

Intrinsic Motivation and Rewards: What Sustains Young Children's Engagement with Text?

BARBARA A. MARINAK

*Pennsylvania State University at Harrisburg, School of Behavioral Sciences and
Education, Middletown, Pennsylvania*

LINDA B. GAMBRELL

Clemson University, School of Education, Belton, South Carolina

This study investigated the effects of reward proximity and choice of reward on the reading motivation of third-grade students as measured by indicators of task persistence. The major finding from this study was that students who were given a book as a reward and students who received no reward were more motivated to engage in subsequent reading than students who received a token reward. The results of the present study revealed that the proximity of the reward to the desired behavior is a particularly salient factor in enhancing reading motivation. In this study, books were less undermining to intrinsic motivation than token rewards. The major implication is that carefully chosen rewards can foster a culture of reading motivation.

Keywords intrinsic motivation, reading engagement, rewards, incentives, task persistence.

Most educators agree that motivation plays a central role in literacy development. Although phonemic awareness, phonics, vocabulary, fluency, and comprehension allow students to be skillful and strategic readers, without the intrinsic motivation to read, students may never reach their full potential as literacy learners. Many teachers voice concern about students who do not appear to be motivated to read (Hidi & Harackiewicz, 2000). According to a survey conducted by Fawson and Moore (1999), 95% of elementary teachers use some type of reward system in an effort to develop students' intrinsic motivation to read.

After five decades of intensive research, questions remain about the effect of extrinsic rewards on intrinsic motivation. Research suggests that it is not a question of whether rewards enhance or undermine intrinsic motivation (Cameron & Pierce, 1994; Deci, Koestner, & Ryan, 1999a), but rather under what conditions rewards undermine intrinsic motivation (Cameron, 2001; Deci, Koestner, & Ryan, 2001). A number of studies (Condry, 1977; McLoyd, 1979), including several meta-analyses (Cameron & Pierce, 1994; Deci,

This study is based on the dissertation of the first author. The dissertation received the College Reading Association's Dissertation Research Award, 2005, and was recognized as a finalist for the International Reading Association's Outstanding Dissertation of the Year Award for 2006. A brief abstract of the study is scheduled to be published in 2006 College Reading Association Yearbook in acknowledgement of the award. The authors thank Mariam Jean Dreher, William Henk, Wayne Slater, and Alan Wigfield who served on the dissertation committee of the first author.

Address correspondence to Barbara A. Marinak, School of Behavioral Sciences and Education, Pennsylvania State University at Harrisburg, 777 West Harrisburg Pike, W314 Olmstead, Middletown, PA 17057.
E-mail: bam234@psu.edu

Koestner, & Ryan, 1999b; Eisenberger & Cameron, 1996; Tang & Hall, 1995; Wiersma, 1992), have examined the differential effects of variables such as interest and reward value on intrinsic motivation. Findings that have consistently emerged from these studies include the following: being rewarded for engaging in a low interest activity produces more involvement in the task (Lepper, Greene, & Nisbett, 1973; McLoyd, 1979; receiving a reward that is valued enhances interest in a task (McLoyd, 1979); and an environment that emphasizes choice of activity enhances learning motivation (Kohn, 1996; Rigby, Deci, Patrick, & Ryan, 1992).

Few studies have examined the effects of two important variables identified in reward contingency studies on intrinsic reading motivation—type of reward and choice of reward. Furthermore, the possible interaction between these two important variables has not been systematically investigated. More precisely, few studies have examined the effects of the proximity of the reward offered to the desired learning behavior (e.g., providing books as a reward for reading) (Edmunds & Tancock, 2003). In proposing the reward proximity hypothesis, Gambrell (1996) suggested that the more proximal the reward is to the desired behavior, the less undermining it will be to intrinsic motivation. For example, if the desired behavior is engagement in reading, the reward proximity hypothesis suggests that a book would be an appropriate reward to foster motivation to read. Consequently, less proximal rewards such as tokens or food, which are unrelated to the desired behavior, would undermine motivation. Although choice has been a variable in many reward contingency studies, few studies have specifically investigated the effect of choice of reward on intrinsic motivation (McLoyd, 1979).

The purpose of this study was to explore the reward proximity hypothesis and the effect of choice of reward on intrinsic reading motivation of third graders. The first independent variable, reward type, consisted of a reward that was proximal to the desired behavior of reading motivation (literacy reward—book) or a reward less proximal to the desired behavior (non-literacy reward—token). Choice of reward, the second independent variable, included offering participants a choice of a proximal reward (choice of book) or a choice of a less proximal reward (choice of token). The study explored both the effect of reward type and choice of reward on intrinsic reading motivation and interactions that might exist between the two independent variables.

In this experimental study, the following research questions were investigated: (a) How does the proximity of the reward affect intrinsic motivation to read? (b) How does choice of reward affect the intrinsic motivation to read? Based on the theoretical underpinnings of this investigation, it was predicted that offering a reward that is proximal to the desired behavior would mediate the undermining effects of extrinsic rewards. Consistent with cognitive evaluation theory (Deci, 1971) and the reward proximity hypothesis (Gambrell, 1996), offering a book for reading should act as a signal of competence or success rather than being perceived as instrumental or controlling and therefore should result in sustained engagement with text. In addition, based on existing theories and research related to the role of choice in learning and motivation, it was predicted that choice of reward would enhance intrinsic motivation to read.

Theory and Research Base: Review of Literature

The theoretical underpinnings for the present study were drawn from cognitive evaluation theory (Deci, 1971, 1972a), which suggests that rewards undermine intrinsic motivation. In keeping with the theoretical orientation, intrinsic motivation was operationally defined as task persistence. Affording individuals the opportunity to return to an activity after being

rewarded is consistent with task persistence procedures used in other studies of cognitive evaluation theory. Morgan (1984) noted that as long as no differential contingencies are imposed among activities, one can presume that an individual's relative intrinsic interest in a particular activity is reflected in task persistence, or the time spent engaged in the activity. Cognitive evaluation theory suggests that if individuals are intrinsically motivated by an activity and not controlled by outside forces, they are more likely to return to or continue the activity if given the opportunity.

