Rewards for reading: their effects on reading motivation

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Abstract

In recent years, many Taiwanese elementary schools have implemented extensive reading activities in their respective campuses. In order to motivate pupils to read, teachers and parents would offer pupils contingent rewards. As we know, the use of rewards in educational settings as a way to improve motivation is a controversial issue. Previous studies on rewards, mostly conducted in controlled situations, have recognized that the effects of a reward depend on the types of rewards used, the reward expectancy, the reward contingency, and the attributions made for receiving the reward. The purpose of this study is to realize the predictive model of rewards and identified the reward predictors for reading motivation. The survey participants were 722 pupils from five elementary schools in southern Taiwan. Using a longitudinal design, it collected pupils' reward experiences in extensive reading activities as well as their pre-reward and post-reward reading motivation. Simultaneous and longitudinal regression analyses indicated that the predictive model of rewards could explain the variances of intrinsic, extrinsic, and global reading motivation, even when including the effects of previous motivation. "Intangible rewards" and "effort attributions" positively predicted intrinsic reading motivation, extrinsic reading motivation, and global reading motivation; whereas "luck attribution" negatively predicted intrinsic reading motivation.

Keywords: rewards, reading motivation, pupils

Background

Taiwanese elementary schools acknowledge the importance of reading, and many of them have implemented extensive reading activities in their respective campuses. To help pupils engage in and stick to these activities, teachers and parents frequently provide rewards for reading, including praise, but also tangible rewards such as certificates, gifts, and special privileges. For example, a pupil may receive a reading certificate and a corresponding gift from the teacher when he/she has completed a designated amount of reading. The question is whether these rewards are effective.

According to reinforcement theory, rewards serve as reinforcers to increase the possibilities of desired behaviors. While they appear to be effective, the use of rewards and incentives in educational settings has generated considerable controversy (Cameron, Pierce, Banko, & Gear, 2005). Some researchers argue that once the rewards are no longer available, students' intrinsic motivation is undermined (e.g. Lepper & Greene, 1975; Lepper, Greene, & Nisbett, 1973; Deci, Koestner & Ryan, 1999, 2001). Others claim that any negative effect associated with the use of rewards is uncommon, and found only in isolated situations where other factors are also at work to counteract their effectiveness. According to these findings, rewards can increase not only performance, but also a student's intrinsic motivation when used properly (e.g. Cameron, 2001; Cameron & Pierce, 1994; Pierce, Cameron, Banko, & So, 2003).

Previous studies on the use of rewards have recognized that the type of reward, the reward contingency, the expectancy of a reward, and the attributions made for receiving a reward, all contribute to the effectiveness of the reward itself (Cameron & Pierce, 1994; Cameron, Pierce, Banko, & Gear, 2005; Chance, 1992, 1993; Deci, Koestner, & Ryan, 2001; Eisenberger, Rhoades, & Cameron, 1999; Rosenfield, Folger, & Adelman, 1980; Tang & Hall, 1995). These findings are primarily derived from experimental research. The significance of these reward variables needs to be investigated in realistic situations.

This study examined the process whereby rewards for reading are given in school settings. With a longitudinal design, it surveyed the reward experiences of elementary school students' in extensive reading activities and collected information on their pre-reward and post-reward reading motivation. Specifically, it examined the following: the various kinds of rewards that are given; the reward contingency (the basis on which rewards are given); the expectancy of rewards (whether or not students are informed about rewards); and the reward attributions (the attributions made for receiving the rewards). Meanwhile, intrinsic, extrinsic, and global reading motivations were examined. Since many previous studies had indicated that Taiwanese elementary school students' reading motivation varied according to sex (Lee, 2002; Lee, 2007; Huang, 2002) and grade (Chen, 2002; Huang, 2002; Tsai, 2004), these two background variables were controlled in this study.

Purpose

The purpose of this study was twofold, (1) to combine the reward variables as a predictive model and realize its effects on pupils' reading motivation, and (2) to identify the predictive reward variables for reading motivation.

Methodology

Participants

The survey participants were 722 pupils (340 boys, 382 girls) from 30 classes in five

elementary schools in southern Taiwan. There were 248 2nd graders, 244 4th graders, and 230 6th graders.

Instruments

1) The Elementary School Students' Reward Experience Questionnaire

This questionnaire was developed by the researchers. It was divided into two parts. The first part focused on rewards for reading that were received in this semester. Thirty items were used to collect information on the reward type (tangible, intangible), reward contingency (task-contingent reward, performance-contingent reward, success- contingent reward), and reward expectancy. Cronbach's α for the reward type, reward contingency, and reward expectancy were .82, .89, and .75, respectively. Their re-test reliability coefficients were .68, .73, and .55, respectively.

