

Effects of Motivation on Test Performance of First Year Covenant University Students

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Abstract

This study examined the effect of motivation on test performance of first year Covenant University students, Ota, Ogun State. The study adopted pre-test, post-test experimental design. Data for the study were obtained from sixty (60) students with age range between 15 and 18 years (average age = 16.5 years). Participants were randomly assigned to three conditions using independent group design. The independent and dependent variables were motivation and test performance respectively. The two hypotheses were analysed using Mann-Whitney U test. The result shows a significant difference between the result of the unrewarded students in the control group and students rewarded with verbal praise in the experimental group ($U = 61.000$, $N_1 = 20$, $N_2 = 20$, $p < 0.05$, one-tailed). There was also a significant difference between the result of the students rewarded with primary reinforcers and the unrewarded students in the control group ($U = 45.000$, $N_1 = 20$, $N_2 = 20$, $p < 0.05$, one-tailed). This study justifies the importance of motivation on test performance. To improve students' academic performance, teachers are encouraged to motivate their students.

Key words: Teachers, motivation, test performance, Ota

1.0 Introduction

Rewards in whatever form are very important in aiding the process of learning for children and teenagers. Parents, teachers and the significant others have a role to play in children's' reward and motivational level. Educational psychologists have long recognized the importance of motivation for supporting student learning though the use of rewards may either increase or reduce motivation, depending on the timing of the rewards, the type of rewards and the context in which they are given. Motivation as noted by Broussard and Garrison (2004) and Gredler (2001) is the attribute that moves us to do or not to do something. According to Pintrich and Zusho (2002), academic motivation refers to internal processes that instigate and sustain activities aimed at achieving specific academic goals. Self-determination theorists posit that academic motivation is multidimensional in nature, and is comprised of three global types of motivation: intrinsic motivation, extrinsic motivation and amotivation (Deci & Ryan, 2002).

Motivation is a sine qua non for academic achievement especially for children. According to Elliot & Dweck (2005), motivation is a significantly important factor for academic learning and achievement across childhood through adolescence. Researchers have reported severally on the effect of extrinsic (Boekaerts, 2001; Vermeer, Boekaerts & Seegers, 2000) and intrinsic motivation (Bruning & Horn, 2000; Ryan & Deci, 2000) on learning. In the same vein, Linnenbrink and Pintrich (2002) offer a model of the relationship between motivation and cognition that incorporates students' prior achievement, social aspects of the learning setting, motivational variables and cognition. Because children are the future of tomorrow, the goal of the teacher is for the pupils to learn. Learning is a very important life process; at all levels of life we learn one thing or the other. Education over the years has bridge the gap between teaching and learning.

The definition of motivation varies among psychologists. However, there is a consensus in most definitions. Motivation is described as a force that determines behaviour. According to Slavin (2006 as cited by Brown (n.d)), motivation is what gets one going, keeps one going, and determines where one is to go. Motivation is one of the factors that contribute to academic success. As noted by Ehnen & Kauchak (1994), motivation is a force that energizes and directs behaviour toward a goal could certainly be perceived as one of the most important psychological concepts in education. Motivation is generally defined as internal condition that stimulates, direct and maintains behaviour. Several studies have investigated student motivation (Tucker, Zayco and Herman, 2002; Hwang, Echols, and Vrongistinos, 2002) and some of these revealed a strong relationship between learning and motivation (Brophy, 1981 and Elwell & Tiberio, 1994).

In whatever method the teacher will apply in order to make learning easy and fun should not be overlooked. Effective learning involves the competence of the pupil to learn and high standard of performance. Dweck (1986) describes how motivational processes influence a child's acquisition, transfer and use of knowledge and skills. Recent research within the social-cognitive framework illustrates adaptive and maladaptive motivational patterns and a research-based model of motivational processes is presented that shows how the particular performance or learning goals children pursue on cognitive tasks shape their reactions to success and failure and influence the quality of their cognitive performance.