The relationship between extrinsic rewards and intrinsic motivation has been the subject of research for decades. The results have yielded important findings and stirred an ongoing controversy regarding the effect of rewards on intrinsic motivation. The research in this area includes quantitative findings (Calder & Staw, 1975; Deci, 1971; Kruglanski, et al., 1975; McLoyd, 1979; Ryan, Mims, & Koestner, 1983) and qualitative findings (Ames, 1992; Fawson & Fawson, 1994; MacIver & Reumann, 1993-1994; Turner, 1995; Wiesendanger & Bader, 1986) as well as critical commentary (Morgan, 1981; Ryan & Deci, 2000). Because of the large volume of experimentation, a recent trend is the use of meta-analytic procedures (Cameron & Pierce, 1994; Deci, Koestner, & Ryan, 1999a); Eisenberger & Cameron, 1996; Tang & Hall, 1995; Rummel & Feinberg, 1988; Wiersma, 1992). To date, however, only a few studies have examined the specific relationship between rewards and intrinsic motivation to read (Edmunds & Tancock, 2003; McLoyd, 1979). The following section provides a brief overview of research on rewards and choice of reward.

Research on Rewards for Tasks Other Than Reading

Since the publication of the first experiment calling into question the positive and/or harmless effects of rewards on intrinsic motivation (Deci, 1971), the field has produced hundreds of empirical investigations, narrative reviews, and vigorous commentaries from behavioral psychologists and cognitive scientists. Few of these studies have focused on rewards for reading. Rather, they have focused on tasks and activities such as drawing, puzzle completion, and behavior modification. As a result of the large number of empirical studies (approximately 120 through 2005), the controversial nature of the topic, inconsistencies of the findings, and the emergence of statistical synthesizing techniques, researchers turned to the use of meta-analyses to identify trends in this body of research (Cameron & Pierce, 1994; Deci et al., 1999b; Eisenberger & Cameron, 1996; Tang & Hall, 1995; Rummel & Feinberg, 1988; Wiersma, 1992).

It is not surprising, given the lack of consistency in the research on the use of rewards to promote learning, that a number of meta-analyses have been conducted in the last 15 years. With the notable exception of the meta-analysis conducted by Cameron and Pierce (1994), all meta-analytic studies reported that rewards undermine intrinsic motivation, consistent with cognitive evaluation theory. The only reward condition reported by Cameron and Pierce (1994) that caused the undermining of intrinsic motivation was when a tangible reward was given only for engaging in a task. Cameron and Pierce (1994) found that all other types of reward conditions (verbal, tangible, expected, performance contingent, and completion contingent) did not undermine intrinsic motivation. It should be noted, however, that Lepper, Henderlong, and Gingras (1999) suggested interpretation of the meta-analytic research be approached with caution because this body of research is empirically complex and theoretically and procedurally diverse.

Research on Rewards for Reading

A number of reward contingency studies conducted with elementary or middle school students concluded that a variety of variables impact the enhancing and/or undermining effects of extrinsic rewards given for reading. According to these studies, extrinsic rewards enhance motivation to read if the rewards are given for the following: low reading motivation or low interest in reading (McLoyd, 1979); effort, progress, and/or meaningful performance (Ames, 1992); attaining a challenging goal (MacIver & Reumann, 1993–1994; Turner, 1995); and choice of learning activity (Wiesendanger & Bader, 1986).

In reviewing the research on rewards and reading, Hidi and Harackiewicz (2000) and Harackiewicz and Sansone (2000) suggested that it may be premature to conclude that when people are intrinsically motivated, tangible extrinsic rewards will be detrimental. They point out that in most, if not all, of the studies, the effects of external rewards were examined on short and relatively simple activities. Hidi and Harackiewicz (2000) contend that it is inappropriate to assume the same relationship exists between external rewards and more complex, effortful engagements. In fact, several theorists contend that external rewards might prove beneficial under a number of conditions, such as when paired with performance feedback; when individuals have no initial interest in a task; when the task is effortful and complex; and when subjects have choice over the task and/or the reward (Hidi & Harackiewicz, 2000; Sansone & Harackiewicz, 2000; Zimmerman, 1985). Given the limited research, further investigations are warranted that examine intrinsic motivation during complex, effortful tasks such as reading.

Research on Choice of Reward

Providing task choice is widely acknowledged in the literature as a way of enhancing self-determination. Many experiments have illustrated the potential motivational and educational benefits of choice of learning activity (Cordova & Lepper, 1996; Iyengar & Lepper, 1999), although few have examined the role of choice of rewards. Both the Cordova and Lepper (1996) and the Iyengar and Lepper (1999) studies showed that allowing grade-school children to make even a trivial task choice increased learning and enhanced subsequent interest in the activity. Finney and Schraw (2003) reported increases in the affective indicators of reading motivation when choice of reading material was offered; however, they did not find gains in the cognitive indicators of reading achievement. To date, no studies have examined the reward proximity hypothesis and how intrinsic motivation might be affected by choice of reward.

To summarize, few studies exploring the role of more and less proximal rewards on reading motivation could be found (Edmunds & Tancock, 2003), and only one study (McLoyd, 1997) was located that investigated the role of choice of reward on reading motivation. Therefore, this study was designed to investigate the effects of proximity of reward (book/token) and choice of reward on the intrinsic reading motivation of third-grade students.

Method

This study employed a post-test only control. The children were randomly assigned to one of five treatment groups balanced for gender. The five treatments were: book/choice (student selected book), book/no choice (randomly selected book), token/choice (student selected token), and token/no choice (randomly selected token), and the control group (no reward/no choice).

