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The effects of incentives on reading

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ABSTRACT

Despite their popularity, reading incentives have not been critically examined as to their effectiveness in promoting more positive attitudes toward reading, more frequent reading, or increases in reading proficiency. This article examines the available evidence on the effect of incentives on reading in school and public library programs for elementary and secondary students. It was concluded that there is no clear causal relationship in any of the studies conducted so far between the use of rewards and an improvement in reading attitudes, achievement, or habits. Implications for instruction are discussed.

Politicians, business leaders, and educators have all advocated using incentives to motivate children to read more. Pizza Hut and the U.S. Department of Education, for example, teamed up to offer a nationwide reading incentive program (Kohn, 1995), and dozens of public libraries run their own summer reading reward programs. Fantuzzo, Rohrbeck, Hightower, and Work (1991, cited in Kohn, 1993) report that 81% of the elementary school teachers they surveyed use incentives in their classrooms to improve reading. Despite the popularity of such programs, there has been no systematic review of the evidence on the effect of rewards on reading achievement, habits, or attitudes. The purpose of this study was to examine the theoretical basis and available empirical research on the effectiveness of reading incentives in school and library-based programs for elementary and secondary students.

THEORETICAL RATIONALE FOR EXTRINSIC REWARDS

What is perhaps most notable about the theoretical rationale of practitioners and researchers for using rewards in reading programs is its absence; research on incentive use in reading rarely contains any theoretical basis for the practice, apparently assuming that it needs no justification. Kohn (1993), however, has identified what he believes to be one of the most common beliefs which underlie these reward programs in education, what he labels the "bait and switch" rationale, or what we may also call the "Jump-Start" argument: Rewards will induce

students to read more, which will in turn expose them to the joys of reading and make them want to read for its own sake.

Motivation in learning has been analyzed from biological, behavioral, cognitive, and social perspectives (Geen, Beatty, & Arkin, 1984) in the field of psychology, and reading researchers have often used a combination of these elements in formulating models of reading motivation (see Gambrell, 1995, for a review). The logic of the Jump Start argument seems most closely aligned to the notions of internal and extrinsic motivation as formulated by cognitive psychologists, and detailed in the cognitive evaluation theory of Deci and Ryan (1985). For this reason, the effects of rewards on reading behavior and attitudes were considered in this paper in light of the cognitive evaluation framework.

In order to understand and evaluate this rationale, basic principles of earlier behavioral theory were reviewed. In the classic operant conditioning model, it was held that performance of a task could be controlled through the use of reinforcers, or external rewards, which would cause an organism to increase its level of performance of a given task (Skinner, 1953). Once reinforcement (the external reward) is removed, the response (performance) will eventually return to pre-reinforcement levels, known as the "baseline." Some psychologists later noted, however, that there appeared to be certain behaviors that were not predictable based on this model of performance, nor which could be explained by the basic "drives" postulated by other parts of behaviorist theory (Geen, Beatty, & Arkin, 1984).

Beginning in the 1960s, it was instead proposed that in addition to response to extrinsic stimuli, organisms possessed intrinsic motivation, "innate . . . needs for competence and self-determination" which functioned as energizers and initiators of behaviors (Deci & Ryan, 1985, p. 32). When people are intrinsically motivated, according to this view, they will engage in an activity without any external reward contingency or control. Deci and Ryan state that intrinsic motivation consists principally of two elements: self-determination or "perceived locus of causality," one's sense of volition and choice relative to the task at hand; and perceived competence, one's sense of capacity to perform the task. The greater one's perceived competence of performance within the context of self-determined action, the higher one's intrinsic motivation to perform the task. Conversely, anything which lowers one's perceived competence or self-determination will subsequently lower intrinsic motivation.