The second part of the questionnaire considered the reward attribution scale, which contained fourteen items aimed to collect information on pupil's attributions for receiving these rewards. Four factors (ability, effort, luck, task difficulty) extracted from it could explain 62.3% variances of the scale. Cronbach's α was .83 and the re-test reliability coefficient was .76 for this scale.

2) The Elementary School Students' Reading Motivation Scale

This scale was developed by Lai (2005). The dimensions in this scale were derived from the Motivations for Reading Questionnaire (Wigfield, Guthrie, & McGough, 1996). There were two factors extracted from this scale named "intrinsic reading motivation" and "extrinsic reading motivation." These two factors could explain 40.3% variances of the scale. Cronbach's α for intrinsic reading motivation and extrinsic reading motivation were .93 and .89, respectively.

Procedures

This study used a longitudinal design. The Motivations for Reading Questionnaire was first conducted in sample classes to determine the pre-reward learning motivation of students during the first two weeks of the semester. At the end of the semester, this questionnaire was conducted again to determine the post-reward learning motivation of students in the same classes during the last two weeks of the semester. At the same time, the Elementary School Students' Reward Experience Questionnaire was conducted to collect information on pupil's reward experiences and attributions.

Data analysis

Simultaneous and longitudinal multiple regression analysis was used. The statistical tests were conducted by using SPSS Version 15.01 for Windows.

Results

Table 1 indicates the results of simultaneous regression analyses. As expected, sex and grade had a predictive effect on intrinsic, extrinsic, and global reading motivation. After combing the multiple reward variables, sex and grade still had significant predictive effects on intrinsic, extrinsic, and global reading motivation. Consistent with previous reading studies, girls were more motivated in reading than boys, and students in higher grades displayed less motivation than those in the lower grades.

By isolating sex and grade, it demonstrated that intangible reward and effort attribution were two variables that had a positive predictive influence on intrinsic, extrinsic, and global reading motivation. The presence of a tangible reward had a positive predictive influence on extrinsic motivation, and luck attribution had a negative predictive influence on intrinsic reading motivation. Other reward variables including reward expectancy, ability attribution, task difficulty attribution, and various contingencies, had no significant predictive effects on reading motivation.

The predictive model of controlled variables could explain the variances of intrinsic, extrinsic, and global reading motivation about 4%, 6%, and 6%, respectively. Combining with reward variables, the predictive model could explain the variances of intrinsic, extrinsic, and global reading motivation about 44%, 47%, and 49%, respectively. This means that by controlling for sex and grade, ten reward variables could explain about 40% variances of intrinsic, extrinsic, and global reading motivation.

To further examine the casual predictive power of this model, we included the pre-reward reading motivation as a controlled variable. Table 2 shows the results of longitudinal regression analyses. After controlling the pre-reward reading motivation, sex and grade were no longer predictors on reading motivation, except for grade on global reading motivation. As the results of simultaneous analyses indicate, intangible reward and effort attribution are two reward variables that have a positive predictive effect on intrinsic, extrinsic, and global reading motivation. Meanwhile, luck attribution predicts intrinsic reading motivation negatively. In contrast to the results of simultaneous analyses, longitudinal studies indicate that tangible rewards have no predictive effect on extrinsic reading motivation. From the longitudinal perspective, only intangible reward, effort attribution, and luck attribution have predictive effects on reading motivation.

The predictive model, combined with pre-reward reading motivation, sex, grade and ten reward variables, could explain the variances of intrinsic, extrinsic, and global reading motivation about 58%, 59%, and 62%, respectively. We also found that by controlling for pre-reward reading motivation, sex, and grade, the ten reward variables could explain approximately 15% variances of intrinsic, extrinsic, and global reading motivation.

To sum up, the effects of rewards on reading motivation were as follows: (1) after controlling for sex and grade, combined reward variables significantly improved the prediction of post-reward intrinsic reading motivation, extrinsic reading motivation, and global reading motivation; (2) after controlling for pre-reward reading motivation, sex, and grade, combined reward variables significantly improved the prediction of post-reward intrinsic reading motivation, extrinsic reading motivation, and global reading motivation; (3) “intangible reward” and “effort attribution” positively predicted intrinsic reading motivation, extrinsic reading motivation, and global reading motivation; in contrast, “luck attribution” negatively predicted intrinsic reading motivation.