Participants

The study was conducted at three elementary schools in a large mid-Atlantic suburban school district serving 12,000 students. There were approximately 800 students enrolled in each of the participating elementary schools. The schools reported a poverty level (as per free/reduced lunch count) ranging from 18 to 25%. The children in these schools represented a diverse population (40% Caucasian, 30% African American, 20% Asian, and 10% Eastern European). The participants were 75 third-grade students selected from a pool of 288 students who scored between the 30th and 50th percentile on the Stanford Achievement Test, Ninth Edition and for whom parent permission was granted to participate in the study.

Design of the Study

This study employed a post-test only design with a control group, allowing for the study of multiple independent variables and the examination of joint effects (Pedhazur, 1982). The first independent variable, reward type, consisted of a reward that was proximal to the desired behavior of reading motivation (literacy reward—book) and a reward less proximal to the desired behavior (nonliteracy reward—token). Choice of reward, the second independent variable, included offering participants a choice of a literacy reward (choice of a book) or a choice of a nonliteracy reward (choice of a token). The dependent variable was intrinsic motivation to read. Consistent with cognitive evaluation theory (CET) (Deci, 1971, 1972b; Deci et al., 1999b), intrinsic motivation was operationally defined as task persistence. CET suggests that if individuals are intrinsically motivated by an activity and not controlled by outside forces, they are more likely to return to or continue the activity if given the opportunity. Affording individuals the opportunity to return to an activity after being rewarded is consistent with task persistence procedures used in other studies of cognitive evaluation theory. Specifically, intrinsic motivation was measured by three indicators of task persistence: first activity selected, time spent reading, and number of words read.

Materials

There were two phases of this investigation: the library book selection activity and the observation of free-choice activity. The following section describes the books used in the library book selection activity, the rewards (books, tokens), and the books, jigsaw puzzle and math games used in the free-choice activity period, which included the option to read, do a math game, or do a jigsaw puzzle.

Books used for the Library Book Selection Activity. To ensure that the children had never seen the books, hardcover preview titles not yet released by publishers were used for the library selection activity. Each book was at a readability level 1 full year below grade level. Readability was measured using three readability formulas: Spache, Dale-Chall, and Fry (Rodrigues, 2000). The books represented a range of interests and topics, and included three fiction titles and three nonfiction titles. Each book ranged from 1,200 to 2,000 words with a mean length of approximately 1,600 words (see Appendix A for the list of library books and corresponding readability).

Rewards for Participating in the Library Books Selection Activity. Choice of reward involved choice of a book (more proximal reward) or choice of a token (less proximal reward). A range of books and tokens was provided for children to select from in the

treatment groups where choice of reward was offered. This option was not made available to children in the no-choice treatment groups.

Books used for Rewards. The 25 children's literature books used as rewards included 13 fiction titles and 12 nonfiction titles. Each paperback was valued at approximately \$2.50.

Token Rewards. The 25 token rewards included Nerf balls, Pez dispensers, friendship bracelets, and key chains. Each token was valued at approximately \$2.00.

Materials Used in the Free-Choice Activity Time

Books. Children were allowed to choose a book to read from the array of the six books available during the library book selection activity (see Appendix A).

Jigsaw Puzzle. The jigsaw puzzle contained 100 pieces and revealed a picture of several baby rabbits hidden in vegetation. The jigsaw puzzle was recommended for ages 7–10.

Math Game. The game involved a series of riddle-like problems that required rounding large numbers. The illustrations of the word problems included an astronomer counting stars and a party host counting guests, coats, and food. The mathematical concepts required for the game were taught during the second-grade curriculum.

Procedures

This study involved two phases: a library book selection activity and the observation of free-choice activity. During both phases, the researcher met with the each subject individually. Meeting with each child allowed the researcher to record data for the three measures of intrinsic motivation; first activity selected, number of words read, and number of seconds spent reading.

During phase one, the library book selection activity, each child engaged in the task of reading and recommending books for the school library. For participating in this task, they received a reward depending on treatment condition (book/choice, book/no choice, token/choice, token/no choice, no reward). In phase two, the free-choice activity, the student was given the choice of reading, doing a math game, or doing a jigsaw puzzle. Of particular interest in this study was whether the reward (book/token/no reward) or choice of reward would affect the child's subsequent reading engagement.

The Library Book Selection Activity

During the library book selection activity, the researcher asked each student to select one of six trade books to read in order to make a judgment about the question "Should this book be purchased for the school library?" First, the researcher provided a brief description of each of the six books. The child then selected a book, read a preselected 250-word sample, and made a recommendation about possible purchase of the book for the school library. The child was then rewarded (or not) based on the treatment condition (book/choice, book/no choice, token/choice, token/no choice, and no reward). After the child was given a reward (no choice condition) or selected a reward (choice condition), the researcher recorded the name of the reward on a 3 × 5 card. The researcher explained that she would keep the card and give the child his or her reward at the end of the school

day. This procedure was implemented so that the physical reward did not serve as a distraction during the subsequent free-choice activity that followed.

To avoid disappointment, children in the control condition were invited to pick a book at the end of the school day (following the researcher's explanation that she "forgot" to offer the book while they were with her). All children who participated in the experiment were seen on the same school day to avoid contamination by children discussing their experiences.

Observation of Free-Choice Activity

Following the receipt of the reward (or not), the researcher explained that "it is not time for you to return to the classroom yet." The child was then invited to choose among a number of activities (reading, jigsaw puzzle, or a math game). Students could engage in one activity for the entire free-choice period or change activities as they wished. No specific directions were given.

