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Effects of Type and Quality of Attribution on Self-Efficacy Judgement

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Abstract

The effect of outcome and type of attribution on self-efficacy was investigated in an experiment involving a simple associative task. The subjects (N=40) were put to pre-test (before performance feedback and attribution) and post-test (after receiving performance feedback and attribution). The study involved a 2X2 factorial design with two types of outcomes (Success /Failure) and two types of attribution (Ability/Effort) with 10 subject (5 males and 5 females) in each cell. The result revealed a considerable difference on self-efficacy judgement. Ability and effort attributions for successful performance led to enhancement in self-efficacy judgement while failure feedback led to significant decrement in these judgements.

Keywords: Self-Efficacy; Attribution.

Introduction

Bandura's theory of self-efficacy states that different treatments changes behavior in part by creating and strengthening a sense of self-efficacy, which refers to personal judgement of one's performance capabilities in a given area (Bandura, 1981, 1982). The construct of self-efficacy, which was introduced by Bandura, represents one core aspect of his social-cognitive theory (Bandura, 1977, 1997). While outcome expectancies refer to the perception of the possible consequences of one's action, self-efficacy expectancies refer to personal action control or agency. A person who believes in being able to cause an event can conduct a more active and self-determined life course. This "can do"-cognition mirrors a sense of control over one's environment. It reflects the belief of being able to control challenging environmental demands by means of taking adaptive action.

According to Bandura (1995), self-efficacy makes a difference in how people feel, think and act. That is, self-percepts of efficacy can influence one's thought patterns, actions and emotional arousal. It has been observed that the higher the level of induced self-efficacy, the higher the performance accomplishment and lower the emotional arousal (Perlmutter & Monty, 1979; Garber & Seligman, 1980). Furthermore, in terms of feeling, a low sense of self-efficacy is associated with depression, anxiety, and helplessness. Such individuals also have low self-esteem and takes refuge to pessimistic thoughts about their accomplishments and personal development. In terms of thinking, a strong sense of competence facilitates cognitive processes and performance in a variety of settings, including quality of decision-making and academic achievement. Self-efficacy levels can enhance or hinder motivation. People with high self-efficacy choose to perform more challenging tasks (Bandura, 1995), set higher goals for themselves and stick to them.

The preceding review of literature on self-efficacy shows that the perception of capabilities of an individual by himself is a critical variable in determining human performance in a variety of situations. It has been noted that in the course of development, human beings get feedback from several environmental factors and personal experience about their level of performance and competence, which in turn, shapes his/her judgements of self-efficacy. Self-efficacy also allows people to select challenging settings, explore their environments, or create new environments (Bandura, 1997; Maddux, 1995; Schwarzer, 1992, 1994).

Against this background, the present study was formulated to investigate the effects of type

and quality of attribution on self-efficacy judgement on simple associative task. Specifically, the study examined the effects of ability and effort attributions for successful and unsuccessful performances.

Method

Sample: Forty young adult students (20 male and 20 female) drawn from two tribal hostels participated in the study. They belonged to the lower middle class socio-economic background and hailed from the Baster region in Chhattisgarh State of India. All the participants were undergraduate students enrolled in various courses in different colleges. They were randomly assigned to one of the four conditions of experiment emerging from the combination of outcome and type of attribution on associative task

Tools

Associative task: The associative task was a test of the subjects' speed in finding the letters 'A' in words. The subjects were told to work quickly without scarifying accuracy. A time limit of 5 minutes was fixed for the task.

Measures of self-efficacy judgement: After ascertaining the subjects and understanding of the task, they were presented with a self-efficacy judgement scale which was a measure of their percepts of self-efficacy for completing the given task. The self-efficacy scale ranged from 0% to 100%. The subjects were instructed to make self-efficacy judgements for the task by indicating a mark of 0% if they felt they could not perform the task at all. Similarly, they were asked to put 10% if the task could be accomplished marginally and if the task could be performed fully within specified time limit, then they had to put a mark on 100%.

