All kinds of reading material could be included in the reading logs and there was a place to check what type of materials were read by the student (i.e., books, newspapers, comics, etc., see Appendix B). Participants were also asked to record their out-of-school reading context. They checked whether they read alone, in the presence of a parent, or with some assistance from a parent. In order to increase the likelihood of accurate recording of minutes, parents were asked to sign each log.

The participants’ total minutes read per week were converted into average minutes per day. For analyses, these minutes read were converted into three reading time variables: (a) a baseline score, (b) an intervention score, and (c) a post test score. The baseline and post test reading scores were created by finding the average minutes read per day from the two weekly logs. The intervention score was derived by finding the average minutes read per day from the four weekly logs.

Oral Reading Fluency

One-minute oral reading passages (Children’s Ed. Services, Inc., 1985) were used as a measure of oral reading fluency. Students read out loud three passages at their current grade level for one minute and errors were tallied by the administrator. An error was considered either a word skipped, a mispronunciation, a word not read in three seconds, or a reversal of two or more words. The fluency score reflects a combination of
both speed and accuracy of oral reading and is translated into the number of correct responses per time unit (e.g., 1 minute).

It has been determined that oral reading fluency, counting the number of correct words read per minute from a passage, positively correlates to a student’s general reading achievement (Marston, 1989). The correlation between oral reading fluency measures and published reading measures such as the Stanford Diagnostic Reading Test (Karlsen, Madden, & Gardner, 1975), and The Woodcock Reading Mastery Test (Woodcock, 1973) range from .73 to .91, with most coefficients in the .80’s (Shinn, Knustson, & Rosenfield, 1989).

Procedure

Collection of Baseline Data

Two weeks prior to the start of the incentive program, the intrinsic and extrinsic composites of The Motivation for Reading Questionnaire-Revised (Wigfield & Guthrie, 1995) were administered to the participants by their classroom teachers (see Appendix A). The teachers received instructions by the researcher on how to administer the surveys to the students (see Appendix C). The teachers read aloud the first two questions and possible answers to their students as examples and then students completed the rest of the surveys individually.

Over a two-week period beginning the week of Sunday, February 14th and ending Saturday, February 27th, parents and participating students recorded their daily reading patterns. This included the amount of minutes read, what the students read, as well as if the students read alone, in the presence of a parent, or with some assistance.

Two weeks prior to the start of the program, standardized, one minute screening passages were administered to find the participants’ instructional oral reading level. The reading probes were administered by the researcher and a graduate student. Initially, three
passages were administered at the students’ current grade level. The median score of the three passages was used to determine their instruction level. If the median score was found to be at the mastery level, the administrator tested forward a grade level until either instructional level was found or the sixth grade passages were administered.

Collection of Treatment Data

During the experimental session the parents and students again recorded the participants’ reading patterns. Once a week over a four-week period students turned in their reading logs to their teacher. The researcher collected the logs from the teachers and recorded them. Rewards were administered to each eligible student at the beginning of each week.

Collection of Post-Treatment Data

One week following the incentive program standardized screening passages were again administered. The same three passages at the fourth, fifth, and sixth grade levels were administered by the researcher and a graduate student.

Two weeks following the conclusion of the reading incentive program classroom teachers again re-administered the intrinsic and extrinsic composites of The Motivation for Reading Questionnaire-Revised (Wigfield & Guthrie, 1997). Administration of the questionnaire took no longer than 20 minutes.

Two and a half weeks following the incentive program and the discontinuation of the rewards, beginning Sunday, April 18th and ending Saturday, May 1st, time spent reading outside of the classroom was again measured.
CHAPTER 4
RESULTS

Before data was analyzed, two of the 60 subjects were dropped from the participant pool because their baseline scores of minutes read per day were above three standard deviations from the sample mean score. These two subjects were considered outliers and therefore were dropped from subsequent analyses.

The results of this study are organized into two major sections: (a) Primary analyses, where I report results related to the main hypotheses and questions of this study; and (b) Secondary analyses where I report additional analyses that, although not central to my main hypotheses and questions, provide additional information regarding the reading incentive program and its relative benefits to different types of students.

Primary Analyses Overview: Cognitive and Motivational Consequences of Reading Incentive Program as a Function of Initial Level of Intrinsic Motivation to Read

In this section, I report on observed changes in students' amount of out-of-school reading time, oral reading fluency and motivational beliefs related to reading after the external rewards of a month-long reading incentive were no longer provided. In accordance with my hypotheses regarding the differential effects of external rewards on high and low intrinsically motivated students, in these analyses I focus on changes that occur as a function of students' initial-level of intrinsic interest in reading. To examine these changes with respect to initial intrinsic interest in reading, I divided my sample into three levels (high, middle, low). These groups were determined by their baseline amount of out-of-school reading time (average minutes read per day) collected over the course of two weeks prior to the program. Participants who scored in the top 1/3 of the sample were assigned to the high intrinsic reader group, participants who scored in the middle 1/3 were assigned to the middle intrinsic group, and those who scored at the bottom 1/3 were
assigned to the low intrinsic group. Originally, the intrinsic composite of the MRQ-R was to be used to group the sample into high, average, and low intrinsically motivated students. Because preliminary analysis showed that the correlation between reading time and the intrinsic composite was low and nonsignificant ($p > .05$), baseline reading times were used as a measure of students' intrinsic motivation to read. Using reading time as this measure mirrors the paradigm used in previous research on the effects of external rewards on intrinsic motivation (e.g., Eisenstein, 1985; Loveland & Olley, 1979).