While the researcher was "working" in another corner of the room, partially obscured by a wall, she observed the child's activity during the 10-minute free-choice period. Specifically, the researcher recorded the first activity selected by the child and the amount of time spent in any/all of the three activity options. If the child returned to reading at all, he or she was asked to mark the last page read.

Measures

Prior to the experiment, an assessment of children's existing motivation was completed. Six weeks before the experiment, a reading specialist administered the Motivation to Read Profile (MRP) (Gambrell, Palmer, Codling, & Mazzoni, 1996) to all the third-grade students in the elementary schools from which the random sample was drawn. The MRP was developed based on the research and theories of literacy motivation and an examination of existing surveys. The MRP consists of two subscales: self-concept as a reader and value of reading. To ascertain whether the traits measured corresponded to the two subscales, factor analyses were conducted using the unweighted least squares method and a varimax rotation. Only items that loaded cleanly on the two traits are included in the MRP. To assess reliability, Cronbach's (1951) alpha was calculated. The Cronbach's revealed a moderately high reliability for both subscales (self-concept = .75; value = .82). (Gambrell et al., 1996). Analysis of preexisting motivation was then completed on the 75 students who were randomly selected from the third-grade population for whom permission was granted.

Intrinsic motivation, for this study, was defined as task persistence. Three measures of intrinsic reading motivation were obtained: (1) first activity selected (reading, jigsaw puzzle, math game), (2) number of seconds spent reading, and (3) number of words read.

Results

This study investigated the effects of proximity of reward and choice of reward on third grade students' intrinsic motivation to read. Data were collected on the following: students' reading motivation prior to experimentation; first activity selected; number of seconds spent reading; and number of words read.

Analysis of Reading Motivation Prior to Experimentation

The MRP data was analyzed using an ANOVA to determine if statistically significant differences in reading motivation existed within or between treatment groups. An ANOVA

was conducted on the total scores of the Motivation to Read Profile as well as the two subtest scores—self-concept and value of reading. The ANOVA revealed no statistically significant differences in reading motivation within or between treatment groups for the total motivation-to-read score, $F(4,74) = 2.022, p < .101$. In addition, no significant differences were found between or within groups for the self-concept or value of reading subtests. The ANOVA results for self concept were $F(4,74) = .663, p < .387$. The ANOVA results for value of reading were $F(4,74) = 1.100, p < .113$.

**Task Persistence as a Measure of Intrinsic Reading Motivation:
First Activity Selected**

The first activity selected during the free-choice period was the first measure of task persistence. Descriptive statistics for the first activity selected by each child in each treatment group were examined. Table 1 reveals the frequency of the activities selected (reading, puzzle, math game) by students by treatment condition.

A chi-square analysis revealed statistically significant differences ($\chi = 28.420, p < .05$) between the students in the book groups and no reward group compared to the token groups on first activity selected. The students in the book/choice, book/no choice, and no reward/no choice group selected reading as a first activity more often than students in the token (choice/no choice) groups.

To clarify the role of choice of reward, chi-square analysis of the choice/no choice treatment conditions was conducted. Table 2 displays the frequency of the first activity selected using only choice/no choice and control as the grouping variable.

Table 1
First Activity Selected by Treatment Group

First Activity	Book/Choice ($n = 15$)	Book/No Choice ($n = 15$)	Token/Choice ($n = 15$)	Token/No Choice ($n = 15$)	No Reward/ No Choice ($n = 15$)
Books	13	10	2	3	11
Math Game	1	4	8	8	1
Jigsaw Puzzle	1	1	5	4	3

Table 2
First Activity Selected By Choice/No Choice

First Activity	Treatment Condition		
	Choice	No Choice	Control
Books	15	13	11
Math Game	9	12	1
Jigsaw Puzzle	6	5	3
Total	30	30	15

Table 3
First Activity Selected by Proximity of Reward

First Activity	Book Group ($n = 30$)	Token Group ($n = 30$)	Control ($n = 15$)
Books	23	5	11
Math Game	5	16	1
Jigsaw Puzzle	2	9	3

The results the chi-square analysis of the choice/no choice data revealed no statistically significant differences ($\chi = 5.672, p < .05$) between the students in the choice and no choice groups. Based on these results, proximity of reward was the only significant variable for the first activity selected.

To further verify that proximity of reward was the only significant variable for first activity selected, additional chi-square analyses were conducted using regrouped treatment conditions. The regrouped treatment groups were book (choice/no choice), token (choice/no choice), and control (no reward/no choice). Table 3 contains descriptive statistics for the comparison between the book group, token group, and the control group.

Three additional chi-square analyses were completed. The results of the chi-square analysis comparing the book group and token group revealed statistically significant differences ($\chi = 21.78, p < .05$), with students in the book condition selecting reading as a first activity more often than the students in the token condition.

The results of the second chi-square analysis revealed no statistically significant differences ($\chi = 2.365, p < .05$) between the book group and the control group. The final chi-square analysis in this series compared the token group and the control group revealing statistically significant differences ($\chi = 15.17, p < .05$), with the students in the control group selecting reading as a first activity more often than the students in the token group.

Task Persistence as a Measure of Intrinsic Reading Motivation: Seconds Spent Reading

A second measure of intrinsic motivation collected during the free-choice period was the number of seconds spent reading. If returning to reading was a behavior exhibited at any time during the free-choice period, the number of seconds spent reading was recorded. Students could change activities among the three choices (reading, jigsaw puzzle, math game) as desired. The number of seconds spent reading was a measure of the total time spent reading during the time available in the free-choice period.

To determine if there were significant differences across the five treatment conditions with respect to seconds reading, a one-way ANOVA with multiple comparisons (Fisher's LSD) was conducted. The means (with standards deviations in parenthesis) were as follows for seconds reading: book/choice $M = 374$ (237), book/no choice $M = 303$ (250), token/choice $M = 30$ (79), token/no choice $M = 67$ (163), no reward/no choice $M = 365$ (261).

