The Effect of Perceived Difficulty and Locus of Control on Task Performance

Hailey Goldstein
Locus of Control, Perceived Difficulty and Performance

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Previous research has shown that predictable differences in behaviour occur among those who perceive reinforcement as contingent on their behaviour (internal control), in comparison with those believe that reinforcement is determined by factors such as luck or chance (external control). The current study hypothesized that those internal for locus of control would perform better than those external, on a task that was perceived to be difficult. To test this, 32 university students were given an anagram task of moderate difficulty, however half the subjects were influenced to believe it was a difficult task, while the other half were made to believe it was easy. Locus of control was measured after the anagram task was completed. Contrary to the prediction, results did not show a significant interaction between internal-external control and perceptions of ease vs. difficulty. Limitations of this study are discussed.

The expectancy-value theory affirms that motivated behaviour results from the combination of individual needs and the value of goals available in the environment (Petri & Govern, 2004). This theory centers on the idea that the probability of directed behaviour toward a goal depends largely on a person’s expectancy of obtaining that goal (Petri & Govern, 2004). It is a very important concept in studying human behaviour, because it states that our behaviour is mediated by our expectation of obtaining a goal. Therefore, it is assumed that if a goal is highly valued, but the expectancy of successfully completing that goal is small, it may not motivate achievement behaviour.

Linked to the expectancy-value theory is Rotter’s theory on locus of control. Locus of control refers to the extent to which one perceives events to be in their control, or under the control of external factors (Phillips & Gully, 1997). Individuals with an internal locus of control believe that rewards and punishments result from their own
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behaviour, while individuals with an external locus of control believe that reinforcements are controlled by factors outside themselves, such as luck.

Locus of control has received considerable attention in many studies relating to achievement. Findings from these studies suggest that participants who score high in the external direction perform less well on achievement oriented tasks (Nowicki & Barnes, 1973 as cited by Petri & Govern, 2004), give up more easily when tasks are difficult, and consequently they show less persistence in achievement tasks (Ducette and Wolk, 1972). Studies have also shown that internals and externals exhibit different reactions to situations of success and failure. Internals commonly demonstrate pride when they are successful at something, and shame when they fail at something whereas externals' emotions in those situations are a lot less intense (Pares, 1976 as cited by Findley & Cooper, 1983). Logically, those that take pride their success, and therefore value it (internals) should exert more effort towards attaining it.

Using a discrimination task, Rotter and Mulry (1965) hypothesized that individuals' who place greater value on an outcome, would take longer when making a difficult discrimination. Specifically, they tested the idea that internals will take longer to make a difficult discrimination when given a task that they perceive to be skill determined, compared to externals who will take longer to make a discrimination which they perceive to be determined by luck. This is based on the logic that internals place higher value on demonstrating skills, whereas externals are more concerned with luck (as it determines whether or not they are a lucky person). Subjects of this study were dichotomized into external and internal groups. Both groups were given the same angle discrimination task, which consisted of one standard angle, paired with 13 different
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possible matches. Half the subjects were told that the discrimination was so difficult, that solving it would be a matter of luck, while the other half were told that the discrimination was difficult, however previous research has shown that some people are more skilled in making these discriminations. Each discrimination contained no correct matches, but after each trial the experimenter merely said right or wrong, and the subjects accepted this without question. Locus of control was measured using the Internal-External (I-E) Scale, and decision time was measured on a running second hand. The results of this study confirmed Rotter and Mulry’s (1965) hypothesis, suggesting that those who place value on reinforcements in which they feel they have control, are more likely to be motivated to succeed when presented a task.

In relation, Cohen and Lefkowitz (1977) conducted a study that looked at the effect of locus of control and levels of task difficulty on performance. They hypothesized that internal locus of control would be a significant determinant of task performance when the task was challenging. This hypothesis was based on the findings of several studies that report a significant relationship between internality and school achievement (Lefcourt, 1972 as cited by Cohen and Lefkowitz). Using a sample of 126 high school students, they measured locus of control using Rotter’s (1966) I-E Scale. The experimental task that was given to these students was a list of 20 five letter anagrams that varied in difficulty. Difficulty was manipulated by means of arranging the same words into hard letter orders and easy letter orders. The subjects did not know which task they would have to perform. Contrary to predictions, internals performed better than externals on the easy task, and there was no relationship observed among those who performed the hard task. The researchers believe that the harder task was too difficult,
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and therefore performance on the easier task was more skill determined, leading to better performance. This explanation is in accordance with findings by Rotter and Mulry (1965), who have found internals experience longer decision times in activities that require skill, indicating greater motivation to do well. The time consumed in making these decisions is believed to have lead to poorer performance, especially because they were under a time condition, which was not sufficient given the level of difficulty of the task.

The current study is similar Cohen and Lefkowitz’s (1977), however, it examines the effect that locus of control and expectancy of success (altered by manipulating perceived difficulty), have on the performance of a moderately difficult task. All subjects were given the same moderately difficult task; however, they were strategically influenced to believe it was either easy or difficult. Locus of control was then measured by using Lefcourt’s (1979) achievement specific locus of control scale. Based on previous research findings which state that internals exert more effort on skill determined tasks, it was hypothesized that subjects with an internal locus of control would perform better on the anagram task when it was thought to be difficult, then students with an external locus of control.