A series of dependent $t$-tests within each level of initial intrinsic reading interest were used to examine the magnitude and direction of changes in out-of-school reading time, reading fluency and motivational beliefs related to reading from baseline to post intervention. For tests involving high and low intrinsic groups, these tests were one-tailed; all other tests were two-tailed. To control for chance statistical significance due to multiple testing, a Bonferroni correction ($.05/8$) set the probability level at .006. Specifically, only $p$-values $\leq .006$ were considered statistically significant.

In addition to the analyses listed above, in this section of the results I also report on changes in the amount of out-of-school reading that were observed during the reading incentive program. Although not directly related to my hypotheses, these analyses provide important information regarding the efficacy of the reading incentive program in increasing the amount of time students read out of school when external rewards are provided. To examine these changes a series of dependent two-tailed $t$-tests were conducted.

**Secondary Analyses Overview: Cognitive and Motivational Consequences of Reading Incentive Program as a Function of Gender, Grade Level, And Achievement Level**

In this section, I will report results of a series of separate analyses, similar to the set of analyses reported above, in which gender, grade level, and achievement level will be used as grouping variables in place of initial intrinsic interest to read. Although these
analyses are not related to my particular hypotheses, they are included to provide the school with potential useful information of the differential impact of the reading incentive program on students with different characteristics. All tests were two-tailed.

**Primary Analyses**

**Hypothesis 1: Changes in Amount of Out-of-School Reading Time of High Intrinsic Group**

To examine if there were significant changes in the amount of reading high intrinsic readers engage in after the completion of the incentive program, a dependent t-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day two weeks following the incentive program (post-test). Results of this analysis indicated that the students in the initially high intrinsic group read significantly less ($t = -2.79, p < .006$) after the implementation of the program than at the pre-test. The mean scores, standard deviations, t-values, and p-values for amount of reading are presented in Table 1.

**Hypothesis 2: Changes in Amount of Out-of-School Reading Time of Low Intrinsic Group**

To examine if there were significant changes in the amount of reading low intrinsic readers engage in after the completion of the incentive program, a dependent t-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day following the incentive program (post-test). Results of this analysis indicated that students in the initially low intrinsic group did not read significantly more after the implementation of the program than at pre-test. The mean scores, standard deviations, t-values, and p-values for amount of reading are presented in Table 1.
Table 1

Changes in Amount of Time Read Out-of-School (min/day) as a Function of Intrinsic Reading Level

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test M</th>
<th>Pre-Test SD</th>
<th>Post Intervention M</th>
<th>Post Intervention SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (n = 19)</td>
<td>43.89</td>
<td>19.36</td>
<td>30.84</td>
<td>17.10</td>
<td>-2.79</td>
<td>.006</td>
</tr>
<tr>
<td>Middle (n = 20)</td>
<td>19.70</td>
<td>2.56</td>
<td>16.10</td>
<td>9.61</td>
<td>-1.73</td>
<td>.100</td>
</tr>
<tr>
<td>Low (n = 19)</td>
<td>9.63</td>
<td>4.35</td>
<td>8.95</td>
<td>3.95</td>
<td>-.68</td>
<td>.251</td>
</tr>
</tbody>
</table>

Changes in Amount of Out-of-School Reading Time for the Middle Intrinsic Group

To examine if there were significant changes in the amount of reading middle intrinsic readers engage in after the completion of the incentive program, a dependent t-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day following the incentive program (post-test). Results of this analysis indicated that the students in the middle intrinsic group did not read significantly different after the implementation of the incentive program than at pre-test. The mean scores, standard deviations, t-values, and p-values for amount of reading are presented in Table 1.

Changes in Oral Reading Fluency

Participants were given a reading fluency measure before and at the completion of the reading incentive program to note changes in their oral reading fluency, or words read correct per minute. Results of the dependent t-tests indicated that statistically significant
differences were found for each of the three groups, $p < .001$. These mean scores will be examined and compared with expectations presented in the literature at a later portion of this paper. The mean scores, standard deviations, $t$-values, and $p$-values for reading fluency are presented in Table 2.

Table 2

Changes in Oral Reading Fluency (words/min) as a Function of Intrinsic Reading Level

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test M</th>
<th>Pre-Test SD</th>
<th>Post Intervention M</th>
<th>Post Intervention SD</th>
<th>$t$-value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (n = 19)</td>
<td>132.79</td>
<td>35.78</td>
<td>142.11</td>
<td>33.32</td>
<td>4.97</td>
<td>.001</td>
</tr>
<tr>
<td>Middle (n = 20)</td>
<td>123.50</td>
<td>26.27</td>
<td>136.20</td>
<td>24.93</td>
<td>6.97</td>
<td>.001</td>
</tr>
<tr>
<td>Low (n = 19)</td>
<td>130.53</td>
<td>33.77</td>
<td>139.00</td>
<td>35.23</td>
<td>6.26</td>
<td>.001</td>
</tr>
</tbody>
</table>