Events which initiate or regulate performance of a task, such as an external reward, can affect perceived competence and self-determination, and hence intrinsic motivation. Deci and Ryan (1985) identified three possible consequences of events associated with task performance. Informational effects increase intrinsic motivation by allowing one to increase perceived competence and self-determination; controlling effects decrease intrinsic motivation by limiting self-determination and undermining perceived competence; and amotivational effects decrease

intrinsic motivation by changing the locus of causality from internal to external and decreasing perceived competence.[1]

Since proponents of rewards believe that the use of incentives will have long-term benefits for the receiver, their position seems to be that rewards have informational effects, and hence will lead both during and after their administration to an increase in intrinsic motivation to engage in a task. However, experimental research does not support this hypothesis. In their reviews of the literature, Deci and Ryan (1985, 1992) concluded that perception of choice and positive feedback tend to have informational effects on a person, and hence increase intrinsic motivation. Rewards, on the other hand, usually have controlling effects, and hence decrease intrinsic motivation. Studies conducted on the use of various rewards (food, prizes, awards, avoidance of punishment, and tokens) related to a number of non-reading tasks with subjects of different ages have consistently found that external incentives lead to lower intrinsic motivation to perform the task once the reward is removed, whether it is initially appealing to the subject or not (e.g. Deci, 1971; Lepper, Greene, & Nisbett, 1973; Greene, Sternberg, & Lepper, 1976; Harackiewicz, 1979). The same is true of punishment and surveillance which, like rewards, lead to an external perception of causality (Lepper & Greene, 1975; Amabile, DeJong, & Lepper, 1976). The negative effects of rewards are particularly strong, Deci and Ryan note, when the external motivator is anticipated before the activity and made salient—both conditions typical of reading incentive programs.

Rewards can also negatively affect the performance of the task and can have long-term consequences. Schwartz (1982) found that subjects performed experimental tasks in fundamentally different ways—usually less efficiently—when incentives were used than when they were not. Moreover, the effects of the decreased intrinsic motivation caused by the rewards carried over into later settings when the rewards were not present. According to Schwartz, these negative effects of rewards can "linger" on even after incentives are removed and the subjects are supposed to enjoy the activity for its own sake. Similar findings on the negative impact of rewards on performance are reported by McGraw (1978), whose review found that incentives had detrimental effects on tasks of concept attainment, insight learning, creativity, and incidental recall, and were effective only on repetitious, uncomplicated tasks (marble dropping, level pressing, and letter canceling, for example) (p. 40).

A further complication in using incentives to spur more reading lies in the assumption of reward programs that reading is inherently an unattractive or "low

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[1]Some researchers have suggested that locus of causality, indeed the entire distinction of intrinsic/extrinsic motivation, consists of a continuum rather than a strict dichotomy (Ryan, Connell, & Grolnick, 1992). This does not, however, invalidate the basic thrust of the research discussed here, predicated on the notion that two types of motivation exist which can be measured and which can be affected by external rewards.

probability" activity for most children (Schwartz, 1982). There is a great deal of evidence to suggest that when children are given access to positive models of literacy (read aloud to at home or school, for example) and have a good supply of books available, they read more and find it more enjoyable than when such conditions are absent (see Krashen, 1993, 1994, for a review). By extension, then, any examination of the effects of rewards on reading must take into account the presence or absence of such factors as potentially confounding variables in determining whether the incentives themselves are effective in promoting more reading among children.

EMPIRICAL RESEARCH EVIDENCE ON READING REWARDS

Methods and Data Sources

Ten studies on reading incentives were located after a search of three database systems: ERIC (1966–1994), PSYCHINFO (1984–1994), and Dissertation Abstracts International (1900–1994).[2] The bibliographies of all studies were also reviewed for any additional unabstracted sources, but no additional studies were found. Studies were identified that involved the use of incentives for elementary or secondary students with the aim of promoting one or more of the following areas: reading proficiency, habits, and attitudes. A statistical meta-analysis of the results was not possible due to insufficient information reported to determine effect sizes in nearly every study. For the purpose of discussion, studies have been divided into two parts: those which showed a positive effect for incentives (Table 1), and those which did not (Table 2). Table 3 lists a portion of the raw data from those studies that provided such information.[3]

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[2]One unpublished doctoral dissertation located in Dissertations Abstracts International on the issue was not available to the author for this review.

[3]I excluded three studies (Feldmann & Blom, 1981; Meyer & Dyck, 1986; and Schraw, Potenza, & Bevelsick-Gullet, 1993) on incentives and reading from analysis because they deal with the short-term effects of rewards on test performance, not on changes in reading comprehension or reading habits.