Method

Subjects

Thirty-two subjects, 16 male and 16 female, were recruited haphazardly from the University of Western Ontario (UWO) campus or from the campus of its smaller affiliate college, Huron University College (HUC). Every subject was in their undergraduate years, and as a result, each was within the age range of 17-23.
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Materials

A list of fifteen anagrams, all of moderate difficulty was given to each subject. The anagrams were established as moderate by a pilot study where a group of participants were asked to complete a similar task containing a larger list of anagrams. The anagrams that were completed by these participants were subsequently analyzed and those anagrams which the majority of participants could solve, and those that very few could solve were eliminated. The anagrams that were answered by most but not all were classed as moderately difficult, and comprised finalized list of 15. Instructions on how to complete the anagram task were given at the top of the page. A copy of the anagram task may be viewed in the Appendix.

Locus of control was measured using Lefcourt’s (1979) Multidimensional-Multiattributeal Causality Scale (MMCS). This test in its original form, contains two 24 item scales, one concerning achievement, and the other concerning affiliation. With the purpose of being time efficient, the subjects were only given the achievement scale, as it holds more relevance to the present study. The 24 item scale is comprised of 12 items that concern success, and twelve items that concern failure experiences. As well, the items are divided evenly so that there are 6 stable internal items that focus upon abilities and skills, 6 unstable items that focus on effort and motivation, 6 stable external items focusing in contextual characteristics and 6 unstable external items that focus on events occurring by chance. The response format of this test is a five point Likert rating scale ranging from 0 (disagree) to 4 (agree).

Measures of internal consistency have been obtained from many samples and Cronbach’s alpha has been found to range between .58 to .80 for the achievement locus.
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of control scale (Lefcourt et al., 1979). Criterion validity of the entire test is seen through its comparison with the Rotter (1996) I-E Scale. Correlations have been found to be positive and significant with $r$ for the achievement scale ranging from 0.23 to 0.62 (Lefcourt et al., 1979).

Convergent and discriminant construct validity of the MMCS scale was examined through behaviour exhibited during achievement related tasks. Under optimal conditions for internals (no social distractions and self pacing with in time limits) externals are found to exhibit more frequent signs of distress as evidenced in their body movements (Eckman and Friesen, 1974, as cited by Lefcourt et al. 1979). In the study, anagrams were administered which progressed from relatively simple to unsolvable. Subjects were hurried and intruded upon by the examiner when doing the task. It was hypothesized that those who were internal for achievement would give evidence of greater discomfort than those external for achievement. The percentage of time that the subjects exhibited discomfort behaviour throughout the anagram procedure was related to achievement locus of control scores ($F(1, 39)=5.17, p<0.05$). Achievement internals displayed a stable, slightly increasing mean percentage of time that they engaged in discomfort behaviours as the task increased in difficulty, but achievement externals exhibited a decrease in these behaviours as the task proceeded.

Procedure

Upon recruitment, subjects were presented with a booklet. The first page was a letter of information. After reading the letter of information, if they agreed to participate in the study, they were asked to sign a form of consent. On the next page, participants encountered the first task: 15 moderately difficult anagrams in which they had 10 minutes
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to solve. Instructions on how to complete the task were given orally, as well as indicated at the top of the page. Depending on what condition the subjects were placed in half were told “Some people who have done the task you are about to perform have found it really easy” or “Some people who have done the task that you are about to perform have found it to be very difficult.” After they had attempted all the anagrams, or when 10 minutes had lapsed, they were asked to turn the page to find the achievement subscale of the MMCS. After completion of the MMCS, the subjects were given a debriefing form thanking them for their participation, and informing them of the true nature of the study.

Results

Performance on the anagram task was measured by the number of anagrams answered correctly. To calculate locus of control scores, internal items on the MMCS were reversed and therefore high scores represented agreements with external attributions, and denial of internal attributions. After each test was scored, a median split was done to discriminate between externals and internals. Based on this, all subjects with a score of 44 or more were classed as externals, and with 43 or less as internals. Subjects were then further divided by the condition they were given. A univariate analysis was computed, revealing that neither locus of control nor perceived difficulty was a significant variable in determining performance, and that the predicted interaction between the two was also insignificant. An analysis of variance summary can be found in Table 1.

Figure 1 illustrates the insignificant findings of this study. Although it displays that internals performed slightly better than the externals on the anagram task when given the hard condition, the findings are discredited through their insignificance. Also
Figure 1. Mean performance score on the anagram task for each of the four experimental groups.
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insignificant but contrary to predictions, the performance of internals decreased when the
task was perceive as hard. For externals a decrease in performance from the easy
condition to the hard condition was predicted, however, in this case, the decrease was
extremely minimal and insignificant. A summary of the numeric means and standard
deviations of performance for the four experimental groups can be found in Table 2.

Discussion

Whether internal or external in locus of control, the results of the current study
display that no significant difference in performance occurred when subjects perceived
the given task to be hard. These results contrast with the conclusions drawn by many
studies which report confidently that internality and achievement are positively related
(Findley & Cooper, 1983).