Motivational Beliefs About Reading

Six sub-scales of the MRQ-R (1997) were administered before and after the implementation of the incentive program to note changes in students’ motivational beliefs about reading. Dependent $t$-tests were conducted to look for significant differences from pre-test to post intervention. Results suggested that with the Bonferroni correction no significant differences were found. Refer to Table 3 to examine means, standard deviations, $t$-values, and $p$-values of the initial high, middle, and low intrinsic readers at both pre-test and post intervention.
Table 3

Changes in Motivational Beliefs as a Function of Intrinsic Reading Level

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Post Intervention</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>High (n = 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficacy</td>
<td>9.89</td>
<td>2.00</td>
<td>10.05</td>
<td>2.04</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.63</td>
<td>3.39</td>
<td>18.68</td>
<td>4.44</td>
</tr>
<tr>
<td>Involvement</td>
<td>19.37</td>
<td>3.56</td>
<td>17.95</td>
<td>5.32</td>
</tr>
<tr>
<td>Recognition</td>
<td>14.95</td>
<td>3.21</td>
<td>14.95</td>
<td>4.30</td>
</tr>
<tr>
<td>Grades</td>
<td>12.63</td>
<td>2.83</td>
<td>12.63</td>
<td>3.56</td>
</tr>
<tr>
<td>Competition</td>
<td>14.11</td>
<td>5.01</td>
<td>14.68</td>
<td>5.33</td>
</tr>
<tr>
<td>Middle (n = 20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficacy</td>
<td>10.10</td>
<td>2.79</td>
<td>10.20</td>
<td>1.94</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.10</td>
<td>3.29</td>
<td>17.55</td>
<td>3.59</td>
</tr>
<tr>
<td>Involvement</td>
<td>17.80</td>
<td>2.91</td>
<td>17.55</td>
<td>3.33</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.35</td>
<td>2.87</td>
<td>15.40</td>
<td>2.98</td>
</tr>
<tr>
<td>Grades</td>
<td>12.10</td>
<td>2.17</td>
<td>12.65</td>
<td>2.30</td>
</tr>
<tr>
<td>Competition</td>
<td>15.65</td>
<td>3.50</td>
<td>15.55</td>
<td>4.08</td>
</tr>
<tr>
<td>Low (n = 19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficacy</td>
<td>9.37</td>
<td>2.22</td>
<td>10.11</td>
<td>1.10</td>
</tr>
<tr>
<td>Curiosity</td>
<td>16.95</td>
<td>3.57</td>
<td>17.79</td>
<td>2.64</td>
</tr>
<tr>
<td>Involvement</td>
<td>16.26</td>
<td>3.48</td>
<td>16.63</td>
<td>2.93</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.26</td>
<td>1.97</td>
<td>13.37</td>
<td>3.53</td>
</tr>
<tr>
<td>Grades</td>
<td>11.89</td>
<td>2.69</td>
<td>11.53</td>
<td>2.93</td>
</tr>
<tr>
<td>Competition</td>
<td>16.00</td>
<td>4.24</td>
<td>15.74</td>
<td>4.49</td>
</tr>
</tbody>
</table>

Changes in the Amount of Reading During the Incentive Program

The goal of the reading program was to increase the amount of time spent reading. To determine whether the students time spent reading increased during the program, baseline data (pre-test) was compared to treatment data.
Analyses were carried out separately for each group (high, average, and low) to examine differences between amount of out-of-school reading at pre-test and amount of out-of-school reading during the treatment phase. To examine if there were significant changes in the amount of reading high intrinsic readers engaged in during the incentive program, a dependent $t$-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day during the incentive program (overall intervention). Results of this analysis indicated that the students in the initially high intrinsic group read significantly more during the implementation of the program than at pre-test. The mean scores, standard deviations, $t$-values, and $p$-values for amount of reading are presented in Table 4.

To examine if there were significant changes in the amount of reading middle intrinsic readers engaged in during the incentive program, a dependent $t$-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day during the incentive program (overall intervention). Results of this analysis indicated that the students in the initially middle intrinsic group read significantly more during the implementation of the program than at pre-test. See Table 4 for means, standard deviations, $t$-values, and $p$-values.

To examine if there were significant changes in the amount of reading low intrinsic readers engage in during the incentive program, a dependent $t$-test was conducted. The dependent variable included the average number of minutes read per day prior to the start of the incentive program (pre-test) and the average minutes read per day during the incentive program (overall intervention). Results of this analysis indicated that the students in the initially low intrinsic group read significantly more during the
implementation of the program than at pre-test. See Table 4 for means, standard deviations, t-values, and p-values.