Experimental Design: The study involved a 2x2 factorial design with two type of outcome (Success/Failure) and two type of attribution (Ability / Effort). There were 10 subjects (5 males and 5 females) in each cell of the design.

Procedure

The experiment was performed individually on each subject. After assignment of subjects to different conditions, the experiment was conducted in the following sequence. After greeting the subjects, the experimental task was introduced and instructions were given to familiarize him/her with the nature of task and mode of responses

required. Then the measure of self-efficacy judgement was introduced. Each subject was asked to indicate his/her perceived self-efficacy on a scale of 0% to 100% as described earlier. This was termed as pre-test judgement of self-efficacy.

After making the judgement of efficacy, the subjects were asked to perform the associative task. After completing the task, the subject was given feedback about the level of performance. Half of the subjects were informed that their performance was below the norm for their age group while the other half of the subjects were informed that their performance was above the age normal.

The experimenter provided the feedback after posing that he is examining a table of norms. In addition, the subjects also received the attributive feedback. Their performance was attributed to their ability (or lack of ability) or effort (or lack of effort). In this way four combinations were made namely, success-high effort, success-high ability, failure-low effort and failure-low ability. Finally, the subjects were again asked to give their judgments of self-efficacy in relation to their future performance on a similar task. Towards the end of the experiment, the subjects were debriefed about the outcome as well as attribution manipulation and thanked for their cooperation.

Results

The primary goal of the study was to analyse the changes in self-precepts of efficacy as a function of performance feedback and attribution. With this line of thinking the subjects were asked to make judgments of self-efficacy under two conditions namely, before performance feedback and attribution (pre-test) and after receiving performance feedback and attribution (post-test).

Efficacy judgment

The self-efficacy judgements thus made by the subjects under pre-test and post-test conditions appear in Table 1. These judgments were made on a scale of 0% to 100%. The pre-test self- efficacy judgments were made after introduction of the experimental task. The obtained score revealed that the pre-test judgments had considerable degree of individual difference. The judgments ranged from the values of 10% to 100%. This indicates that different individuals perceived the task in different ways.

Table 1: Self-Efficacy judgements made by subjects on simple task.

SUBJECTS	SUCCESS				FAILURE			
	Ability		Effort		Ability		Effort	
	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
1	10	90	50	60	60	10	32	20
2	70	100	50	90	40	20	50	20
3	90	100	30	50	10	00	30	30
4	50	90	50	60	40	10	40	00
5	100	100	20	30	50	40	20	10
6	50	40	60	90	100	50	80	10
7	20	30	50	50	90	40	20	10
8	40	40	70	60	80	40	10	10
9	90	50	80	50	20	20	10	10
10	80	40	40	60	100	40	50	50

Table 2 presents the mean scores of the four groups on the measure of self-efficacy. A close perusal of the mean values reveals that both ability and effort attributions for successful performance have led to enhancement of self-

efficacy judgments while failure feedback had led to significant decrement in these judgments.

Table 2: Mean and Standard Deviation of Self-Efficacy Scores on Associative Task.

Attribution		Outcome			
		Success		Failure	
		Mean	SD	Mean	SD
Effort	Pre-test	50.00	14.57	34.00	20.9
	Post-Test	60.00	19.05	17.00	14.64
Ability	Pre-test	60.00	32.25	59.00	26.05
	Post-Test	68.00	6.27	27.00	13.05

Task Performance

In order to identify the possible differences in performance across experimental conditions the scores on the task were subjected to 2x2 factorial analysis of variance. The summary of ANOVA appears in Table 3. It is clear that the

performance was not significantly influenced by the outcome and attribution treatments since both the main effects as well as interaction effect failed to reach the significance level.

Table 3: Summary Of 2x2 Factorial Analysis of Variance of Performance Scores on Associative Task.