Brophy (1981) reported that praise has been widely recommended as an important reinforcement method for teachers because it can build self-esteem, provide encouragement, and build a close relationship between student and teacher. According to Thomas (1991), praise is a positive reinforcement and a consistent praise encourages desirable behaviour, while extinguishing undesirable behaviour. Thomas (1991) noted that praise could be a motivational tool in the classroom if reinforcement was descriptive and involved using the students' name, choosing appropriate praise words carefully and describing precisely the behaviour that merits the praise. As observed by Blote (1995), teacher praise contains positive affect and is a more intense, detailed response to student behaviour than feedback while Hattie (1993) defined the term feedback as a means to direct students in ways to improve by providing information concerning students' ability or inability to understand. Several studies have investigated the effect of praise on students. One of these was the study by Burnett (2001). Primary school students' preferences for teacher praise and feedback was measured based on Elwell & Tiberio's (1994) Praise Attitude Questionnaire (PAQ), with a sample of 747 students (age ranges from 8–12 years). Results indicated that 91% of students preferred to be praised. Nine (9%) reported that they never wanted praise while 84% preferred to be praised for trying hard or putting in effort, rather than for having good ability (16%).

1.1 Statement of Problem

Typically, manipulation of extrinsic motivation is effected by the provision of rewards, which can be either tangible (e.g., money, grades, privileges, etc.) or intangible (e.g., praise). However, extrinsic motivation can come about by other means but for the purpose of this study, two types of rewards were employed-verbal praise and food tokens. The task of this research is to answer the question: is it possible to increase pupils' interest in a class activity by making it a means to an end rather than an end itself? As noted by Cameron, Banko, & Pierce (2001) and Dickson (1989), if you get praise, money, a high grade, or a trophy for doing a task well or for achieving a certain level of performance, rather than just doing the task, your intrinsic motivation is likely to increase and they asserted that in fact, it will increase. We have observed that extrinsic rewards do play a vital role in motivating pupils to learn and also extrinsic rewards do not weaken the impact of intrinsic ones. This research focuses on enhancing the pupils' learning through reward motivation. Will they learn better and faster when rewarded? Is there any behavioural explanation that extrinsic reinforcement sometimes raises the rate of responding above some optimal enjoyable level?

1.2 Hypotheses

- 1) There will be a significant difference between the results of students rewarded with verbal praise (experimental group 1) and the results of the unrewarded students (control group).
- 2) There will be a significant difference between the results of students rewarded with primary reinforcers (experimental group 2) and the results of the unrewarded students (control group).

2.0 Methods

2.1 Design

The researchers employed the experimental pre-test/post-test designs. The design involves a pre-test given to three independent groups of participants before the experimental manipulation was introduced. The pre-test enabled the researchers to ensure that the groups were in fact equivalent to begin with. After the post-test, the experimental groups were exposed to the experimental conditions and the control group was not, the post-test was thereafter administered to both the experimental and control groups.

2.2 Participants, Setting and Selection

The experiment was carried out at the Department of Psychology laboratory, Covenant University, Ota, Ogun State. The research situation was isolated from what was originally normal (classroom) to enable the researchers examine in greater details, the interplay among the desired variables. The study involved first year undergraduates of Covenant University with age range between 15 and 18 years. The six schools under the two

Colleges of Covenant University were represented. The mean of their Gross Point Average was 3.51. Five males and five females were selected from each school resulting in 60 participants. The experimental group had two levels with 20 participants per level and 20 participants in the control group. All the freshmen were assigned into three groups namely:

1. The experimental condition 1
2. The experimental condition 2 and
3. The control group

After the experiment was conducted, participants were debriefed by explaining the purpose of the study and what results are expected, the practical implications of the results were also discussed. They were later contacted and appreciated for their willingness to participate in the study.

2.3 Instruments

The materials used for this study were designed by the researchers. These include a pre-test and a post-test questionnaire. The pre-test questionnaire had 6 items and informed consent form. The post-test was divided into two sections. Section A had 20 items (participants are required to tick the correct answer) while section B had 6 items which deals with filling in the gaps. Motivation was the independent variable and it was measured on two levels with different groups - the verbal praise and the primary reinforcers (food and drinks). The dependent variable was the test performance which was determined by the post-test administered to the three groups. The difference between the groups on the dependent variable are attributed to the effect of the independent variable (Cozby, 2004) having controlled for age, gender, academic performance and willingness to participate in the study.

2.4 Procedure

This encompasses the fashion in which the experiment was carried out and it involves both the pilot study and the main study.

2.4.1 Pilot Study

The pilot study involved the administration of the drafted questions to twenty students in Covenant University, Ota, Ogun State. They viewed the animal documentary video and were given same questions; they were never a part of the main study. The items were tested to ensure they were not ambiguous and that the wordings and spellings are appropriate and correct to begin with. It was established from the pilot study that the instrument could be used to elicit the desired information needed for the study.