Table 4

Changes in Amount of Time Read Out-of-School (min/day) From Baseline to Intervention

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-Test</th>
<th>Intervention</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>High (n = 19)</td>
<td>43.89</td>
<td>19.36</td>
<td>69.05</td>
<td>31.28</td>
</tr>
<tr>
<td>Middle (n = 20)</td>
<td>19.70</td>
<td>2.56</td>
<td>30.90</td>
<td>10.06</td>
</tr>
<tr>
<td>Low (n = 19)</td>
<td>9.63</td>
<td>4.35</td>
<td>20.95</td>
<td>10.34</td>
</tr>
</tbody>
</table>

Secondary Analyses

Impact of Reading Incentive Program as a Function of Gender

To examine gender differences a series of dependent t-tests were conducted on each of the eight dependent measures. Results of the analysis examining out-of-school reading time scores indicated a significant difference, without the Bonferroni correction, for male ($t = -2.33, \ p < .05$) and female students ($t = -2.08, \ p < .05$) from pre-test to post intervention. Results indicated that for both male and female students’ motivation to read, as measured by the three intrinsic and three extrinsic composites of the Motivation for Reading Questionnaire-Revised (1995), no significant differences were found from pre-test to post intervention. Significant differences were found on the reading fluency measure for both male ($t = 6.77, \ p < .001$) and female students ($t = 7.83, \ p < .001$). See
Table 5 for means, standard deviations, t-values, and p-values of the eight dependent measures for male students. Presented in Table 6 are means, standard deviations, t-values, and p-values of the eight dependent measures for female students.

Table 5

Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of Male Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test M</th>
<th>SD</th>
<th>Post Intervention M</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Time</td>
<td>21.17</td>
<td>16.33</td>
<td>15.23</td>
<td>10.66</td>
<td>-2.33</td>
<td>.027</td>
</tr>
<tr>
<td>Reading Fluency</td>
<td>127.70</td>
<td>30.93</td>
<td>136.50</td>
<td>30.23</td>
<td>6.77</td>
<td>.001</td>
</tr>
<tr>
<td>Efficacy</td>
<td>10.00</td>
<td>2.39</td>
<td>10.27</td>
<td>1.76</td>
<td>.50</td>
<td>.623</td>
</tr>
<tr>
<td>Curiosity</td>
<td>17.77</td>
<td>3.56</td>
<td>18.17</td>
<td>3.46</td>
<td>.74</td>
<td>.463</td>
</tr>
<tr>
<td>Involvement</td>
<td>17.63</td>
<td>3.47</td>
<td>17.27</td>
<td>3.81</td>
<td>-.58</td>
<td>.566</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.63</td>
<td>2.36</td>
<td>15.50</td>
<td>3.38</td>
<td>-.21</td>
<td>.838</td>
</tr>
<tr>
<td>Grades</td>
<td>12.60</td>
<td>2.06</td>
<td>12.87</td>
<td>2.45</td>
<td>.63</td>
<td>.534</td>
</tr>
<tr>
<td>Competition</td>
<td>15.63</td>
<td>4.15</td>
<td>16.67</td>
<td>4.36</td>
<td>1.60</td>
<td>.120</td>
</tr>
</tbody>
</table>
Table 6
Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of Female Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test M</th>
<th>Pre-Test SD</th>
<th>Post Intervention M</th>
<th>Post Intervention SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Time</td>
<td>27.71</td>
<td>19.87</td>
<td>22.18</td>
<td>17.27</td>
<td>-2.08</td>
<td>.048</td>
</tr>
<tr>
<td>Reading Fluency</td>
<td>130.07</td>
<td>33.21</td>
<td>141.79</td>
<td>31.95</td>
<td>7.83</td>
<td>.001</td>
</tr>
<tr>
<td>Efficacy</td>
<td>9.57</td>
<td>2.32</td>
<td>9.96</td>
<td>1.69</td>
<td>1.02</td>
<td>.318</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.04</td>
<td>3.33</td>
<td>17.82</td>
<td>3.80</td>
<td>-.47</td>
<td>.640</td>
</tr>
<tr>
<td>Involvement</td>
<td>18.00</td>
<td>3.59</td>
<td>17.50</td>
<td>4.18</td>
<td>-.89</td>
<td>.382</td>
</tr>
<tr>
<td>Recognition</td>
<td>14.71</td>
<td>2.98</td>
<td>13.61</td>
<td>3.78</td>
<td>-1.89</td>
<td>.069</td>
</tr>
<tr>
<td>Grades</td>
<td>11.79</td>
<td>2.96</td>
<td>11.64</td>
<td>3.36</td>
<td>-.38</td>
<td>.705</td>
</tr>
<tr>
<td>Competition</td>
<td>14.86</td>
<td>4.47</td>
<td>13.89</td>
<td>4.48</td>
<td>-1.33</td>
<td>.193</td>
</tr>
</tbody>
</table>

Impact of Reading Incentive Program as a Function of Grade Level

To examine grade level differences a series of dependent t-tests were conducted on each of the eight dependent measures. Results of the analysis examining out-of-school reading time scores indicated a significant difference, without the Bonferroni correction for fourth graders (t = -2.80, p < .01) and fifth graders (t = -2.14, p < .05). Results indicated that for 4th grade students scores on the six motivation survey sub-scales did not significantly change. However, for the fifth grade students a significant difference, without the Bonferroni correction, was found from pre-test to post intervention on the efficacy sub-scale (t = -2.47, p < .05). Significant differences were also found on the
reading fluency measure for both fourth (t = 6.10, p < .001) and fifth grade students (t = 8.90, p < .001). See Table 7 for means, standard deviations, t-values, and p-values of the eight dependent measures for fourth grade participants. See Table 8 for means, standard deviations, t-values, and p-values of the eight dependent measures for fifth grade participants.