A fourth study (Griffith, DeLoach, & LaBarba, 1984) was excluded because the entire treatment and measurement period was less than 20 minutes, and therefore significantly different than typical uses of reading rewards. Even so, the results of the investigation are worthy of comment. The researchers had three treatment groups: those promised a reward by a familiar figure to the student (teacher), those promised a reward by an unfamiliar person (investigator), and a group promised no rewards. After being asked to read a short passage from a self-selected book and to give their opinion of it, the students were then left alone for 10 minutes at a table with the book, a crossword puzzle, and another game. Those rewarded by a familiar figure spent significantly less time reading the book on their own than the no-reward group. Those rewarded by an unfamiliar figure, on the other hand, spent significantly more time reading than the no-reward students. Incentives only seem to work in combination with the novelty of an unfamiliar rewarder, a situation which of course is unlike that of either school or family, and impossible to sustain in any setting.

Table 1

Studies on the effects of incentives on reading: Positive findings

Study	Subjects/Length	Treatment	Measures	Results
Harop & McCann, 1983	5th graders (n = 46) 5 months	E: Letter to parents if performing well in reading C: No letters sent	Reading Comprehension (RC)(WSRT)	E: superior
Voorhees, 1993	6th & 7th graders (n = 75) 3 months	E: Certificates & small prizes, SSR, read-alouds, book share C: No controls	Number of books read Time spent reading (Self-Report)	Increase in both books read, time spent reading (no statistical measure)
Christmas, 1993	2nd graders (n = 70) 1 year	E: Free books to students whose parents read aloud to them daily; read-alouds in class C: no read-alouds	RC Vocabulary Word Recognition (SDRT)	Increases in all 3 measures over previous year's 2nd grade scores (served control group)
IAE, 1993	1st–9th graders (N = 10, 124) 1 year	E: Points for passing tests on books read C: No controls	RC (Various standardized tests)*	Increases at all grade levels, but lower gains in higher grades
Peak & Dewalt, 1994	3rd–8th graders (single cohort, N = 100)	E: Points for passing tests on books read C: Traditional language arts	RC (CAT)	E: superior

E = Experimental group receiving incentive WSRT = Wide Span Reading Teat
C = Control or comparison group SDRT = Stanford Diagnostic Reading Test
SSR = Sustained silent reading time CAT = California Achievement Test
IAE = Institute of Academic Excellence
*The study states that "12 different standardized tests" were used in the 136 participating schools. Pre- and post-treatment percentile scores were used to calculate gains.

Table 2

Studies on the effects of incentives on reading: Negative findings

Study	Subjects/Length	Treatment	Measures	Results
Niemeyer, 1987/1988	3rd & 5th graders (n = 235) 4 months	E: Prizes awarded for books read C: No prizes	RC (MAT) Time spent reading (Self-Report Survey)	No differences between E & C; No gains
Adler, 1989	6th graders (N = 245) 5 months	E: Pizza Hut certificates for boks completed in SSR time C: SSR time, no rewards	RC (Gates-MacGinitie Reading Test) Test 2nd edition	No difference between E and C
Robbins & Thompson, 1989	1st–3rd graders (n = 44) 3 months (summer)	E: Points which could be traded in for various prizes (e.g. ice cream, pencils, hot dogs) C: No controls	RC Vocabulary (CAT)	No significant gains
Robbins & Thompson, 1991	1st–6th graders (n = 176) 3 months (summer)	E: Points which could be traded in for prizes C: No points	RC Vocabulary (CAT)	No difference between E and C; both gained in vocabulary
Carver, 1995	3rd–5th graders (N = 43) 6 weeks	E: Prizes for passing tests on books read C: No controls	Vocabulary (RLT)	No gains

E = Experimental group receiving incentive
C = Control or comparison group
SSR = Sustained silent reading time
CAT = California Achievement Test
RLT = Rate Level Test (grade level)
MAT = Metropolitan Achievement

Studies with Positive Effects for Incentives

Five studies found positive effects for incentives on reading. The first listed in Table 1, Harrop & McCann (1983), involved an experiment in which fifth graders were promised a letter home to their parents if they showed "good" progress in their English classes during the five-month treatment period. The control group received no letters or other rewards. The gains made by the experimental group on a standardized reading test, as shown in Table 3, are not particularly large (around 3%). The study contains two problems which render even these mildly positive findings questionable. First, the same teacher taught both the experimental and control groups from the same grade level at the same school. There is thus a chance that students in the control group knew about the experimental students getting rewards that they themselves were not receiving, very possibly leading to a "demoralizing effect" on the control group (what Campbell and Stanley (1966) refer to as "reactive arrangements"). There was no indication the researchers controlled for this problem.

