

PERCEIVED EFFECT OF THE USE OF REINFORCEMENT ON SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT

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ABSTRACT

This study design is survey type which aimed to examine the perceived effect of the use of reinforcement on students' academic achievement. The researcher used self-developed questionnaire for data collection. The researcher randomly selected 300 students of secondary school level in district Bannu through multi stage cluster sampling technique. Mean, Standard deviation, t-test, Pearson coefficient correlation were used for data analysis. Results showed that positive reinforcement played a positive role in motivation of students towards getting education while students did not feel easy with negative reinforcement. It is suggested that teacher may use all type of positive reinforcement and avoid negative reinforcement during teaching-learning process. This study helps us to gain first-hand information about the effect of reinforcement on students' academic achievement and adds a multiple scale of reinforcement to the existing literature.

Keywords: Reinforcement, Secondary school level, Academic achievement, Correlation

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INTRODUCTION

Ivan Pavlov, a Russian physiologist is the first person who coined the word of reinforcement. He said that an unconditioned stimulus was a likely reinforcer, when combined with some other natural stimulus consist reinforcement. Reinforcement is a great source of motivation by gaining the required results. Reinforcement is identified by the presentation of reward (Wise, 2004).A reinforcer is any specific thing after its presentation increases the possibility that a behavior occurs again and again or behavior becomes strong after removal or minimization of any specific thing or unfavorable situation. For the first time it was Skinner who recognized positive and negative reinforcers as two distinctive types of reinforce (Labrador, 2004).

Positive reinforcement is such type of reinforcement in which a desirable or any agreeable result follows a reaction and makes it possible that the reaction will happen in future as well. Reward system is commonly used in positive reinforcement. Basically the idea of reward is concerned with the cognitive system of human being which attempts to control and adjust behavior by incorporating effects of pleasure. In educational field verbal praises, food, or a favored item (such as a break on a swinger a toy) are used as a reward (Reinke, Merrell, Lewis-Palmer, 2008). This type of reinforcement increases the possibility of behavior that may be occurring again and again(Gazzaniga, 2003).

Awards (certificates, trophies, scholarships)are always a great positive reinforcement to continue to push forward and keep children energetic. You should consider the use of awards and certificates to reward and motivate your children to do well in all aspects of life. If they complete their chores, reward them with a certificate. If they've done well in school, you can give them award for their good grades, too (Mangal, 2007).

The use of praise regularly has great effect on elementary school children and is positively interrelated with self-perceptions of ability among them (Lepper, Corpus&Iyengar, 2005)due to which they feel pride and expected more success in the future. Verbal praises like good, excellent, outstanding, great, awesome inspire students and encourage them for learning (Benedict, Horner, Squires, 2007).

Token economy is a type of such system in which marks as rewards are delivered to students on their educational performance which can be used for modifying students' behaviors. Token Economy like stickers, stars, pictures, smiley faces, money, book and pen as a positive reinforcement persuade children for getting education (Weiner, 1979).

Clapping is a quick way to get the desired results from students while motivating them towards teaching-learning process. Clapping of the teachers revitalize students to show good performance in their school activities (Jordan, 1986). The more positive interpersonal relationships are, the greater the psychological health of the individuals involved through the internalization of positive relationships, direct social support, and expressions of caring (Schultz & Switzky, 1990).

Negative reinforcement is such type of reinforcement in which "something which is unpleasant becomes removed and in turn the desired response becomes occurred". Reward system is used in negative reinforcement because when unfavorable thing is removed then a person is rewarded for a favored behavior (Conroy, Al-Hendawi, 2009). So the removal of such thing is a reward. In educational sphere like the removal of negative feedback and teasing in a class facilitate students greatly (Kazdin, 2001).

Those students who receive low grades in schools make them depressed and feel inferior in the class to their other class fellows. Students with lower grades and higher grades become divided into two groups within a class, results in an environment of inferiority and superiority among the students (Anderman & Maehr, 1994).

Negative feedback means expressing not in positive ways from other after performing any task or a behavior, so it indicates that a change in behavior at that stage is needed to show right behaviors towards objectives (Rashid & Anjum, 2008).

Teacher's conducts negatively when: point out students with undisciplined and rude behaviors to the school principal, or kicked out such students from classroom and make them stay outside the classroom, showing carelessness and considered irresponsible while solving gigantic problems of students has an unpleasant effect on behaviors of students (Diedrich, 2010).

