

1998

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### Recommended Citation

Cole, Stephanie and Sengchannavong, Mali (1998) "The effect of freedom of choice on cognitive performance," *Modern Psychological Studies*: Vol. 6 : No. 1 , Article 3.

Available at: <https://scholar.utc.edu/mps/vol6/iss1/3>

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# The Effect of Freedom of Choice on Cognitive Performance

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*The relationship between perceived control and academic performance has been addressed in a large body of correlational research; however the effect of an internal orientation (i.e. a choice between academic tasks) on cognitive performance has not received as much attention. This study tested the hypothesis that college students' perception of control created by the belief that a choice exists between academic tasks increases cognitive performance. Participants consisted of 48 male and female college students from introduction to psychology classes and an analogy test was used to measure cognitive performance. The experimental group was made up of students who believed that they had a chance to decide the type of test that they would take whereas the control group was not given this information. As predicted, the data indicated that perceived freedom of choice fostered academic performance. The findings are discussed in terms of previous research, limitations of the study, and benefits of using the availability of options as an intervention technique.*

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Although people have emphasized the importance of cognitive ability when considering the mediators associated with academic success (Pintrich, Marx, and Boyle, 1993), there have been a number of studies which have focused on situational factors such as the implications of locus of control. The relationship between the presence or absence of perceived control over performance outcomes and academic success has received considerable attention in an attempt to determine the elements associated with achievement in the educational environment. Among the studies conducted, there are significant findings which suggest a positive relationship between internal locus of control and successful academic performance. Individuals who are internally oriented believe that they possess a measure of control over self-related outcomes.

Findley and Cooper (1983), from their review of literature on locus of control and school achievement, concluded in a correlational study that the majority of the studies found greater "internality" to be related to successful academic performance. Furthermore, they stated that a positive relationship existed between a child's belief that good performance was the result of internal factors and scores on intelligence tests. In addition to studies concerning a direct relationship between perceived control and

academic performance, individuals have looked at the possibility of an indirect connection between these two variables: Skinner, Wellborn, and Connell (1990) investigated how specific components of perceived control in children affected motivations of cognitive engagement which in turn influenced academic performance and discovered that a negative relationship existed between belief in external causes such as "powerful others" and motivation to expend cognitive effort.

As a result of interest in the connection between motivation and performance, researchers have examined the association between locus of control and intrinsic motivation which was thought to promote mastery of tasks. In a correlational study of elementary school children, Boggiano, Main, and Katz (1988) found that belief in control over an outcome was beneficial in terms of acquiring broad enduring knowledge because it was positively correlated with intrinsic motivation. Additional studies have suggested the importance of an internal orientation due to findings which indicate that an external locus of control undermines the amount of effort put into doing well on an academic task and have shown that individuals with this orientation tend to be extrinsically motivated (Rose, Hall, Bolen, and Webster, 1996). Through correlational research, Rose et al.(1996) discovered that the adoption of an external

locus of control by college students was negatively related to high final grades. As a result of their findings, they suggested that an internal orientation was beneficial in terms of academic performance. Furthermore, various researchers have addressed the implications of locus of control on the process of conceptual change where by individuals must engage in critical thinking when faced with new information in order to effectively integrate novel concepts with preexisting knowledge. According to Pintrich, Marx, and Boyle (1993), individuals were able to enhance their cognitive skills through this process and as a result, increase the probability of success in an academic setting. They contended that students who believe that they had some control over learning would be more likely to think through issues. Pintrich et al.(1993) suggested that giving individuals a choice between projects to work on would possibly foster an internal orientation.

Thus, there appears to be a large body of correlational studies and informative articles on the importance of an internal locus of control in relation to cognitive performance and elements which are sometimes mediators of cognitive performance. However, there are few studies which address the possibility of internal locus of control as the cause of satisfactory performance. In order to extend the finding of available research, the purpose of the present study was to assess the effect of an individual's sense of control on performance. Specifically, we predicted that college students' perception of control over an academic outcome created by their belief that choice existed between academic tasks would increase cognitive performance.