2.4.2 Reliability and Validity

The instrument has content validity and in order to ascertain the reliability of this instrument, an internal consistency using the split half method was conducted by administering the animal documentary once to 20 freshmen students of Covenant University. The correlation yielded a coefficient of 0.81.

2.4.3 Main Study

The study was conducted for a span of about three consecutive hours in the laboratory of the Department of Psychology, Covenant University, Ota, Ogun State. The sixty participants were taken through pre-test at their various hostels where they were requested to fill some data about themselves to enable the researcher assess whether the groups were in fact equivalent to begin with (Cozby, 2004). The participants' responses were scored and recorded.

The purpose of this experiment was to test the effect of the independent variable on the dependent variable. The independent variable (IV) for this research is motivation and the dependent variable (DV) is the test performance. There were two experimental groups with two different treatments and a control group with no treatment. That is three different levels of experimental conditions. The event of learning was a documentary on marsupials by American scientist David Attenborough. Since the participants were representatives of different disciplines, there was need to unify what to learn especially something that has not been learnt before. The documentary was shown for thirty minutes and it was projected on the screen with lights off. For the control

group, there was no treatment at all, that is, they were not given any form of motivation. They came in and watched the documentary and at the end, they were given a post-test which lasted for a period of 20 minutes.

However, each group was not allowed to communicate with one another so that the research will not be contaminated. The second group was the first treatment condition with verbal praises and words of encouragement given to help improve learning before viewing the documentary. After the documentary, they were also given a post-test which lasted for a period of 20 minutes. Finally, the third group which was the second treatment condition with primary reinforcers administered to group members before viewing the documentary. After the documentary, they were also given a post-test which lasted for 20 minutes. With the help of research assistants, there was effective and efficient coordination of the participants of the three groups and conditions, the sharing of the primary reinforcers (food and drinks), the distribution and collection of the post-test questions, the invigilation of the post-test, the setting of some technical devices like the projectors, screen, speakers and so on. Afterwards, the data obtained were subjected to statistical analysis.

3.0 Data Analysis

The same measurement procedure was used for both groups, so that comparison of the two groups was possible. Because the groups were equivalent to begin with and the researchers having controlled for the confounding variables, differences between the groups on the dependent variable (test performance) was attributed to the effect of the independent variable.

The post-test questions were 26 altogether with a score for each correct answer. Correct identifications were marked with one point and every other response was rewarded with no score. The post-test were marked manually, scored and recorded for each condition. The two research hypotheses were analyzed using Mann-Whitney U Test, a non-parametric equivalent of independent t-test. The Mann-Whitney U Test is often employed when different subjects are used in two conditions that is, data from unrelated group or independent group design. The statistical assumptions underlying Mann-Whitney U Test as stated by Dana (2001) were observed. All the analyses were done at a significant level of 0.05.

4.0 Results

Demographic Characteristics of Participants (Table 1)

Results Obtained from the Study (Obtainable Score = 26) (Table 2)

Hypotheses

- 1) There will be a significant difference between the results of students rewarded with verbal praise (experimental group 1) and the results of the unrewarded students (control group) – result presented in **Table 3**
- 2) There will be a significant difference between the results of students rewarded with primary reinforcers (experimental group 2) and the results of the unrewarded students (control group) - result presented in **Table 4**

5.0 Discussion

Both hypotheses show the significance of motivation on test performance. The result revealed that there is a significant difference between the results of the rewarded students of the experimental groups and the unrewarded students of the control group. From the findings, it was noted that freshmen performed better when they were motivated with verbal praise and encouragement than when they were not motivated at all. It was equally noted that the second experimental group which were rewarded with food and drinks as the primary reinforcers performed better than the control group. According to Henderlong & Lepper (2002), as long as praise is perceived as sincere, it will be beneficial to motivation and encourage performance. Analysis of the three conditions show that the group with verbal praise and encouragement ranked highest, this emphasises it as a strong tool in promoting, improving and enhancing test performance among students.