Teasing in a class: Classmate's bullying or teasing have a significant impact on students' academic performance, it cause distraction among children mentality, and disperse their concentration power which cannot focus on schoolwork the whole day in the school. Children's mental health issues, like anxiety and depression are commonly developed due to constant teasing them by their other fallows(Covington, 2000).

It was Pavlov who described the word of reinforcement. He explained its meaning in such way that a relationship among daughter habituated stimuli and its unhabituated parent stimuli became increased due to it. Later on two other psychologists Thorndike and B F Skinner agreed to Pavlov's word of reinforcement which was responsible for increasing the relationship between stimulus and organism response to it. (Wise, 2004)

The phenomenon of reinforcement is the central theme to the theory of operant conditioning which is same to the presentation of reward. Reinforcement is a stimulus which is responsible for increasing the chance of response happening again and again. Skinner used reinforcement as a method through which we can control or modify organism behavior which shows stimulus response connections.(Panda, 2002)

Getting a preferred reward by a person or animal after performing a desired behavior is called positive reinforcement. When someone is encouraged or appreciated for any response toward something, a situation of positive reinforcement occurs. At the other hand when an organism avoids or give up any such behavior which cause unrest, is called negative reinforcement (Iqbal, & Khan, 2011).

If one takes school classroom, where students interact with each other in different activities, during these practices student learn that which type of behavior are useful and which are threatening for them. There are many examples in which a student deliberately delays himself while preparing for physical education to escape him from some of this class period (Infantino & Little, 2005).

Punishment and negative reinforcement are totally different while comparing both of them, because punishment is caused by some unsocial practices, which is both negative and positive. When someone

delivers such practices which are not acceptable to him in response of any behavior, is called punishment, whereas in negative reinforcement, such situation are removed or avoided which cause a threat to the concerned person. It has become proved through experiments that the effect of positive reinforcement is longer than effect of punishment(Fritscher, 2009).

When it is desired to improve children behavior, positive reinforcers are too much effective in this regard. For example, when a student performed good and delivered him a toffee would motivate him towards learning deeply. Thus, toffee is a type of reinforcer while getting good marks in a test is the desire modification in behavior which helps him increasing a desire of good performance in all other school activities (Baranek, 1996).

There are many types of positive reinforcement which includes awards (trophies, certificates, and scholarship), verbal praises (good, great, excellent, awesome, and well done), token economy (stars, stickers, smiles paces, pictures) and clapping and cheering in a class. Negative reinforcement is the removal of any type of stimulus which in turn causes unrest among the children, such as low grade, teacher's criticism, negative feedback and teasing in a class, where as punishment is such type of stimulus which is used for the modification or change in behavior for a time being (Sundberg, Michael, 2001).

Reinforcement theory which is one of the oldest theories of motivation, derived by a behaviorist named B.F. Skinner. This theory widely explains behavior of human being and the way in which we are doing any task and what task we do. In other words the theory is also called as operant conditioning or a behaviorism in the field of psychology. The theory states that "consequences are responsible for individual behaviors or their actions" (Schultz&Switzky, 1990).

Psychologist and economists commonly believe that behavior is formed by its results, which is known as the law of effect. Psychologist believed that animals performed different actions, judges the effects of their actions and tried their best to do such actions which resulted more positively than negatively (Hurtado&Carter, 1996).

According to the theory of motivation, human beings hold themselves in such activities that have positive consequences and shun

such activities that have negative consequences. From this view, the important consequence of a behavior is the information it provides about behavioral outcomes. The effect of the information is to alter policy (Ackeren, 2002)

Many research studies have explored the effects of different variables on students' academic achievement. In Pakistan reinforcement practices and its relationship with the students' academic achievement was paid very little attention. This current study explored this relationship using both public and private secondary school students as participants from the Southern district Bannu of Khyber Pakhtunkhwa, Pakistan.

Objectives of the Study:

1. To identify positive and negative reinforcement, practices at secondary school level in district Bannu.
2. To compare public and private schools on the reinforcement practices at secondary school level.
3. To examine the perceived effect of the reinforcement on students' academic achievement.

Research Questions:

- 1: What types of positive and negative reinforcements are used at secondary school level?
- 2: Do public and private secondary schools differ on the reinforcement practices?
- 3: what is the effect of reinforcement on student's academic achievement?

METHOD

Research Design:

This was a descriptive study using a survey approach. The descriptive studies are basically related with the description of the existing phenomena and making effort to answer the questions. Therefore, exploring reinforcement practices in various schools of both public and private sectors and its effect on student's academic achievement.

Population:

Among provinces of Pakistan, Khyber Pakhtunkhwa is one of the constitutional provinces of Pakistan. Bannu district is situated at the Southern part of Khyber Pakhtunkhwa province. Students of both public and private secondary school of district Bannu constituted population of the study.

