ACTION RESEARCH IN EDUCATION: Incorporation of feedback among students using a combination of reinforcement and immediate transfer.

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Abstract

The present study is an action research in the field of education. The aim of the study was to see if immediate transfer of feedback and reinforcement can help to improve students' academic performance and help in the understanding and incorporation of feedback. The study was done on a sample of 15 psychology students of an international School in Mumbai. Methods of questionnaire, observation and objective assessments are used in this study to collect data. The results suggest that immediate transfer and reinforcement helps to improve understanding as well as the academic performance of the students.

Key Words

Feedback, Reinforcement, immediate transfer

INTRODUCTION

The world today is highly competitive. The students are under the constant pressure of performing well. Educators too don't leave any stone unturned to ensure that they can extract the maximum potential out of the students and help them perform to the best of their ability in their examinations. Classes are interspersed with regular formative and summative assessments, actually a lot of them. One factor that plays a key role in helping students perform according to their capability and aptitude is the feedback given to them about their work. Teachers have become increasing aware of different feedback strategies that can be used in the classroom to ensure that students exactly know what are the areas that they are good at and where are the areas of improvement. However, it has been observed that in spite of repeated feedbacks that are clear and specific, the students are unable to perform well.

My intention of choosing this topic for my action research was that I observed that in spite of using different feedback strategies such as specific, direct, use of smileys even the best of the students repeated the same mistake again and again. This made me wonder why is it that these students go on repeating the mistake? Is something wrong is my way of delivering feedback? Are the students unable to understand my feedback? I wondered where exactly was the problem. I wanted to bridge the gap.

Identification of problem

Students failed to incorporate the feedback given to them.

Hypothesis

Feedback involving immediate transfer opportunities and reinforcement will help students improve their performance.

The strategy was a result of a combination of trial and error method and insight where I realized that when I asked students a question related to a some answer I had given feedback about the day before, most of them could answer it correctly.

The research questions that I am focusing on are:

1. Does immediate use of feedback and reinforcement help students perform well in the classroom activities?

2. Does the confidence and clarity of students increase in answering question with the use of immediate feedback transfer and reinforcement?

Review of Literature

Feedback is information or statements about something that can be used as a basis for improvement. According to Senge (1990) ,There can be two types of feedback i.e positive feedback and negative feedback. Positive Feedback refers to encouraging remarks and negative feedback refers to potential bad news.

The theories on feedback can be dated back to the behaviourism school of Psychology. Positive Feedback was taken as positive reinforcement and negative feedback was considered punishment (Thorndike,1913). According to O'Connor and Mc Dermott feedback is "thinking in circles" i.e. the result of our action, guides and determines the future course of events.

Feedback and classroom performance

Feedback plays an important role in a student's classroom performance. There are different factors that are to be considered by educators while giving feedback in order to ensure that there is a positive change in the performance of the student. They are:

a. **Timing of feedback**: Educators can give timely feedback, especially when the students are still engaged in the information being taught in order to make it more meaningful and relevant.

b. **Amount of Feedback** : Educators need to take into account how much feedback can students take at a time so that they are not overwhelmed and must take into consideration the major issues and prioritize it accordingly.

c. **Mode of Feedback:** The mode of feedback can be written oral, written or interactive. It should be used according to the purpose.

d. **Audience of the feedback**: Feedback can be given individually or in a group. Again, decision on the audience should depend on whether the feedback concerns one individual or a class as a whole.

e. **Content of the feedback**: Feedback needs to be descriptive yet specific. Care should be taken that feedback is understandable. The best approach is making it criteria referenced.

One of the studies investigating the impact of immediate feedback transfer on student performance was conducted by Iris Stuart (2004). The study was conducted on Singaporean students where they were divided into three groups. The first group, control group received no feedback, training or practice. The second group received practice and training without feedback. The third group received all the three variables -practice, training and feedback. The results showed that participants who received both training and practice on feedback outperformed those who did not.