Many factors were present in the current study which may have worked to
compromise its outcome. To begin, the results are greatly restricted by the small sample
size used. Using thirty-two subjects of similar ages, all from the same university greatly
decreases the ability make generalizations from this study. More importantly, the fact
that all subjects were in university likely does not provide the study with a representative
range of locus of control. Students in university, by nature of the institution, are usually
achievement motivated. Therefore, the university students that were characterized as
externals, relative to the other subjects are probably closer to the middle of the theoretical
distribution of locus of control. Both groups completed more than half the anagrams on
average, displaying respectable performance. This may be a result of the dichotomy
between the internals and externals being too small to produce a significant difference in
performance.
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The outcome of this study may have also been negatively influenced by the choice of anagrams for the anagram task. Although careful planning went into choosing anagrams of moderate difficulty, after reviewing the answers of all participants, it seems evident that a select few anagrams were found to be more difficult than others. As the study by Rotter and Mulry (1965) suggests, internals exhibit longer decision times under skill instructions than do externals. This may have led to poorer performance, especially because of the imposed time limit. Determined to solve each anagram, internals may have spent an unnecessary amount of time on the more difficult anagrams, leaving less time to complete the other, more simple anagrams.

It is logical to assume that individuals who feel that what happens to them is dependant on their own skills should place a higher value on the demonstration of that skill, as it indicates a promise for future rewards (Rotter & Mulry, 1965). However, another problem with the current lies in the possible lack of value associated with performance on the anagram task. The nature of this study being a student project in which performance did not count toward a grade or any other form of reward may have decreased the value that subjects placed on their performance. In sum, this achievement situation offered no future implications for the participants. Though they may have been internally motivated to solve all the anagrams, the intensity of this motivation does not compare to studying for an exam that may have a profound effect on one's chance at grad school. Raynor (1969, 1974 as cited by Petri & Govern, 2004) suggests that the value one places on an activity toward obtaining a future goal is a crucial variable in determining achievement behavior. Research supports this idea through studies that showed subjects high in need for achievement receive higher grades when the perceived
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importance of that course for some future goal is high then they did if it is low (Raynor, 1970 as cited by Petri and Govern, 2004) Rotter and Mulry’s (1965) study suggests that someone with more concern for being correct should invest more effort into their performance. However, due to the lack of personal significance this study held, subjects may not have put forth maximum efforts in attempting to solve the anagrams.

Another deficiency of the current study was the lack of control over the environmental conditions that the study was conducted in. All participants were administered the study on campus, either before or after class, or in the UCC cafeteria. Each of these settings contained many distractions which likely affected the performance of subjects who find it difficult to concentrate in distracting environments. Studies have shown that test/work environments free of social distractions are optimal for internals. In distracting conditions, people internal for achievement give evidence of greater discomfort, than those external for achievement (Lefcourt et al., 1979). Therefore, standard test situations that you would encounter in academic institutions provide an optimal environment for internals to work in. The setting of the present study was not optimal for internals, and therefore likely worked to compromise the results.

The results of the present study did not demonstrate that locus of control and perceived difficulty have an effect on performance. However, due to previously mentioned factors, general conclusions cannot be drawn from these results.
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References


Appendix

Do your best to solve the following anagrams. Please place your final answer beside each scrambled word. *

HGCUO  (COUGH)
REOCV  (COVER)
EBLEDS  (BLEEDS)
UPASE  (PAUSE)
SUESG  (GUESS)
ZRIPE  (PRIZE)
TOHSR  (SHORT)
BEDABD  (DABBED)
VARBE  (BRAVE)
PAPLE  (APPLE)
RELOD  (OLDER)
LABME  (BLAME)
KNEIF  (KNIFE)
SEATY  (YEAST)
DGAEB  (BADGE)

* The anagram task sheet given to the participants of this study did not contain the bracketed answers.
Table 1

Analysis of Variance Summary Table for Anagram Task Performance Scores as a function of Locus of Control and Perceived Difficulty

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EasyHard</td>
<td>10.57</td>
<td>1</td>
<td>10.57</td>
<td>0.96</td>
<td>0.34</td>
</tr>
<tr>
<td>L of C</td>
<td>12.70</td>
<td>1</td>
<td>12.698</td>
<td>1.16</td>
<td>0.29</td>
</tr>
<tr>
<td>EasyHard x L of C</td>
<td>1.79</td>
<td>1</td>
<td>1.786</td>
<td>0.16</td>
<td>0.69</td>
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<tr>
<td>Error</td>
<td>307.02</td>
<td>28</td>
<td>10.965</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3142.00</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
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Table 2

*Means and Standard Deviations of Performance for the Four Experimental Groups*

<table>
<thead>
<tr>
<th>Performance Score</th>
<th>Internals</th>
<th>Externals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Easy (N=7)</td>
<td>Hard (N=9)</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Easy</td>
<td>10.86</td>
<td>4.06</td>
</tr>
<tr>
<td>Hard</td>
<td>9.22</td>
<td>3.42</td>
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