Sample:

Nature of the population demanded multistage cluster sampling technique to be used. The process of cluster sampling was of two stages; first, divided population into two clusters (public and private secondary schools); second, selected secondary schools, third, random selection of required number of students from each selected school. Since sampling frame work consisted of 5575 secondary school students. Using L.R. Gay formula for selection of sample, 5% of the accessible population was taken as a sample. 300 secondary school students from ten schools (5 public + 5 private) from each cluster equally 150 students) was randomly selected.

Instrument:

A self-developed questionnaire, measuring the perceived effect of the use of reinforcement on student's academic achievement through a 5- point scale of responses from Not at All to Very Much was used as research tool.

Validity and Reliability:

To find out validity of the instrument, 42 statements were pinpointed. They were arranged logically, and the inventory was given to 10 Research experts, Psychologists and Language Specialists for content validity, in the light of their feedback 10 statements were rejected and Forty-Two statements were accepted for the inventory.

For the purpose of reliability, the instrument was administered to 30 students of the study. Those respondents were not included in actual sample of the study. The data was entered into the SPSS Version 22 in order to calculate Cronbach Alpha value. The Cronbach Alpha value was .78 which was in an acceptable range. The overall score of the

students' academic achievement was obtained from their detailed marks certificates, issued by BISE, Bannu.

Table 1: Perceived effect of the use of reinforcement on students (N=300)

Reinforcement	Mean	SD
Awards	4.04	.80
Verbal praises	3.97	.82
Token economy	3.91	.75
Chapping & cheering	3.90	.75
Low grade	3.37	1.10
Negative feedback	3.38	.98
Teacher's criticism	3.35	.99
Teasing in a class	3.11	.92

The mean score of the effect of rewards on the students was 4.04 and indicated a relatively higher estimate of use in comparison to other positive reinforcement dimensions. All positive reinforcement dimension were in range of "much" (3.51-4.50) while mean score of the effect of teasing in a class on the students was 3.11 and indicated a relatively lower estimate of use in comparison to other negative reinforcement dimensions. All negative reinforcement dimensions were in range of "fair amount" (2.51-3.50) Table 1.

Table 2: Mean comparison between students of public and private schools regarding using positive reinforcement

Reinforcement	School	Mean	SD	t	p
Awards	Public	3.75	.95	6.0	0.00
	Private	4.33	.84		
Verbal Praises	Public	3.67	.95	6.7	0.00
	Private	4.27	.50		

Token Economy	Public	3.65	.86	6.1	0.00
	Private	4.16	.52		
Clapping/Cheering	Public	3.63	.82	6.6	0.00
	Private	4.18		.56	
Positive Reinforcement	Public	3.68	.82	7.4	0.00
	Private	4.23	.41		

Different level of comparisons between public and private schools regarding the perceived effect of the use of positive reinforcement were found. the mean scores of public and private schools students regarding the use of positive reinforcement (all dimensions) in their schools $M=3.68$, $M=4.23$ and $SD=.82$, $SD=.41$ respectively with t value 7.4 and P value .00 which is less than 0.05 level of significance, which means that there is a significant difference between public and private schools students recording using positive reinforcement. The difference is in the favor of private schools regarding using all types of positive reinforcement table 2.

Table 3: Mean comparison between students of public and private schools regarding using negative reinforcement

Reinforcement	School	Mean	SD	t	p
Low Grade	Public	3.01	1.04	6.00	.00
	Private	3.73	1.04		
Negative Feedback	Public	3.11	.99	4.7	.00
	Private	3.64	.91		
Teacher Criticism	Public	3.19	.96	2.6	.00
	Private	3.50	1.00		
Teasing in Class	Public	3.02	.87	1.6	.00
	Private	3.19	.96		
Negative Reinforcement	Public	3.08	.72	5.00	.00
	Private	3.51	.72		

Different level of comparisons between public and private schools regarding the perceived effect of the use of negative reinforcement were found. The mean scores of public and private schools students regarding

the use of negative reinforcement (all dimensions) in their schools with $M=3.08$, $M=3.51$ and $SD=.75$, $SD=.75$ respectively with a t value 5.00 and P -value .00 which is less than 0.05 level of significance, which means that there is a significant difference between public and private schools students recording using negative reinforcement. The difference is in the favor of private schools students regarding the use of all types of negative reinforcement.