Table 1 Simultaneous predictive model of post-reward reading motivation

	Variables	Intrinsic reading motivation		Extrinsic reading motivation		Global reading motivation	
		B (β)		B (β)		B (β)	
Controlled variables	Sex (female vs. male)	-4.51 (-.15)***	-2.83 (-.10)**	-2.47 (-.12)**	-1.35 (-.07)*	-6.98 (-.15)***	-4.17 (-.09)**
	Grade (sixth vs. fourth)	3.41 (.11)*	2.63 (.09)*	3.54 (.16)***	2.75 (.13)***	6.95 (.14)**	5.38 (.11)**
	Grade (sixth vs. second)	5.84 (.19)***	1.46 (.05)	5.83 (.27)***	1.91 (.09)**	11.66 (.24)***	3.36 (.07)*
Predictive variables (reward variables)	Intangible reward		1.16 (.23)***		.86 (.24)***		2.03 (.24)***
	Tangible reward		.13 (.04)		.22 (.09)*		.35 (.07)
	Reward Expectancy		-.28 (-.08)		.04 (.01)		-.25 (-.04)
	Task-contingent		.35 (.08)		.05 (.02)		.41 (.06)
	Performance-contingent		-.12 (-.03)		.05 (.02)		-.08 (-.01)
	Success-contingent		-.16 (-.04)		-.09 (-.03)		-.25 (-.04)
	Ability attribution		.47 (.08)		.34 (.08)		.82 (.08)
	Effort attribution		1.74 (.46)***		.83 (.31)***		2.57 (.41)***
	Task difficulty attribution		.41 (.06)		.18 (.04)		.59 (.06)
	Luck attribution		-.75 (-.13)**		.13 (.03)		-.62 (-.06)
Variances explained by the model (R^2)		.04	.44	.06	.47	.06	.49
Variances increased by predictive variables ($\triangle R^2$)			.40		.39		.43

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2 Longitudinal predictive model of post-reward reading motivation

Variables		Intrinsic reading motivation	Extrinsic reading motivation	Global reading motivation
		B (β)	B (β)	B (β)
Pre-reward reading motivation		.47 (.44)***	.45 (.41)***	.48 (.44)***
Controlled variables	sex(female vs. male)	-.99 (-.03)	-1.19 (-.03)	-.31 (-.02)
	grade(sixth vs. fourth)	.89 (.03)	2.20 (.04)	1.44 (.07)*
	grade(sixth vs. second)	-.15 (-.01)	.27 (.01)	.54 (.03)
Predictive variables (reward variables)	Intangible reward	.77 (.15)***	1.27 (.15)***	.53 (.15)***
	Tangible reward	.10 (.03)	.25 (.05)	.16 (.07)
	Reward expectancy	-.17 (-.05)	-.17 (-.03)	-.01 (-.01)
	Task-contingent	.19 (.04)	.19 (.03)	.01 (.01)
	Performance-contingent	-.04 (-.01)	.08 (.01)	.11 (.04)
	Success-contingent	-.08 (-.02)	-.13 (-.02)	-.05 (-.02)
	Ability attribution	.20 (.03)	.33 (.03)	.15 (.03)
	Effort attribution	1.19 (.31)***	1.79 (.29)***	.63 (.24)***
	Task difficulty attribution	.34 (.05)	.40 (.04)	.08 (.02)
	Luck attribution	-.48 (-.08)*	-.30 (-.03)	.17 (.04)
Variances explained by the model (R^2)		.58	.59	.62
Variances increased by predictive variables ($\triangle R^2$)		.14	.15	.14

* $p < .05$ *** $p < .001$

Conclusion

This study aimed to realize the effects of rewards in extensive reading activities. It identified the relevant reward variables found in controlled experimental situations and explored their effects on reading motivation. The results showed that the reward process could explain the variances of intrinsic, extrinsic, and global reading motivation, even when including the effects of previous motivation.

It also found that not every reward variable could predict the reading motivation. From a longitudinal perspective, the reward type and the reward attribution are two key processes. Not only did they predict the extrinsic reading motivation, but they also predicted the intrinsic reading motivation. The intangible reward and effort attribution increase both pupils' intrinsic and extrinsic reading motivation positively; however, the luck attribution was disadvantageous to their intrinsic reading motivation. Against our expectations, two relevant reward variables found in previous studies, namely the reward contingency and the expectancy of rewards, could not predict any kind of reading motivation.

Based on these results, we recommended that teachers and parents use rewards judiciously in attempting to motivate pupils to read. To be effective, rewards should be intangible rather than tangible. We also suggested that teachers and parents be aware of the attributions pupils make for receiving rewards. While it seems to go without saying, rewards should be attributed more to effort than to luck.

Some reward variables found relevant in previous studies had no effect on reading motivation in our study. This inconsistency might be attributed to the difference between an experiment that is tightly controlled, and an study conducted in a school setting where pupils are provided with more than one kind of reward and contingency. As it might be expected, the effects of rewards on reading motivation are more complex in a realistic setting. Since there

was no comparable empirical evidence to the study we conducted, we concluded that any inconsistency with previous studies should be regarded as tentative and indicative of the need for further study.

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