A one-way ANOVA was conducted to determine if there were statistically significant differences across the treatment groups for the number of seconds spent reading during the free-choice period. The results of the ANOVA revealed a statistically significant difference between the treatment groups for seconds reading, $F(4,74) = 9.464, p < .000$.

To clarify the results of the one-way ANOVA, post hoc multiple comparisons using Fisher's LSD were conducted for seconds spent reading. The results of the Fisher's LSD are presented in Table 4. This analysis revealed statistically significant differences in favor of the students in the book/choice, book/no choice, and the control conditions with respect to seconds spent reading. In other words, students in the book/choice group, the book/no choice group, and the control group spent significantly more time reading than those in the token/choice and token/no choice groups. In addition, an inspection of the post hoc multiple comparisons revealed no statistically significant differences between the book/choice group and the book/no choice group. No statistically significant differences were found between the token/choice and token/no choice groups. These results indicate that choice of reward was not a significant variable in this study.

To further verify that proximity of reward remained a significant variable for the number of seconds spent reading in the post hoc multiple comparisons, an additional one-way ANOVA and post hoc multiple comparisons were conducted using regrouped treatment groups. The book/choice and book/no choice conditions were regrouped as a

Table 4
Fisher's LSD Test for the Number of Seconds Spent Reading

Dependent Variable	Mean Dif	Standard Error	Significance
Seconds Reading			
<i>Book/Choice</i>			
Book/No Choice	71.6667	76.7012	.353
Token/ Choice	344.8667*	76.7012	.000
Token/No Choice	307.8667*	76.7012	.000
No Reward	9.0000	76.7012	.907
<i>Book/No Choice</i>			
Book/Choice	-71.6667	76.7012	.353
Token/Choice	273.2000*	76.7012	.001
Token/No Choice	236.2000*	76.7012	.003
No Reward	-62.6667	76.7012	.417
<i>Token/Choice</i>			
Book/Choice	-344.8667*	76.7012	.000
Book/No Choice	-273.2000*	76.7012	.001
Token/No Choice	-37.0000	76.7012	.631
No Reward	-335.8667*	76.7012	.000
<i>Token/No Choice</i>			
Book/Choice	-307.8667*	76.7012	.000
Book/No choice	-236.2000*	76.7012	.003
Token/Choice	37.0000	76.7012	.631
No Reward	-298.8667*	76.7012	.000
<i>No Reward</i>			
Book/Choice	-9.000	76.7012	.907
Book/No Choice	62.6667	76.7012	.417
Token/Choice	335.8667*	76.7012	.000
Token/No choice	298.86678	76.7012	.000

*Indicates a statistically significant finding.

Table 5
Means and Standard Deviations for Number of Seconds Spent Reading By Proximity of Reward

Treatment Condition	Seconds Spent Reading	
	Mean	Standard Deviation
Book Group (<i>n</i> = 30)	339.0333	242.5441
Token Group (<i>n</i> = 30)	48.5000	127.8546
Control Group (<i>n</i> = 15)	365.8667	261.4995
Total (<i>n</i> = 75)	228.1867	253.5950

book group and the token/choice and token/no choice conditions were regrouped as a token group, resulting in three treatment conditions: book, token, and control. The means and standard deviations for the one-way ANOVA using regrouped data are in Table 5.

An ANOVA was calculated to determine if there were statistically significant differences across the regrouped treatment conditions for the number of seconds spent reading during the free-choice period. The result of the ANOVA for seconds spent reading revealed a statistically significant difference between the treatment groups, $F(2,74) = 18.607, p < .000$. To clarify the results of the one-way ANOVA, post hoc multiple comparisons using Fisher's LSD were conducted for number of seconds spent reading. The results of the Fisher's LSD are presented in Table 6. The analysis revealed that students in the book group and the control group spent more time reading than the token group.

***Task Persistence as a Measure of Intrinsic Reading Motivation:
Number of Words Read***

The number of words read by each student was a third task persistence measure of intrinsic motivation collected during the free-choice period. If reading was exhibited at any time during the free-choice period, the number of words read was recorded. Again, students could change activities among the three choices (reading, jigsaw puzzle, math game). Number

Table 6
Fisher's LSD Test for Number of Seconds Spent Reading By Proximity of Reward

	Seconds Reading		
	Mean Difference	Standard Error	Significance
Books/Tokens	290.5333*	53.8981	.000
No Reward	-26.8333	66.0114	.686
Tokens/Books	-290.5333*	53.8981	.000
No Reward	-317.3667*	66.0114	.000
No Reward/Books	26.8333	66.0114	.686
Tokens	317.3667*	66.0114	.000

*Indicates a statistically significant finding.

of words read is a different measure of task persistence than number of seconds spent reading, in that all the books in the library array were picture books. Number of seconds spent reading would include time spent browsing pictures and/or reading words. Number of words read is a count of words read regardless of time spent picture browsing.

To determine if there were significant differences across the five treatment conditions with respect to number of words read, a one-way ANOVA with multiple comparisons (Fisher's LSD) was conducted. The means (with standard deviations in parentheses) were as follows for seconds reading: book/choice $M=497$ (309), book/no choice $M=403$ (377), token/choice $M=45$ (121), token/no choice $M=78$ (173), and no reward/no choice $M=483$ (373).