Second, in determining if the incentives had an effect on reading scores, the researchers ran two separate t-tests of significance on the reading comprehension scores; one for the experimental group, which proved significant, and one for the control group, which did not. As Campbell and Stanley point out, this is not the advised statistical procedure for this type of experimental design, since it often leads to a Type I error (accepting the hypothesis that there is a difference between the two groups when none exists). Instead, proper analysis would call for a computation of the gains that each group made and then a t-test comparison of those gains. Failure to conduct a proper statistical analysis makes their finding of superior performance by the experimental group suspect.

The four other studies which showed some gains for the use of incentives all had confounding factors which provide plausible alternative explanations for their results. Voorhees (1993) used a combination of read alouds, sustained silent reading (SSR) time, an after school book club, and "certificates, ribbons, and prizes" for a group of 75 sixth and seventh graders over a 12-week period (p. 32). No control group was used. Students maintained a reading log to keep track of the number of books read during the three months. Pre- and post-treatment self-report surveys revealed that students made gains both on the number of books they normally read per week as well as the time they spent on free reading. However, as noted previously, the other treatments used with the experimental group—sustained silent reading and the read alouds by teachers and parents—have both been shown to be very successful in increasing reading comprehension, vocabulary acquisition, and the amount of reading done by students independent of any external incentives (Krashen, 1993). There is therefore good reason to believe that these treatments may be responsible for the gains reported. The point, then, is not whether children improved their reading with the use of incentives, but whether they improved more than they would have without incentives.

The third study by Christmas (1993) suffers from similarly confounding variables. A school with students from primarily low socioeconomic status back-

Table 3

Gains and losses in reading tests from studies which provided raw data

Study	Measure	Group	Pretest	Posttest	Gain/Loss
Harrop & McCann, 1983	Wide-Span Reading Test (RC) (raw scores)	E:	106.96	110.43	+3.47*
		C:	100.78	101.20	+0.42
Christmas, 1993 (Post-test only design)	SDRT:	E:			
	Vocabulary			45.3	
	RC			40.1	
	Word Recog.			42.5	
		C:			
	Vocabulary			32.7	
	RC			27.4	
	Word Recog.			29.6	
Peak & Dewalt, 1994		E:			
	CAT: Total Reading		715.6	788.0	+72.4
		C:			
	CAT: Total Reading		724.3	766.0	+41.7
Niemeyer, 1987/1988		E:			
	MAT: Total Reading		113.99	109.50	–4.49
		C:			
	MAT: Total Reading		110.39	104.54	–5.85
Robbins & Thompson, 1989 (Grades 1–3)		E:			
	CAT: Total Reading		67.0	73.5	+6.5
	Vocabulary		61.5	70.5	+9.0
	RC		66.0	74.0	+8.0

grounds instituted an aggressive campaign which included encouraging parents to read aloud daily to their children, having teachers read aloud daily in their classrooms, starting an afterschool book club, and promoting reading in the school newsletter and PTA meetings. For the incentive portion of the program, the school gave students free books each month when their parents certified that they read aloud each day to their child. The investigator compared the end-of-school-year scores from a standardized reading test of 70 second graders to the scores of the previous year's cohort of second graders. The experimental group's scores were higher for all measures, but, as in the case of Vorhees's study, it is difficult to know to what extent the incentives played a role in the increased scores since the other treatments are also likely to have contributed to higher reading scores.

Table 3
(Continued)
Gains and losses in reading tests from studies which provided raw data

Study	Measure	Group	Pretest	Posttest	Gain/Loss
Robbins & Thompson,* 1991 (Grades 1–6)		E:			
	CAT: Total Reading		64.0	62.7	–1.3
	Vocabulary		63.0	65.2	+2.3*
	RC		63.2	59.5	–3.7
		C:			
	Total Reading		60.0	61.8	+1.8
	Vocabulary		54.3	65.9	+11.6*
	RC		64.3	56.6	–7.7
Carver, 1995		E-1			
	RLT/Vocabulary		4.8	4.9	+0.1
		E-2			
	RLT/Vocabulary		5.2	5.1	–0.1