#### Participants

Participants were 48 undergraduate students (24 men and 24 women) who were volunteers from three introductory psychology classes at a Southeastern university. The

students ranged in age from 17 to 19 years and were predominantly Caucasian. They were randomly assigned to conditions at the time of participation. The conditions contained an equal number of male and female students (12 males and 12 females).

#### Apparatus

A twelve-item analogy test was constructed from an analogy test developed by Dr. Albany Salny (1988) which consisted of twenty questions. According to Salny, because students are exposed to this type of test on the SAT, it appears to be a reliable measure of cognitive performance. The questions included in this study were items which required a limited amount of background knowledge in order to engage in critical thinking. The goal was to determine cognitive performance through assessment of reasoning ability.

#### Procedure

Researchers ask for male and female students who would be willing to volunteer for participation in a research study in which they would be completing a short cognitive task. They told the students that their participation or non-participation would in no way affect their standing in any class and they could withdraw their consent at any time during the study. The researchers directed the students to write their names on a scratch sheet of paper and place them in a hat in order to randomly assign participants to the two groups. Subjects in the control group were led by a researcher to a separate room and were given a sheet which only informed them of the type of test they would be taking. The researcher then handed the tests to the participants and directed them to place their completed tests in a yellow envelope at the front of the room. During this procedure, a researcher handed out forms to the experimental group members which not only indicated the type of test they

would be taking but also informed them that they had a choice to take either a graduate level task or an undergraduate level task. Following this, the researcher directed the participants who wanted the graduate task to come to the front of the room with their sheets and gave them an analogy test. The participants who preferred the undergraduate test were given identical directions and received the same analogy test, although they were unaware of this procedure. The researcher directed all of the students to place their completed tests in a yellow envelope at the front of the room. After the experiment was conducted, researchers debriefed that participants on the deception used in the study.

### Results

A t-test revealed that the difference between the means of the two groups was statistically significant and revealed that participants who believed a choice existed between academic events performed better on the administered cognitive task ( $M=70.85$ ,  $SD = 9.83$ ) than subjects who were not given a choice ( $M=56.96$ ,  $SD=12.44$ ),  $t(46) = -4.29$ ,  $p < .001$ .

### Discussion

From an analysis of values obtained in the study, results appear to extend previous research findings (Rose et al., 1996). Because of the perceived presence of a choice by college students resulted in an increased number of correct responses on the analogy test, there is some evidence that perception of control over an outcome increases cognitive performance. The availability of a choice between academic tasks appears to provide male and female students with an opportunity to play an active role in their performance outcomes and thereby promotes an internal orientation. In other words, an individual locus of control is not only associated with

academic performance but seems to be an element which either contributes or undermines success in an educational setting. Furthermore, the present study suggests that an internal locus of control, the belief that one has some control over consequences, fosters better academic accomplishments. The findings concerning locus of control and performance are quite significant; however there are some limitations to their applicability to the real world.

The first problem centers around the type of participants who are in the study. Because they are not selected through random sampling, they are in no way representative of the entire University population. Readers must be careful not to assume that college students of all ages are going to perform at the same level as participants in the study. Also, the role other factors play in the way an individual performs such as self-efficacy, cognitive ability, and type of teacher involvement are not assessed in the study; therefore, the degree to which locus of control in combination with other elements influences cognitive performances is unknown. The ability to generalize findings would be increased if researchers obtained a random sample of multiple age groups and tailored tasks for different age levels. In addition, a study is needed which assesses the interaction between an internal locus of control and belief in ability, actual intellectual ability, and teacher involvement.

Despite the weakness of the present study, the findings strongly support a cause and effect relationship between an internal orientation and satisfactory academic performance. Furthermore, the implications of the study serve as a solid basis for additional experimental research which may result in the ideas needed to develop a comprehensive intervention program for students experiencing difficulties in school. In fact, the first step taken to assist poor performing individuals



may be to provide them with options concerning projects and work strategies. The benefits from applying techniques, such as choice to engender a sense of control over outcomes, are evident and provide a measure of hope for students who feel as if their grades are out of their hands. This procedure in combination with others may cause a break in the vicious cycle of failure in which young men and women often find themselves.

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