According to Hattie and Timperley (2007) there are four levels of feedback- Feedback about the task , feedback about the processing of the task, , feedback about self-regulation and feedback about the student as a person. Feedback like "good girl" are not effective. Effectiveness of self-regulation strategy depends on the student's sincerity and belief about the feedback as to whether it will help them to score better or not.

In the research paper by Mamoon-al-Bashir, Kabir and Rahman(2016) , different feedback strategies that are effective to improve performance are discussed. They have emphasized the need to give up on the traditional methods of feedback as they are unable to stand the test of time. Instead new technologies need to be used for effective feedback. This will enable to professionalize their feedback in higher educational setting.

Reinforcement and classroom performance

Reinforcement is the process of increasing the frequency of a behaviour with reinforcing consequence (Flora,2004). Reinforcement can be positive or negative. Positive reinforcement is presenting a stimulus as a consequence of behaviour resulting in increase in the frequency of a behaviour. Negative reinforcement refers to increase in the frequency of a behaviour due to withholding the presentation of a stimulus.

In a study conducted by Chadwick and Day (1971) they investigated the effect of contingent tangible and social reinforcement on academic performance. The study was conducted on 25 selected underachieving students. The baseline as well as two experimental period measure were recorded for both the teacher as well as students. Treatment one had tangible reinforcers combined with contingent social reinforcers used by the teacher to assess the effects on three measures of academic performance (*i.e.*, per cent of time at work, work output per minute, and accuracy). The second treatment involved the removal of contingencies for tangible reinforcement while social reinforcement continued to check the persistence of the positive effects of Treatment I on academic performance. The results show in Treatment 1, students' work time, rate of output per hour, and accuracy in all activities increased greatly. Treatment 2 showed that, the students maintained their high rates of output per hour and accuracy till the end of the study while the total amount of time at work returned to the baseline level. Thus showing the effectiveness of reinforcement on classroom performance.

Another study was conducted by Stephen and Singh (2017) on Primary School students investigating effect of reinforcement on academic performance. The study was conducted across 20 schools(both government and private) in Allahabad, India and 25 students per school participated in this study . Reinforcements were decided according to what works in the respective schools. Both Continuous and Partial reinforcements were used. Results found

a significant relationship between reinforcement and academic performance of the students with respect to study area, affiliation to schools and gender.

Method

Sample

The sample consisted of 15 students who have taken Psychology as a subject across AS and AL classes. The age range of the students was 15-17 years. There were 5 boys and 10 girls who participated in this study. 12 students were from AS class and 3 from the AL class.

Procedure

This action research was done in the premises of an International School in Mumbai. This strategy used in this study was used throughout the year with the students. The Principal of the school was informed about the study. The students were not informed about the study during the year but consent to use the data was taken after the research was over. The students were not informed beforehand to avoid any kind of demand characteristics and influence of stereotypes.

To improve the incorporation of feedback and academic performance of the student's using immediate transfer of feedback and reinforcement was used as a strategy. Immediate transfer referred to solving a worksheet or writing an answer immediately after feedback or writing a test involving the questions the feedback was given about within 2 days. Reinforcement was in the form of appreciating the students immediately after they answer a question involving the feedback given correctly. The reinforcement was in the form of giving a thumbs up, praising the student or drawing a smiley in a written assignment.

The procedure typically followed was, following a test or assignment the students were given a feedback about their performance. The individual feedback was written while the group feedback was discussed in the classroom. Following the discussion, the students were asked questions regarding the topic or skill that the feedback was given about. The questions had to

be written or answered orally. Reinforcement was provided to the student following incorporation of feedback. This was done through the year for every assignment, test and examination. Marks were recorded after every test and exam. These marks are used as objective data in this study.

The students were debriefed about the study at the end of the year and the results were discussed. In case the students had any doubt , it was clarified.

Data collection

The data collection involved both qualitative and quantitative measures. Qualitative measures were in the form of interviews and observation while quantitative was in the form of Objective assessments.