E = Experimental group receiving incentives
RC = Reaidng Comprehnsion
CAT = California Achievement Test (mean percentiles, except Peak & Dewalt, which shows raw scores)
SDRT = Stanford Diagnostic Reading Test (mean percnetiles)
MAT = Metropolitan achievement Test
C = Control or comparison group
RLT = Rate Level test (grade level scores)
* = statistically significant

The Institute for Academic Excellence (IEA) (1993) study, conducted with a very large sample (10,000 students), used an incentive plan in cooperation with a commercial computer testing program called "Accelerated Reader." Students were tested on each book they read and received points depending on the difficulty of the book and their test score. The results appear impressive: positive correlations between the amount of points students earned in the program and gain scores on standardized tests, with young children of "low reading ability" improving a little more than 2 grade levels for every 100 points earned reading. The gains were less at the upper grades, with fifth graders gaining only .5 years per 100 points earned. (On average, Accelerated Reader estimates that students need to read 1/2 to 1 hour per day for an entire school year to earn 100 points.) As Krashen (1995) points out, however, self-selected or free voluntary reading (FVR) programs with no incentives do well at both lower and upper grades, with equally impressive results. Cyrog (1962, cited in Krashen, 1988), for example, found that students in a no-reward FVR program performed better than district norms by the same or greater margins up through grade 6, with no decline in

effectiveness as children got older. In addition, the Accelerated Reader study had no control group, so we do not know if simply reading good books would have produce the same results, as is the case in FVR studies (Krashen, 1993).

Peak and Dewalt (1994) findings are, like those of Vorhees and Christmas, difficult to interpret given the other potentially confounding factors present. The researchers studied the effect of rewards on the reading scores of ninth graders from two separate but demographically similar high schools. The experimental group (N = 50) used the same computer program employed in the IEA study over a period of five years; the control group (N = 50) had no incentive program. Students in the experimental group outperformed the controls in standardized reading achievement tests during every year evaluated (3rd, 5th, and 8th grade), and reported spending more hours reading per week in the ninth grade (five to six hours) than the controls (two to three hours). It appears, however, that the experimental group had greater access to books than the control group due to the use of the books which accompanied the computer management system. The availability of books is associated with greater amounts of reading by students (Heyns, 1978; Houle & Montmarquette, 1984), which alone could have accounted for the differences in test scores over the period studied.

Studies with Negative Findings for Incentives

Five studies found no significant advantage for the use of incentives, as shown in Table 2. Niemeyer (1987/1988) showed slight losses in reading achievement as measured by standardized tests (CTBS) for both the experimental and control groups in an incentive program conducted in two California schools. In her study of 235 third and fifth graders, Niemeyer found that a four-month program of giving prizes to experimental students based on the number of pages read produced no pre- to post-test gains in either reading comprehension or the amount of self-reported pleasure reading.

Adler's study (1989) was the only study among those reviewed here to isolate the use of reading incentives in such a way that the total sample was not self-selected, the control group was unlikely to have been demoralized with knowledge of the experimental group treatment, and there were no confounding factors which could have provided another likely explanation for the results. A five-month experiment was conducted with two groups of sixth graders in separate elementary schools, a total of 245 students. The experimental group used sustained silent reading for a total of 40 minutes per week and the Pizza Hut "Book-it!" program in which students received one free pizza for every 250 pages they read. The control group used only the SSR program. The study found no difference on a standardized reading test between the rewards and no rewards groups at the end of the treatment, both showing "small growth gains" from pre-test to post-test (p. 3).

Robbins and Thompson (1989), using no control or comparison group, found no significant gains in standardized reading tests (ITBS) after a three month summer reading program in Indianapolis for 44 first, second, and third graders.

Students earned points for small prizes over the summer vacation through their local public library for each book they read. In a larger study conducted two years later (Robbins & Thompson, 1991), 176 first through sixth graders participated in a similar three month incentive program conducted by the Indianapolis public libraries. A small control group of students (only 12 students) who did not participate in the reward program was used to compare the gains made in reading by the experimental group. Three measures of reading (vocabulary, reading comprehension, and a combined score ["total reading"]) were obtained for students in each of the six grades, and for those in the multi-grade control group. Both experimental and control groups made significant gains in vocabulary, but there were no differences between the two.