Table 7
Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of the 4th Grade Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test</th>
<th>Post Intervention</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Reading Time</td>
<td>21.33</td>
<td>11.47</td>
<td>17.07</td>
<td>12.38</td>
</tr>
<tr>
<td>Reading Fluency-Efficiency</td>
<td>132.50</td>
<td>28.65</td>
<td>141.97</td>
<td>28.33</td>
</tr>
<tr>
<td>Efficacy</td>
<td>10.60</td>
<td>2.53</td>
<td>10.27</td>
<td>1.05</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.93</td>
<td>3.06</td>
<td>19.17</td>
<td>3.23</td>
</tr>
<tr>
<td>Involvement</td>
<td>19.37</td>
<td>2.22</td>
<td>19.23</td>
<td>2.94</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.37</td>
<td>2.67</td>
<td>15.63</td>
<td>3.33</td>
</tr>
<tr>
<td>Grades</td>
<td>12.30</td>
<td>2.62</td>
<td>12.43</td>
<td>3.19</td>
</tr>
<tr>
<td>Competition</td>
<td>15.27</td>
<td>3.97</td>
<td>15.87</td>
<td>3.71</td>
</tr>
</tbody>
</table>
Table 8

Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of the 5th Grade Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test M</th>
<th>SD</th>
<th>Post Intervention M</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Time</td>
<td>27.54</td>
<td>23.29</td>
<td>20.21</td>
<td>16.62</td>
<td>-2.14</td>
<td>.042</td>
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<tr>
<td>Reading Fluency</td>
<td>124.93</td>
<td>34.95</td>
<td>135.93</td>
<td>33.71</td>
<td>8.90</td>
<td>.001</td>
</tr>
<tr>
<td>Efficacy</td>
<td>8.93</td>
<td>1.80</td>
<td>9.96</td>
<td>2.24</td>
<td>2.47</td>
<td>.020</td>
</tr>
<tr>
<td>Curiosity</td>
<td>16.79</td>
<td>3.50</td>
<td>16.75</td>
<td>3.61</td>
<td>-.06</td>
<td>.955</td>
</tr>
<tr>
<td>Involvement</td>
<td>16.14</td>
<td>3.88</td>
<td>15.39</td>
<td>3.98</td>
<td>-.94</td>
<td>.358</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.00</td>
<td>2.75</td>
<td>13.46</td>
<td>3.76</td>
<td>-2.04</td>
<td>.051</td>
</tr>
<tr>
<td>Grades</td>
<td>12.11</td>
<td>2.51</td>
<td>12.11</td>
<td>2.47</td>
<td>.001</td>
<td>1.00</td>
</tr>
<tr>
<td>Competition</td>
<td>15.25</td>
<td>4.68</td>
<td>14.75</td>
<td>5.40</td>
<td>-.65</td>
<td>.522</td>
</tr>
</tbody>
</table>

Impact of Reading Incentive Program as a Function of Achievement Level

High, middle and low achievement groups were determined by their reading fluency scores obtained from pretests. The top 1/3 of the students were placed in the high group, the middle 1/3 were placed in the middle group, and the bottom 1/3 were placed in the low achievement group. To examine achievement level differences a series of dependent t-tests were conducted on each of the eight dependent measures. Results indicated that for both the high and middle achieving groups significant differences were only found on their reading fluency scores.
When examining differences within the low achievement group results indicated a significant difference on their reading fluency score ($t = 6.56, p < .001$). Results also indicated that there was a significant difference, without the Bonferroni correction, from pre-test to post intervention reading time scores ($t = -2.42, \ p < .05$) Refer to Table 9 for means, standard deviations, $t$-values, and $p$-values of the eight dependent measures for the high achievement participants. See Tables 10 and 11 for means, standard deviations, $t$-values, and $p$-values of the eight dependent measures for the middle and low achievement participants respectively.

Table 9

Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of High Reading Fluency Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test</th>
<th>Post Intervention</th>
<th>$t$-value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>Reading Time</td>
<td>26.21</td>
<td>17.50</td>
<td>22.68</td>
<td>17.26</td>
</tr>
<tr>
<td>Reading Fluency</td>
<td>164.79</td>
<td>11.66</td>
<td>171.32</td>
<td>13.10</td>
</tr>
<tr>
<td>Efficacy</td>
<td>9.95</td>
<td>1.90</td>
<td>10.37</td>
<td>1.30</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.63</td>
<td>3.17</td>
<td>18.42</td>
<td>3.45</td>
</tr>
<tr>
<td>Involvement</td>
<td>19.05</td>
<td>2.55</td>
<td>18.21</td>
<td>3.38</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.47</td>
<td>2.99</td>
<td>15.21</td>
<td>3.31</td>
</tr>
<tr>
<td>Grades</td>
<td>12.84</td>
<td>2.77</td>
<td>13.11</td>
<td>3.32</td>
</tr>
<tr>
<td>Competition</td>
<td>16.16</td>
<td>4.57</td>
<td>15.00</td>
<td>5.54</td>
</tr>
</tbody>
</table>
Table 10

Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of Middle Reading Fluency Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test M</th>
<th>SD</th>
<th>Post Intervention M</th>
<th>SD</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Time</td>
<td>22.45</td>
<td>13.53</td>
<td>17.10</td>
<td>14.05</td>
<td>-1.81</td>
<td>.085</td>
</tr>
<tr>
<td>Reading Fluency</td>
<td>128.10</td>
<td>8.47</td>
<td>140.65</td>
<td>11.03</td>
<td>6.87</td>
<td>.001</td>
</tr>
<tr>
<td>Efficacy</td>
<td>9.45</td>
<td>2.09</td>
<td>10.35</td>
<td>1.79</td>
<td>1.72</td>
<td>.101</td>
</tr>
<tr>
<td>Curiosity</td>
<td>18.80</td>
<td>2.80</td>
<td>18.55</td>
<td>2.96</td>
<td>-.49</td>
<td>.628</td>
</tr>
<tr>
<td>Involvement</td>
<td>18.05</td>
<td>2.30</td>
<td>17.40</td>
<td>4.07</td>
<td>-.92</td>
<td>.368</td>
</tr>
<tr>
<td>Recognition</td>
<td>15.20</td>
<td>2.78</td>
<td>14.90</td>
<td>3.57</td>
<td>-.37</td>
<td>.713</td>
</tr>
<tr>
<td>Grades</td>
<td>12.30</td>
<td>2.58</td>
<td>12.65</td>
<td>2.68</td>
<td>.66</td>
<td>.517</td>
</tr>
<tr>
<td>Competition</td>
<td>15.20</td>
<td>3.94</td>
<td>15.45</td>
<td>4.20</td>
<td>.27</td>
<td>.793</td>
</tr>
</tbody>
</table>
Table 11

Changes in Amount of Time Read Out-of-School, Reading Fluency, and Motivational Beliefs of Low Reading Fluency Participants

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Pre-Test</th>
<th>Post Intervention</th>
<th>t-value</th>
<th>p-value</th>
</tr>
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<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Reading Time</td>
<td>24.42</td>
<td>23.44</td>
<td>16.05</td>
<td>11.65</td>
</tr>
<tr>
<td>Reading Fluency</td>
<td>93.68</td>
<td>17.88</td>
<td>105.11</td>
<td>20.20</td>
</tr>
<tr>
<td>Efficacy</td>
<td>10.00</td>
<td>3.00</td>
<td>9.63</td>
<td>1.98</td>
</tr>
<tr>
<td>Curiosity</td>
<td>16.21</td>
<td>3.79</td>
<td>17.00</td>
<td>4.27</td>
</tr>
<tr>
<td>Involvement</td>
<td>16.32</td>
<td>4.33</td>
<td>16.53</td>
<td>4.38</td>
</tr>
<tr>
<td>Recognition</td>
<td>14.89</td>
<td>2.38</td>
<td>13.63</td>
<td>4.11</td>
</tr>
<tr>
<td>Grades</td>
<td>11.47</td>
<td>2.20</td>
<td>11.05</td>
<td>2.59</td>
</tr>
<tr>
<td>Competition</td>
<td>14.42</td>
<td>4.39</td>
<td>15.53</td>
<td>4.18</td>
</tr>
</tbody>
</table>

Additional Analyses

Supplemental Reading Log Data

In addition to collecting the minutes read per day on the reading logs, students also recorded their breadth of reading and out-of-school reading contexts over one week periods of time. See Table 12 and 13 to find the percentages of each before the implementation of the incentive program (baseline), during the first two weeks of the program (Intervention Phase 1), during the second two weeks of the program (Intervention Phase 2), and two weeks following the conclusion of the program (Post Test).
Table 12

Percentages of Students’ Breadth of Reading

<table>
<thead>
<tr>
<th>Condition</th>
<th>Books only</th>
<th>Books and other</th>
<th>Anything but books</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>30.0%</td>
<td>68.3%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Int. Phase 1</td>
<td>26.7%</td>
<td>71.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Int Phase 2</td>
<td>20.0%</td>
<td>80.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Post Test</td>
<td>25.0%</td>
<td>73.3%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Table 13

Percentages of Students’ Out-of-School Reading Contexts

<table>
<thead>
<tr>
<th>Condition</th>
<th>Reads Alone</th>
<th>Reads Alone &amp; w/ Parents</th>
<th>Reads Only w/ Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>53.3%</td>
<td>45.0%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Int. Phase 1</td>
<td>36.0%</td>
<td>61.7%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Int. Phase 2</td>
<td>36.7%</td>
<td>60.0%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Post Test</td>
<td>43.3%</td>
<td>55.0%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>
Interpreting the use of rewards to increase students’ intrinsic motivation to read is far more complex than it might first appear. The type of reward, how the reward is presented, how the reward is perceived, and the students’ initial interest in the rewarded activity all play a role in determining how the reward will impact subsequent motivation in the activity. Despite confusing and conflicting findings currently in the literature, the use of rewards in reading incentive programs is growing across the United States. In this study, the particular reading incentive program examined, Read-A-Million Minutes, used tangible, task-contingent rewards to increase interest in reading. The purpose of this study was to examine the impact of these rewards used in the incentive program on intrinsic motivation to read and reading achievement.

As hypothesized, the initial high intrinsic reading group read significantly less out-of-school after the implementation of the reading program, as reported by the reading logs. At the very best, advocates of reading incentive programs expect that providing external rewards to students who are already intrinsically motivated to read would result in no change in the amount read by students. Results of this analysis suggest that external rewards may even reduce a student’s tendency to read. This is an important consideration for administrators and teachers attempting to promote students’ reading.