The result of the ANOVA for number of words read is revealed a statistically significant difference between the treatment groups for number of words read, $F(4,74)=9.464$, $p<.000$. To clarify the results of the one-way ANOVA, post hoc multiple comparisons using the Fisher's LSD were conducted. The results of the Fisher's LSD are presented in Table 7. The analysis revealed statistically significant differences in favor of the students

Table 7
Fisher's LSD Test for Number of Words Read

Dependent Variable	Mean Differences	Standard Error	Significance
Words Read			
<i>Book/Choice</i>			
Book/No Choice	93.9333	106.2457	.380
Token/ Choice	452.1333*	106.2457	.000
Token/No Choice	419.6000*	106.2457	.000
No Reward	14.600	106.2457	.891
<i>Book/No Choice</i>			
Book/Choice	-93.9333	106.2457	.380
Token/Choice	358.2000*	106.2457	.001
Token/No Choice	325.6667*	106.2457	.003
No Reward	-79.333	106.2457	.458
<i>Token/Choice</i>			
Book/Choice	-452.1333*	106.2457	.000
Book/No Choice	-358.2000*	106.2457	.001
Token/No Choice	-32.53333	106.2457	.760
No Reward	-437.53333*	106.2457	.000
<i>Token/No Choice</i>			
Book/Choice	-419.6000*	106.2457	.000
Book/No choice	-325.6667*	106.2457	.003
Token/Choice	32.53333	106.2457	.760
No Reward	-405.0000*	106.2457	.000
<i>No Reward</i>			
Book/Choice	-14.6000	106.2457	.891
Book/No Choice	79.3333	106.2457	.458
Token/Choice	437.53333*	106.2457	.000
Token/No choice	405.0000	106.2457	.000

*Indicates a statistically significant finding.

in the book/choice, book/no choice, and no reward/no choice conditions with respect to number of words read. In other words, students in the book/choice group, the book/no choice group, and the no reward/no choice group read more words than those in the token/choice and token/no choice treatment groups.

To further verify that proximity of reward remained a significant variable for the number of words read in the post hoc multiple comparisons, an additional one-way ANOVA and post hoc multiple comparisons were conducted using regrouped treatment groups. The book/choice and book/no choice conditions were regrouped as a book group. The token/choice and token/no choice conditions were regrouped as a token group, and the no reward/no choice was examined as a control group. The means and standard deviations for the one-way ANOVA using regrouped data are in Table 8.

An ANOVA was calculated to determine if there were statistically significant differences across the regrouped treatment conditions for the number of words read during the free-choice period. The results of the ANOVA for words read revealed a statistically significant difference between the treatment groups for number of words read, $F(2,74) = 144.29, p < .000$. The results of the Fisher's LSD are presented in Table 9. The analysis found that students in the book group and the control group read more words than those in the token group.

Table 8
Number of Words Read by Proximity of Reward

Treatment Condition	Number of Words Read	
	Mean	Standard Deviations
Book Group ($n = 30$)	450.833	342.8089
Token Group ($n = 30$)	61.9333	147.8865
Control ($n = 15$)	483.2000	373.9872
Total ($n = 75$)	301.7467	346.5348

Table 9
Fisher's LSD Test for Number of Words Read by Proximity of Reward

Treatment Condition	Words Read		
	Mean Difference	Std. Error	Significance
Books/Token	388.9000*	74.5380	.000
No Reward	-32.3667	91.2901	.724
Token/Books	-388.9000*	74.5380	.000
No Reward	-421.2667*	91.2901	.000
No Reward/Books	32.3667	91.2901	.724
Token	421.2667*	91.2901	.000

*Indicates a statistically significant finding.

Discussion and Conclusions

This study explored the conditions under which rewards influence reading motivation. The theoretical underpinnings of the study were primarily grounded in the cognitive evaluation theory (CET) proposed by Deci and his colleagues (Deci, 1971, 1972b; Deci et al., 1999b). CET proposes that under certain conditions, rewarding students for engaging in an activity or behavior will decrease subsequent engagement in that activity. In addition, the study was designed to test the reward proximity hypothesis (Gambrell, 1996) that suggests that type of reward may play an important role in whether motivation is undermined by rewards. Specifically, the reward proximity hypothesis posits that rewards that are proximal to the desired behavior may mediate the undermining effects of extrinsic rewards.

The present study examined the effects of a reward that was proximal to the desired behavior of reading (books), a reward that was less proximal to the desired behavior (tokens), and no reward on third graders' intrinsic motivation to read. In addition, the effect of choice of reward on intrinsic reading motivation was explored. Intrinsic motivation was assessed through a series of task persistence measures: first choice of activity (reading, puzzle, math game), time spent reading, and number of words read. Time spent reading and number of words read reflect actual engagement with reading during the free-choice period.

The major finding of this study is that the students who were given a book (proximal reward) and students who received no reward were more motivated to engage in subsequent reading than the students who received a token (less proximal reward). Although the intrinsic motivation of the book group and the control group was comparable, the intrinsic motivation of the token group was lower on the three measures of intrinsic motivation; first activity selected, number of seconds spent reading, and number of words read. Thus, the findings of this study suggest that the proximity of the reward to the desired behavior is a particularly salient factor in enhancing motivation to read.

Generalizability of this study is limited to the reward conditions used in the experiment (type of reward and choice of reward). In addition, the results of the study can be generalized only to children of approximately the same age and levels of reading achievement. It is acknowledged that the reading motivation of young children is influenced by a number of factors not included in this study.

The results of the present study support the reward proximity hypothesis (Gambrell, 1996) and Rigby et al.'s (1992) differentiated concept of extrinsic motivation within cognitive evaluation theory (Deci, 1971). Rigby and his colleagues (1992) suggest that rewards do not necessarily undermine intrinsic motivation if the reward condition invites children into self-determination. The results of this study suggest that receiving a reward (book) proximal to the desired behavior (reading) was perceived by the students as sufficiently positive and supporting competence (Rigby et al., 1992). In accordance with the reward proximity hypothesis, the reward of a book was sufficiently proximal to the desired behavior of reading, therefore intrinsic motivation was not undermined.