Sources of Variation	df	Ms	F
Outcome	1	265.8	1.5
Attribution	1	4.25	0.024
Interaction	1	355	2.02
Within Cell	36	175	

Chance in self-efficacy judgment

The changes occurring in the percepts of self-efficacy judgments were of the main concern in the present study. Therefore, a detailed analysis was undertaken to ascertain the qualitative and quantitative aspects of the changes in

self-efficacy judgments of subjects under varying treatment conditions. Table 4 presents the differences between pre-test and post-test judgments of self-efficacy made by all the four groups.

Table 4: Difference in Self-Efficacy Judgments Made by Subjects under Pre and Post Conditions.

Subjects	Success		Failure	
	Ability	Effort	Ability	Effort
1	80	10	-50	-10
2	30	40	-20	-30
3	10	20	-10	00
4	40	10	-30	-40
5	00	10	-10	-10
6	-10	30	-50	-70
7	10	00	-50	-10
8	00	-10	-40	00
9	-40	-30	00	00
10	-40	20	-60	00

Note: 1. The scores represent pretest efficacy judgment - post-test efficacy judgment.
 2. There were 10 ss in each group.

It is apparent that the subjects evinced three main types of change, i.e., gain, loss and no change. Table 5 reports the frequency of subjects showing these

trends. A chi-square analysis performed on these frequencies revealed significant difference, $\chi^2(6) = 18, p < .01$

Table 5: Percent Frequency of Subjects Showing Gain, Loss and No Change in Self- Efficacy Judgments.

Conditions	Gain	Loss	No Change
Success Ability	20	60	20
Failure Ability	00	90	10
Success Effort	60	30	10
Failure Effort	00	60	40

$\chi^2(6) = 18, p < .01$

The changes in self-efficacy judgments were also analysed by taking into account the change or difference scores. Since the scores were found to be both positive as well as negative, therefore to avoid complexity in the analysis, a constant score of 70 (Seventy) was added to all the raw scores. Furthermore, the difference scores were subjected

to 2x2 analysis of variance. The result of analysis appears in Table 6. It can be seen in the table that the measure of self-efficacy was significantly influenced by attribution. However, an effect of outcome and interaction between attribution and outcome was found to be non-significant.

Table 6: Summary of 2x2 Factorial Analysis of Variance on Difference Scores on the Measure of Self-Efficacy.

Sources of Variation	df	MS	F
Outcome	1	1563	2.37
Attribution	1	3423	5.20*
Interaction	1	122	0.185
Within Cell	36	6517	

*p<0.05

Discussion

The present results indicates that there are individual differences in judgements about self-efficacy and these judgements are susceptible to individuals experience of different outcome as well as experimentally manipulated attribution. The obtained data showed that the effects of the outcome feedback are shared differently by different persons.

It seems that the effect of outcome feedback is determined by multiple factors such as initial judgement of self-efficacy, perception of the outcome, feedback by the individual as veridical or non-veridical, as well as his motivational orientation. The directions of changes introduced in self-efficacy judgements, therefore, are expected to show considerable variation between as well as within treatment conditions. The present results clearly show this trend.

The self-efficacy judgement to performance reveals important trends (e.g., gain, loss, no change) owing to outcome feedback. A close perusal of the frequencies of subjects showing gain, loss, or no change in self-efficacy judgements revealed that 90% of the subject's reported loss under failure - ability condition. While only 60% subjects reported loss under failure- effort conditions and 40% subject showed no change. This result implicates that ability attributions are more damaging than effort attributions under failure outcome. Furthermore, the analysis of data at aggregate level did not show significant effects on self-efficacy judgements, however, the individual level analysis clearly indicates positive effect of success and negative effect of failure. It seems that the experience of any outcome interacts with the individual's expectations. The effect of attribution was another issue of interest in the present study. The result indicates that pattern of attributional effect was high. In addition, ability attributions generally led to enhancement under success and deterioration under failure condition. Effort attribution also revealed a similar trend but the magnitude of effect was relatively low.

Thus, the picture, which emerges from the present study, shows that the ability attributions are critical for simple associative tasks. It seems that ability attributions limit the possibility of change since it is innate. On the other hand, effort attributions have scope for changing the level of one's performance since it is controllable.

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