1. **Objective assessment**

Objective assessment was obtained to compare the improvement in the performance of the students throughout the year. The marking scheme criteria of CAIE AS and AL Psychology (9990) was used to assess the performance of the students. The assessments were taken at different points. For this particular paper I will be taking into consideration first term marks, first mock marks and second mock marks. These assessments are used because it involves more seriousness in preparations and less absenteeism compared to the tests taken during regular lectures.

2. **Questionnaire**

The questionnaire was administered at the end of the year where the students were asked about the feedback given and how much of it they actually understand and use. They were also asked for areas of improvement in giving feedback and whether they had any difficulty in understanding it. It was also used to assess student's response to the reinforcement. Questionnaire was administered before debriefing to avoid any kind of bias in response due to knowledge of the aim of the study.

3. **Observation**

Observation was done in order to assess the participation of students while answering the questions. The response to reinforcement was also observed.

Both questionnaires and observation helped to gauge the clarity and confidence of the students respectively.

Analysis of data

1. Questionnaire

For the interview, students were asked about the usefulness of feedback and if they had any problem in the incorporation of feedback. There were four questions asked and the content of each of them was analysed.

a. How did you find the feedback given by me during this academic year?

All the students unanimously stated that the feedback was very clear and they could easily understand it.

b. Did you find the feedback useful? Substantiate your answer.

Almost all of the students stated that they found the feedback useful. One student did not respond to this question. Since no names were asked I could not locate the student to ask for clarification on this question. However the main themes of usefulness involved

- Written feedback was useful as they could go back to it before each test/exam
- The immediate use of feedback to answer questions helped them to understand not just the error but also the right way to write answers.
- Jargons like "link to the study" became clear.
- Answer writing format became clearer as they had a written feedback in front of them while they were writing the answers in class or at home.

c. Did you find the incorporation of feedback difficult in anyway?

Most of the students stated that they did not have much of a problem in the incorporation of feedback. However one suggestion I had received from a students was to insist on maintaining a feedback journal that could contain all the feedback given to the particular student and that could be referred to time and again before the tests, exams and assignments.

d. Do you think the teacher's response to your incorporation of feedback helped?

Again, all the students stated that it helped. All the 3 reinforcers worked as students mentioned about them in their answers. Praise in front of the class seemed to be the strongest reinforcement. Smileys were not just reinforcers but also helped in incorporation of feedback by drawing the attention of students.

Overall the students found the feedback and reinforcements very helpful.

2. Observation

The results of the observation suggest that the participation of the students in the classroom increased. They seemed more enthusiastic to answer. The reinforcements like thumbs worked very well in the classroom. Responses irrespective of its accuracy increased following a thumbs up or praise given to a student, thus indicating an increase in their confidence.

3. Objective assessment

GRADE	Mean Score Term 1	Mean Score Mock 1	Mean Score Mock 2
AS	57.5	63.33	69.91
AL	63.33	72.33	73.67

Table 1. Comparison of mean scores of AS and AL students in the first term, Mock 1 and Mock 2.

Table 1 Shows the comparison of mean scores of AS and AL students in the first term, Mock 1 and Mock 2. The mean score of AS students increased from 57.5 in first term to 63.33 in the first mock to 69.91 in the second mock. The mean score of AL students increased from 63.33 in first term to 72.33 in the first mock to 73.67 in the second mock. The result had a greater impact in AS class as they were new to psychology as a subject and were larger in number compared to AL class. Being the second year AL students were already aware of most of the concepts.