It should be noted that the gains found in vocabulary (see Table 3) could be attributable to normal growth in reading by the particular children involved, most of whom were already motivated readers from print-rich environments. Almost two-thirds of the children in the experimental group rated themselves as "good readers," came predominantly from families whose parents read aloud to them on a regular basis, visited the library often (68% going at least once a week, with half of those going two to three times a week), and were regular pleasure readers (63% read at least four times a week, with a third reporting they read every day). There was also present a serious self-selection bias among those who participated in the testing, very likely consisting almost entirely of a highly motivated group of readers.[4]

What is most interesting about Robbins and Thompson's 1991 study is that the children in the fifth grade group actually did significantly worse in the post-test reading comprehension scores. Similar declines in test scores were found in almost half (8/18) of the measures from the experimental groups and in one of the three measures used in the control group, although the drops did not reach statistical significance and may have been due to regression effects. Robbins and Thompson also found no relationship between the amount of incentive points earned and reading post-test scores.

Carver and Liebert's (1995) study found that after a six-week, in-library summer program where incentives were used generously to motivate students to read (60 Pizza Hut pizzas, free tacos, free ice cream cones, and over 300 other fast food coupons for only 42 students!) that students made no gains in a 100 word, standardized test of vocabulary, even when measured two months after the program had ended. The program also severely limited students as to which books they could read, allowing them to select only from a small collection of relatively easy books, which may have negatively affected their results.

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[4]The researchers note that "it proved difficult to attract a large number of children to take a reading test during the summer" (p. 13), despite the incentive of 100 free incentive points. The median number of points earned by the children for reading books was 397.5, making the 100 point incentive a considerable one within the scope of the program.

DISCUSSION

None of the studies, then, showed any clearly positive effect on reading comprehension, vocabulary, or reading habits that could be attributed solely to the use of rewards and incentives, and in one case the practice may have led to a decline. Supporters of incentives could argue, of course, that the programs did not have a long enough chance to work, that perhaps three to five months is too short a time to see a difference.

It is important to note that only one study (Carver & Liebert, 1995) looked at the long-term effects of incentives (that is, after the incentives have been removed), an important part of any examination of external rewards. If the 'jump-start' is to work, we should know if the engine is still running a few miles down the road. As noted previously, however, there are several studies on non-reading tasks which have found that interest in and subsequent performance of a task consistently declined after the incentive had been removed (see also Kohn, 1993, for a review). The internal motivation that is suppose to "kick in" doesn't; instead, the external rewards in effect short-circuit the motor. Rewarding children to read may therefore lead to less reading in the long run, not more. Schwartz (1982) cites one example of these controlling effects of incentives on reading motivation. In a classroom where children received rewards for each book they read, he notes that

> the rate of book reading increased astronomically . . . But the (reward) system had other effects. It changed the pattern of book selection (short books with large print became ideal). It also seemed to change the way children read. They were often unable to answer straightforward questions about a book, even one they had just finished reading. Finally, it decreased the amount of reading children did outside of school. (p. 53)

Nearly identical results were found in Carver and Liebert's (1995) in-library program. They noted that "some students were not reading because they were not even looking at the books . . . some students were at the book tables supposedly looking for a book but were not seriously engaged in this task . . . and . . . some students were reading only very short books and getting lots of prizes compared to the students who were reading long books" (p. 35). To correct for the last problem, the investigators tied the number of prizes received to the length of the book, but did not indicate that any of the other problems diminished in severity.

IMPLICATIONS AND FUTURE RESEARCH

The studies conducted so far on reading incentives provide no counter-evidence to the general findings of Deci and Ryan cited earlier on the effects of external rewards. Given several of the studies' poor design and reporting, however (lack of control groups, confounding variables, incorrect statistical tests), this is clearly an area where more rigorous experimental design is needed. In the meantime, practitioners need to be cautious about endorsing the use of incentives to encourage reading. Evidence from other areas of educational psychology do not support their use.

Several studies (Lance, Welborn, & Hamilton-Pennell, 1993; Krashen, 1993; McQuillan, 1996) show that better libraries lead to more reading and higher test scores. As Krashen (1993) points out, when children have access to books, a quiet comfortable place to read them, and see others enjoying reading, they will read. The problem in many schools and communities is that the book shelves are barren or full of old and out-of-date books, and the libraries hours are restricted (Pucci, 1994). Devoting money to books rather than rewards might prove more beneficial in promoting reading among children.

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