However, my second hypothesis was not supported. Results suggested that there were no significant differences between pre and post test reading logs for students who initially showed low interest to read. This is an important point as previous research has suggested that students who initially report low interest in an activity tend to report an increase in interest once they have experienced rewards.
An additional analysis examining changes in pre and post-test reading time of the middle group suggested there were no significant differences between their scores on the reading logs. Previous research in the literature has focused on only students with either high or low initial interest in an activity and have not included an average group. While the study by Wigfield and Guthrie (1997) included an average group, they did not collect reading time data following the completion of the incentive program. Thus changes that might occur after incentives have been removed were not examined.

Additional analysis on the students’ reading fluency as measured by oral reading probes suggest that over the course of five weeks a gain of 1.86 words per week was achieved by the high group, a gain of 2.54 per week was achieved by the average group, and a gain of 1.69 per week was achieved by the low group. Because there was not a control group used in this study, previous research on curriculum-based measurement will help to interpret these findings. A longitudinal study by Marston, Lowry, Deno, and Mirkin (1981) measured changes in regular education students scores on curriculum-based reading passages. They demonstrated that these students improved between 2 and 3 words per week on these materials. This finding would suggest that the participants in the current study, in which a reading incentive program was implemented, gained a comparable amount of words per week as those in previous literature. When compared to benchmarks set in the literature, the reading incentive program did provide typical growth. It did not appear to provide ambitious growth in reading fluency in the students who participated.

The data provided from the MRQ-R suggest that intrinsic and extrinsic motivation as measured by the survey did not show much change throughout the course of the study. When motivation is measured by a self-report questionnaire the incentive program and the
presentation of rewards does not appear to have much affect on students’ motivational beliefs about reading.

Additional analysis on the immediate impact of the reading incentive program suggest that while the rewards were being given to the students for reading, reading time did in fact significantly increase for the initial high, middle, and low interest readers. This finding would suggest that the use of rewards during the incentive program had the intended impact of increasing students’ time spent reading but only during the month that rewards were being given for reaching a specified goal of four hours of reading.

Examination of pre-test and post intervention data as a function of gender indicated that both males and females showed significant increases in reading fluency scores. As with the high, middle, and low interest reader groups though, while the reading fluency increased, according to the literature the growth would not be considered ambitious. Also, similarly to the high, middle, and low interest groups, motivational beliefs did not change as a result of the reading incentive program. Reading time decreased in both the males and females, though the decrease was not considered significant with the Bonferroni correction. These results would suggest that the reading incentive program did not impact males and females differently.

Examination of pre-test and post intervention data as a function of grade level suggested similar findings of that of gender. Reading fluency scores significantly increased, though the increase would not be considered ambitious growth, and reading time scores decreased, though the decrease was not significant with the Bonferroni correction. The fifth grade students showed an increase in their scores on the efficacy sub-scale, though it was not significant with the Bonferroni correction. Overall, these results would suggest that the reading incentive program did not impact the fourth and fifth grade students differently.
Overall, there were few gender or grade level differences in the students’ motivation for reading as measured by the motivational survey and time spent reading. This finding supports Wigfield and Guthrie’s (1997) findings that suggested the mean level of students’ responses to the different aspects of reading motivation did not change over time.

Examination of pre-test and post intervention data as a function of achievement level suggest that the low achieving students were more negatively impacted by the reading incentive program than the high and middle achieving students according to time spent reading. These participants showed the greatest decline in average minutes read per day at post intervention. One note of caution is when examining the number of words read correct by the low achieving group, these students are reading at instructional level for their grade level according to the literature. Therefore it may be presumptuous to consider these students low achievers. Significant gains were displayed by all groups on the reading fluency measure, though not ambitious gains.

When examining student’s breadth of reading, percentages suggest that when the reading incentive program was implemented a higher percentage of students read a variety of materials other than books than at the baseline measure. Even after the program had ended a higher percentage of students continued to read a variety of materials than before the program began. These percentages did not come out statistically significant; however, this is an area where more research should be pursued.

Percentages of students’ out-of-school reading contexts suggest that when the reading incentive program was implemented a higher percentage of parents became more involved in their children’s reading. This increase was not only apparent during the implementation of the program, but also two weeks following the conclusion of the program. One of the goals of the Read-A-Million Minutes program is to strengthen home
relationships and increase parental involvement in their children's reading. Though, again, percentage increases are not statistically significant this is an area where further research is encouraged.

Based on the findings and previous research recommendations to schools can be made. Literature suggests that the nature of the rewards can greatly impact subsequent intrinsic motivation in an activity. Rewards can be provided just for participation, regardless if they complete the task. This is referred to as a noncontingent reward. Rewards given for completing a task or reaching a predetermined criterion are referred to as task-contingent rewards. Previous research, and this study, suggest that providing rewards for reaching a specified criterion may reduce intrinsic motivation to participate in activities that a person was initially motivated to participate in once the reward is no longer given. Providing students rewards just for participation in an activity, regardless of how long they participate in it, or how well, has been found not to negatively affect future participation in that activity.