Cameron et al. (2001) conducted a meta-analysis of 145 experimental studies and concluded there was no scientific evidence for detrimental effects of reward on intrinsic motivation, though there were some criticisms of the study by Deci, Ryan & Koestner (1999). Research has shown repeatedly the positive effects of contingent praise on the behaviour of infants, preschoolers, school-age children, and adults (Van der Mars, 1989; Cameron & Pierce, 1994). The premise behind praise is that social acceptance is reinforcing, causing specific behaviours to increase and according to Hembree-Kigin & McNeil (1995), labelled praise increases appropriate child

behaviour. Previous researches have shown that praising general behaviour increases typical children's behaviour (Bernhardt & Forehand, 1975). Forehand & McMahon (1981) also emphasize that praise is a critical skill in parent training. Therefore, it is widely believed that praising behaviour will cause the praised behaviour to increase, regardless of whether a child displays typical or disruptive behaviour. In general, it has been shown that typical children are compliant approximately 51-62% of the time (Eyberg & Robinson, 1983). With regard to the effects of praise on performance, children with typical behaviour have been shown to increase their level of performance when they receive praise (Parpal & Maccoby, 1985). For example, Parpal & Maccoby conducted a study in which the Compliance Performance Test (Bean & Roberts, 1981) was administered, and it was concluded that performance levels increased for those children whose mothers were positively responsive (i.e., praised) to their performance. It can therefore be concluded that general positive attention, including praise, will increase test performance in typical children.

5.1 Conclusion

Many commentators argue that schools react only to 'bad' test performance and do nothing to recognise or reinforce the good learning performance of young people most of the time. Verbal Praise and reward systems can help to establish a positive ethos in schools by recognising the good test performance and effort of pupils. Verbal Praise and reward systems have to be part of a larger picture of a whole school ethos of positive relationships. Since the group with verbal praise and encouragement ranked highest in all the three groups, emphasis will be directed to it as a strong tool in promoting, improving and enhancing test performance among freshmen. As defined by the North American Encarta Dictionary, motivation is the biological, emotional, cognitive, or social forces that activate and direct behaviour while Slavin (2006 as cited by Brown (n.d)), noted that motivation is what gets one going, keeps one going, and determines where one is to go. As revealed in this study, motivation is one of the factors that contribute to academic success. It is important for both parents and educators to understand why promoting and encouraging academic motivation from an early age is very important. Based on the results from this study, motivation was found to be of great help in improving test performance of freshmen in Covenant University, Ota, Ogun State.

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Table 1: Demographic Characteristics of Participants

Characteristics = 60	Frequency	Percentage
Gender		
Male	30	50
Female	30	50
Age (mean = 16.5)		
15	15	25
16	20	33
17	15	25
18	10	17
College		
CDS	30	50
CST	30	50

The research instrument was administered to 60 participants with equal representation from the two Colleges. Table 1 shows equal distribution of participants by gender while 35 (58%) were within the age range of 15 and 16 years, the remaining 25 (42%) were within 17 and 18 years old.

Table 2: Results Obtained from the Study (Obtainable = 26)

Control Group (no treatment)	Verbal Praise & encouragement (Exp Cond. 1)	Primary Reinforcers (Exp Cond. 2)
23	24	23
23	24	23
23	25	23
23	25	23
23	25	23
21	25	23
20	25	23
19	25	23
18	25	23
17	25	23
17	25	21
16	25	21
15	26	22
15	26	22
15	26	22
14	26	22
14	26	22
13	26	24
13	26	25
12	26	25
Average Values		
17.7	25.3	22.8

Table 2 shows the results that were obtained from the study. The scores in each of the three (3) conditions are numbered for each participant over a total score of 26. An average of 17.7, 25.3 and 22.8 were recorded for the control group, the first experimental condition and the second experimental condition respectively.

Table 3: Mann- Whitney U summarizing Hypothesis 1

Tests	Verbal Praise and Control Group
Mann-Whitney U	61.000
Wilcoxon W	271.000
Z	-3.869
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000 ^a

a. Not corrected for ties.

b. Grouping Variable: group four

There was a significant difference between the result of the unrewarded students in the control group and students rewarded with verbal praise in the experimental group ($U = 61.000$, $N_1 = 20$, $N_2 = 20$, $p < 0.05$, one-tailed). Thus, Hypothesis one was sustained.

Table 3: Mann- Whitney U summarizing Hypothesis 2

Tests	Primary Reinforcer and Control Group
Mann-Whitney U	45.000
Wilcoxon W	210.000
Z	-5.482
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000 ^a

a. Not corrected for ties.

b. Grouping Variable: group four

There was a significant difference between the result of the students rewarded with primary reinforcers and the unrewarded students in the control group ($U = 45.000$, $N_1 = 20$, $N_2 = 20$, $p < 0.05$, one-tailed). The test revealed a significant difference between the groups, where students in the experimental condition 2 (primary reinforcers) ranked higher in test performance than those with no motivation in the control group. Hence, Hypothesis two was accepted.

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