Three conclusions drawn from the present study are consistent with both the reward proximity hypothesis (Gambrell, 1996) and cognitive evaluation theory (Deci, 1971). The first is that rewards proximal to the desired behavior, such as books to reading, do not undermine intrinsic motivation to read. Specifically, when offering extrinsic rewards for reading, books are less undermining to intrinsic motivation than rewards less proximal to reading, such as tokens. The second conclusion is that less proximal rewards, such as tokens, do serve to undermine intrinsic motivation to read. When offering extrinsic

rewards for reading, tokens are more undermining to intrinsic motivation than rewards more proximal to reading such as books or no reward at all. The third conclusion is that although choice has been demonstrated to be a powerful aspect of intrinsic motivation (Rigby et al., 1992; Gottfried, 1985; Guthrie & Wigfield, 1997), choice of reward was not found to be a salient factor in this study. Choice of a book or choice of a token neither enhanced nor undermined subsequent reading motivation.

This study has implications for the practice of using rewards as a means of motivating children to read. It seems likely that classroom teachers will continue to make use of rewards in an attempt to motivate uninterested and/or struggling readers (Hidi & Harackiewicz, 2000). Regardless of why or when educators employ the use of rewards, the findings of this study are interpreted as support for the reward proximity hypothesis and have significant implications related to increasing and sustaining reading engagement.

Using Rewards That Are Proximal to Reading Supports Intrinsic Motivation To Read

This study indicates that the type of reward—specifically the proximity of the reward to the desired behavior—should be carefully considered when using rewards in the classroom. If the desired behavior is reading, rewards that are proximal to engaging with books should be offered (e.g., books, increased read-aloud time, increased time for self-selected reading, increased library time, and increased number of books available).

Consistent with cognitive evaluation theory and reward proximity hypothesis, in this study the reward of a book did not undermine intrinsic motivation to read. Using literacy-related rewards may increase students' sense of personal competence and signals task mastery, thereby increasing the likelihood of sustained reading engagement.

Type of Reward Is More Important Than Choice of Reward

Although the research on learning clearly indicates that task choice is a powerful influence on motivation, the results of the present study suggest that choice of reward is not as salient as type of reward. Instead of focusing on reward choices, educators who want to promote intrinsic motivation to read should be encouraged to consider reward alternatives that are proximal to reading. It may that providing reading-related rewards sends a message about the value of reading and sustained engagement with text.

Carefully Chosen Rewards Can Foster a Culture of Reading Motivation

Turner (1995) urges teachers to be aware of what is done in classrooms in the name of literacy and how it affects children. What and how children learn, she notes, are intimately intertwined. So, too, the case can be made that rewards and the classrooms in which they are offered are inseparable. If this is true, rewards offered for reading should be a natural extension of a literacy-rich classroom culture (Gambrell & Marinak, 1997). This study provides clear support for the reward proximity hypothesis and the use of books as appropriate reading rewards. However, the importance of reading-related rewards may go beyond recognizing the relationship between reward proximity and the desired behavior. It could be that the real value of using books to reward reading and foster intrinsic motivation is that both the desired behavior (reading) and the reward (books) define a classroom culture that supports and nurtures intrinsic motivation to read.

References

- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261-271.
- Calder, B., & Staw, B. (1975). Interaction of intrinsic and extrinsic motivation: Some methodological notes. *Journal of Personality and Social Psychology, 31*, 76-80.
- Cameron, J. (2001). Negative effects of reward on intrinsic motivation—a limited phenomenon: Comment on Deci, Koestner, and Ryan (2001). *Review of Educational Research, 71*(1), 29-42.
- Cameron, J., & Pierce, W. D. (1994). Reinforcement, reward, and intrinsic motivation: A meta-analysis. *Review of Educational Research, 64*, 363-423.
- Condry, J. (1977). Enemies of exploration: Self-initiated versus other-initiated learning. *Journal of Personality and Social Psychology, 18*, 105-115.
- Cordova, D., & Lepper, M. (1996). Intrinsic motivation and the process of learning. Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology, 88*, 715-730.
- Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.
- Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105-115.
- Deci, E. L. (1972a). Intrinsic motivation, extrinsic reinforcement and inequity. *Journal of Personality and Social Psychology, 22*, 113-120.
- Deci, E. L. (1972b). The effects of contingent and non-contingent rewards and controls on intrinsic motivation. *Organizational Behavior and Human Performance, 8*, 217-229.
- Deci, E., Koestner, R., & Ryan, R. (1999a). The undermining effect is a reality after all extrinsic rewards, task interest, and self-determination: Reply to Eisenberger, Pierce, and Cameron (1999) and Lepper, Henderlong, and Gingras (1999). *Psychological Bulletin, 125*, 692-700.
- Deci, E., Koestner, R., & Ryan, R. (1999b). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*, 627-668.
- Deci, E., Koestner, R., & Ryan, R. (2001). Extrinsic rewards and intrinsic motivation in education: Reconsidered once again. *Review of Educational Research, 71*(1), 1-28.
- Edmunds, K., & Tancock, S. (2003). Incentives: The effects on the reading motivation of fourth grade students. *Reading Research and Instruction, 42*(2), 17-38.
- Eisenberger, R., & Cameron, J. (1996). Detrimental effects of reward: Reality or myth? *American Psychologist, 51*, 1153-1166.
- Fawson, P. C., & Fawson, C. (1994). Conditional philanthropy: A study of corporate sponsorship of reading programs. Paper presented at the annual meeting of the International Reading Association, Toronto, Canada.
- Fawson, P., & Moore, S. (1999). Reading incentive programs: Beliefs and practices. *Reading Psychology, 4*, 325-340.
- Finney, S., & Schraw, G. (2003). Self-efficacy beliefs in college autistics courses. *Contemporary Education Psychology, 28*, 161-186.
- Gambrell, L. (1996). Creating classrooms cultures that foster reading motivation. *The Reading Teacher, 50*, 4-25.
- Gambrell, L., & Marinak, B. (1997). Incentives and intrinsic motivation to read. In J. Guthrie & A. Wigfield (Eds.), *Reading engagement: Motivating readers through integrated instruction*. Newark, DE: International Reading Association.
- Gambrell, L., Palmer, B., Codling, R., & Mazzoni, S. (1996). Assessing motivation to read. *The Reading Teacher, 49*(7), 518-533.
- Gottfried, A. E. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Psychology, 77*, 631-645.
- Guthrie, J. T., & Wigfield, A. (1997). *Reading engagement: Motivating readers through integrated instruction*. Newark, DE: International Reading Association.