Fig 1.Comparison of mean scores of AS and AL students in the first term, Mock 1 and Mock 2.
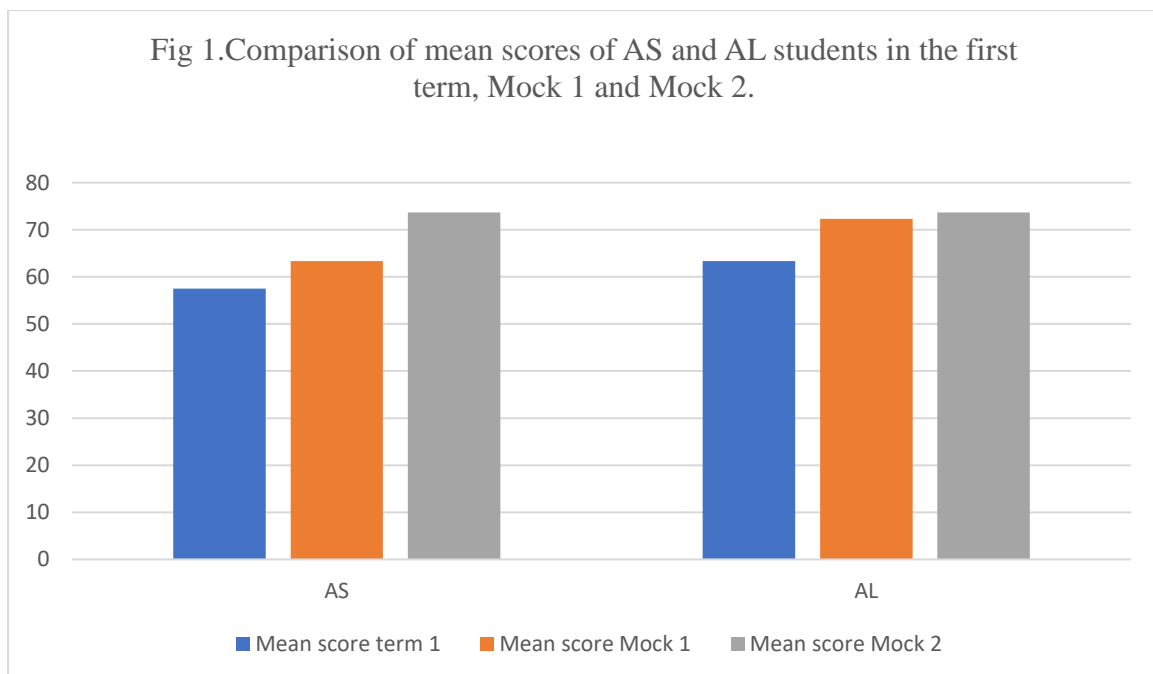
Conclusion

In conclusion we can state that immediate transfer opportunities for feedback and reinforcement really help students improve their performance in the exam. Immediate transfer helped the students improve their performance by giving more clarity, not only about what are the areas of improvement and areas of strength but also about the way in which the feedback needs to be incorporated in their assignments and answers. Reinforcement also worked in order to increase the confidence and participation of students in the classroom as well as sustaining the process of incorporation of feedback both in written as well as oral assignments.

The results are in trend with the conclusions drawn from studies on feedback and reinforcement.

Suggestion

In order to increase the incorporation of feedback

1. Students should be given an opportunity to transfer the learning onto the assignments within a short period of time.

2. Reinforcement needs to be given so as to improve the intrinsic motivation of students to incorporate the feedback

3. Smileys besides comments can be used to draw attention to feedback

4. The process of immediate transfer of feedback and reinforcement needs to be an ongoing process to get results and make it a part of the classroom culture.

5. Students need to be encouraged to maintain a feedback diary for more effective use of feedback and improving the chances of scoring in the exams.

6. Written feedback is more effective than oral feedback

Questions raised

This process of action research leads to some new questions that could prompt further research. They are :

1. How effective is the strategy in other subjects?

2. How much of the success of these strategies depends on the teacher?

3. Can this strategy be used with primary students as well ?

4. How practical is the strategy with a large group of students?

5. Can there be a spill over effect of the strategy to other subjects without the teachers actually encouraging it?

6. Can incorporation of feedback be converted into a student's studying habits where they incorporate feedback without any reinforcement?

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Appendix I

Questionnaire

Dear Students,

You are requested to write the answers to the following questions as honestly as possible. No need to mention your name. Ensure you answer all the question as elaborately as you can.

a. How did you find the feedback given by me during this academic year?

b. Did you find the feedback useful? Substantiate your answer.

c. Did you find the incorporation of feedback difficult in anyway?

d. Do you think the teacher's response to your incorporation of feedback