Table 4: Correlation between students perceived effect of reinforcement and their academic achievement (N=300)

Types of reinforcement	correlations	sig. (p-value)
Awards	.80	.00
Verbal praises	.76	.00
Token economy	.74	.00
Clapping and cheering	.67	.00
Low grade	.24	.00
Negative feedback	.19	.00
Teacher's criticism	.20	.00
Teasing in a class	.08	.00

*Correlation is significant $p < .05$ (except teasing in a class $p > .05$).

Strong correlation ($r = .80$, $r = .76$, $r = .74$, $r = .67$) was found of awards, verbal praises, token economy, clapping and cheering with students' academic achievement. Significant but weak correlation ($r = .24$, $r = .19$, $r = .20$) was found of low grade, negative feedback, teacher's criticism with students' academic achievement. No correlation was between teasing in class domain and students' academic achievement at .05 level of significance.

DISCUSSION

Finding of the research study clearly showed the answer of the 1st research question (to identify positive and negative reinforcement is used as viewed by secondary school students?) that positive reinforcement (awards, verbal praises, token economy and cheering and chapping) are used in our educational institutions both in public and private sector.

The 2nd part of the same question is found that negative reinforcement is used in both public and private sectors schools as well. Teachers of private schools are accountable to the school owner, and they have to attract more and more students, in case of using negative reinforcement, students don't opt for such schools, which do not go in private schools teachers favor. Most of the teachers have no idea that how to motivate their students towards getting education.

Finding for the 2nd research question (do the public and private secondary schools differ in practicing of reinforcement?) indicated that there is a significant difference between public and private institutions regarding the practices of both types (positive and negative) reinforcement.

Finding of the study showed that awards, token economy as a positive reinforcement are used in private school at secondary level more than public school at the same level, the difference is in the favor of private schools because that private institutions owner sole purpose to attract more and more students, because students love positive for this purpose their qualified teachers, using all such methods which energize students for education as compare the public institution. that is why students of private institutions are showing good academic result, while verbal praises and cheering and chapping as a positive reinforcement are used a little bite more than public schools in our educational institutions. It is a reason behind large enrolment in private institutions and students of private schools are showing good academic results.

Results of this research study indicate that there is also a significant difference between public and private educational institutions regarding negative reinforcement.

It is clear from research study findings that low grade and teacher's criticism as a negative reinforcement are practiced often in public schools at secondary level as compare to public schools, that was why parents preferred private schools instead of public school, because students like positive reinforcement and its affect is long lasting, while negative reinforcement can cause change in behavior but students don't like it and the change occurs in the behavior is also transitory, while negative feedback as a negative reinforcement is used in public schools slightly more than in private schools, thus comparatively students of

private schools are bold than public schools and teasing in a class as a negative reinforcement for some extent same in both sectors schools. Such educational institution where negative reinforcement are practiced, their students are in inferiority complex, become scared and can't feel easy during school hours. They want to leave the school as soon as possible and can't concentrate full heartedly, in result such situation affect their academic achievement.

Finding for the 3rd research question of the study (Is there significant relationship between reinforcement practices and students' academic achievement?) shows that students in both public and private schools at secondary level was got higher marks using positive reinforcement (awards, verbal praises, token economy and chapping and cheering) because it is a source of motivation for them and make them bold and energetic towards their educational goals. While students got less marks in their academic career in those institutions where negative reinforcement was practiced. It was because that negative reinforcement was a constant unseen threat due to which students had frightened and could not concentrate fully during school hours. Thus, negative reinforcement (low grade, negative feedback, teacher's criticism and teasing in a class) affect students' academic achievement.

CONCLUSION

Award as a reinforcer plays a positive role in the motivation of students towards learning process and affect students' academic achievement at large scale. The evidences proved that all types of reinforcers are interconnected and support each other during practices or using among the students. The awards, verbal praises, token economy and chapping and cheering in a class are strong positively correlated, and while low grade, negative feedback and teacher's criticism are weakly correlated. Teasing in a class is not correlated to academic achievement.

APPLICATION

1. School should practice positive reinforcement as much as possible because they cause desirable and quick change in students' behavior and avoid negative reinforcement because it cause unrest among students.

2. Teachers of public schools should be properly trained, through pre-service or in service training, in term of reinforcement practices. So, the gap between private and public schools reinforcement practices may be reduced.
3. Teachers should design such activities and tasks in class which cause positive reinforcement, and reduce negative reinforcement practices.

RECOMMENDATION

As this study was concerned with secondary school level students in district Bannu, KPK; similar studies applying different methods, in different context can be conducted to see the actual effect of the reinforcement practices on students' academic achievement.

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