Previous research and literature has also suggested that providing verbal praise can be beneficial in promoting intrinsic motivation to participant in an activity. Specifically, verbal praise should provide the student with information on how they are performing in the activity. Research has suggested that participants who are given informational praise for participating in an activity are more likely to participate in that same activity in the future.

Limitations of Study and Suggestions for Future Research

Upon completion of this study it becomes clear that certain limitations do exist. One limitation was that there was not a control group. Without a control group findings from this study must be interpreted with caution. Changes in reading habits and attitudes can not be attributed solely to the treatment without having a control group. However,
attempts were made to compare the experimental group to previous research. Future researchers may wish utilize a control group in which students are not involved in a reading incentive program and not rewarded for reading.

A second limitation was the sample size. Initially, the sample size was 83; however, 23 participants were removed due to incomplete data. In addition, two participants were eliminated because they were outliers. A final sample size of 58 participants were then used for final analyses. These 58 participants were then further divided into three separate groups. These high, middle, and low groups had small sample sizes of 19, 20, and 19 participants respectively. These small sample sizes may have affected our ability to detect differences among groups. Future investigations may wish to use a sample size of at least 30 which is typically recommended when examining group differences (Gay, 1996).

The effects of reading incentive programs is an area where more research is needed and encouraged. A goal for some educators is to promote intrinsic motivation in their students so they will want to invest free time in learning (Pintrich & Schunk, 1996). According to Brophy (1998) most teachers want to reward students’ efforts and hard work. They see it as a way to encourage their learning as well as an aid in building rapport. Because educators are increasingly implementing reading incentive programs in classrooms it becomes important to know what effect they are having on students’ motivation to read.

It is also important that research continue to be conducted in the students’ natural environment, the classroom. Most early research on the impact of rewards on intrinsic motivation has been done in laboratory settings, and there is very little research on the effects of rewards used in reading incentive programs. Many of these reading incentive programs are implemented in the classroom and more research is needed in this setting.
Until more research can support the use of incentive programs in classrooms, educators should be cautious about using rewards to promote reading, particularly with students who initially have high intrinsic motivation to read. While rewards may have a temporary effect of increasing students' time spent reading, more research is needed to examine the short term and long term effects of time spent reading after the rewards have been removed.
References


APPENDIX A

INTRINSIC AND EXTRINSIC COMPOSITE OF THE MOTIVATION FOR READING QUESTIONNAIRE-REVISED
The Motivation for Reading Questionnaire-Revised
Wigfield and Guthrie, 1997

Directions: Listed below are statements about reading. Please read each statement carefully. Then circle the number that best represents how you feel about the statement. There are no right or wrong answers. Use the following:

1 = very different from me
2 = somewhat different from me
3 = somewhat like me
4 = a lot like me

1. I know that I will do well in reading next year.
   1     2     3     4

2. I am a good reader.
   1     2     3     4

3. I learn more from reading than most students in the class.
   1     2     3     4

4. If the teacher discusses something interesting I might read more about it.
   1     2     3     4

5. I have favorite subjects that I like to read about.
   1     2     3     4

6. I read to learn new information about topics that interest me.
   1     2     3     4

7. I read about hobbies to learn more about them.
   1     2     3     4

8. I like to read about new things.
   1     2     3     4
9. I enjoy reading books about people in different countries.
   1  2  3  4

10. I read stories about fantasy and make believe.
    1  2  3  4

11. I like mysteries.
    1  2  3  4

12. I make pictures in my mind when I read.
    1  2  3  4

13. I feel like I make friends with people in good books.
    1  2  3  4

    1  2  3  4

15. I enjoy a long, involved story or fiction book.
    1  2  3  4

16. I like having the teacher say I read well.
    1  2  3  4

17. My friends sometimes tell me I am a good reader.
    1  2  3  4

18. I like to get compliments for my reading.
    1  2  3  4

19. I am happy when someone recognizes my reading.
    1  2  3  4
20. My parents often tell me what a good job I am doing in reading.
   1 2 3 4

21. Grades are a good way to see how well you are doing in reading.
   1 2 3 4

22. I look forward to finding out my reading grade.
   1 2 3 4

23. I read to improve my grades.
   1 2 3 4

24. My parents ask me about my reading grade.
   1 2 3 4

25. I try to get more answers right than my friends.
   1 2 3 4

26. I like being the best at reading.
   1 2 3 4

27. I like to finish my reading first before other students.
   1 2 3 4

28. I like being the only one who knows an answer in something we read.
   1 2 3 4

29. It is important for me to see my name on a list of good readers.
   1 2 3 4

30. I am willing to work hard to read better than my friends.
   1 2 3 4
APPENDIX B

READING LOGS
<table>
<thead>
<tr>
<th>Day of Week</th>
<th>Minutes Read</th>
<th>I Read:</th>
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Parent’s signature __________________________
APPENDIX C

INSTRUCTIONS READ TO TEACHERS
My name is __________. I am here from the University of Northern Iowa working on a research project. These are the questionnaires you will be administering to your class. Please be sure that students record their names at the top of the questionnaire. First read the instructions at the top of the questionnaire to your students. Following the instructions please read the first two items aloud as examples to the students. If there are no questions following the first two items then the students may continue independently. Thank you for your cooperation. If you have further questions feel free to contact me.