- Harackiewicz, J., & Sansone, C. (2000). Rewarding competence: The importance of goals in the study of intrinsic motivation. In C. Sansone & J. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: the search for optimal performance*. Burlington, MA: Academic Press.
- Hidi, S., & Harackiewicz, J. (2000). Motivating the academically unmotivated: A critical issue for the 21st century. *Review of Educational Research, 70*, 151-179.
- Iyengar, S., & Lepper, M. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology, 76*, 349-366.
- Kohn, A. (1996). By all available means: Cameron and Pierce's defense of extrinsic motivators. *Review of Educational Research, 66*, 1-4.
- Kruglanski, A., Riter, A., Amitai, A., Margolin, B., Shabtai, L., & Zaksh, D. (1975). Can money enhance intrinsic motivation?: A test of the content-consequence hypothesis. *Journal of Personality and Social Psychology, 31*, 744-750.
- Lepper, M., Greene, D., & Nisbett, E. (1973). Undermining children's intrinsic interest with extrinsic reward. *Journal of Personality and Social Psychology, 28*(1), 129-137.
- Lepper, M., Henderlong, J., & Gingras, I. (1999). Understanding the effects of extrinsic rewards on intrinsic motivation—uses and abuses of meta-analysis: Comment on Deci, Koestner, and Ryan. *Psychological Bulletin, 125*, 669-676.
- MacIver, D. J., & Reuman, D. A. (1993-1994). Giving their best. *American Educator, 24*-31.
- McLoyd, V. (1979). The effects of extrinsic rewards of differential value on high and low intrinsic interest. *Child Development, 50*, 636-644.
- Morgan, M. (1981). The overjustification effect: A developmental test of self-perception interpretations. *Journal of Personality and Social Psychology, 40*, 809-821.
- Morgan, M. (1984). Reward-induced decrements and increments in intrinsic motivation. *Review of Educational Research, 54*, 5-30.
- Pedhazur, E. (1982). Multiple regression in behavioral research: *Explanation and prediction*. New York: Harcourt Brace.
- Rigby, C. S., Deci, E. L., Patrick, B. C., & Ryan, R. M. (1992). Beyond the intrinsic-extrinsic dichotomy: Self-determination and motivation in learning. *Motivation and Emotion, 16*(3), 165-185.
- Rodrigues, M. (2000). *Readability master 2000*. Brookline, MA: Brookline Books.
- Rummel, A., & Feinberg, R. (1988). Cognitive evaluation theory: A meta-analytic review of the literature. *Social Behavior and Personality, 60*, 158-161.
- Ryan, R., & Deci, E. (2000). When rewards compete with nature: The undermining of intrinsic motivation and self-regulation. In C. Sansone and J. Harackiewicz (Eds.) *Intrinsic and extrinsic motivation* (pp. 14-48). Burlington, MA: Academic Press.
- Ryan, R., Mims, V., & Koestner, R. (1983). Relation of reward contingency and interpersonal context to intrinsic motivation: A review and test using cognitive evaluation theory. *Journal of Personality and Social Psychology, 45*, 736-750.
- Sansone, C., & Harackiewicz, J. (2000). *Intrinsic and extrinsic motivation: The search for optimal motivation and performance*. Burlington, MA: Academic Press.
- Tang, S., & Hall, V. (1995). The overjustification effect: A meta-analysis. *Applied Cognitive Psychology, 9*, 364-404.
- Turner, J. (1995). The influence of classroom contexts on young children's motivation for literacy. *Reading Research Quarterly, 30*(3), 410-441.
- Wiersma, U. (1992). The effects of extrinsic rewards in intrinsic motivation: A meta-analysis. *Journal of Occupational and Organizational Psychology, 65*, 101-114.
- Wiesendanger, K., & Bader, L. (1986). The university based reading clinic—practices and procedures. *The Reading Teacher, 39*, 698-702.
- Zimmerman, B. (1985). The development of "intrinsic motivation": A social learning analysis. *Annals of Child Development, 2*, 117-160.

Appendix A
Readability of Library Books

Book Title and Author(s)	Illustrator	Publisher Year	Spache* Grade Equivalent	Dale-Chall* Grade Equivalent*	Fry* Grade Equivalent
<i>Cook-A Doodle-Do</i> Janet Stevens	Janet Stevens	Harcourt Brace and Company 1999	2.3	2.2	2.3
Susan Stevens Crummel <i>Locomotive: Building an Eight Wheeler</i> David Weitzman	David Weitzman	Houghton Mifflin Company 1999	2.3	2.4	2.4
David Weitzman <i>Ghost of the Southern Belle: A Sea Tale</i> Odds Bodkin	Bernie Fuchs	Little Brown Company 1999	2.0	2.2	2.2
<i>ABC Dogs</i> Kathy Darling	Tara Darling	Walker Press 1997	2.0	2.1	2.2
<i>Mud Flat Spring</i> James Stevenson	James Stevenson	Greenwillow Press 1999	2.1	2.2	2.2
<i>Stone Girl, Bone Girl: The Story of Mary Anning</i> Laurence Anholt	Sheila Moxley	Corgi Children Press 2000	2.2	2.3	2.3

*Readability based on Readability Master 2000 (Rodrigues, 2000).