The Effect of Need for Achievement on Motivation and Anxiety

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The present study examines the effects of Need for achievement on anxiety and motivation with the hypothesis that individuals who score high on need for achievement will be highly motivated, leading to high anxiety when faced with a task while individuals who score low on need for achievement have low levels of motivation which leads to low anxiety when equally faced with a task. 40 participants were randomly assigned to high and low anxiety conditions and anxiety was induced by limiting the time participants in each condition had to read a story and answer questions about it before solving a word puzzle while need for achievement was measured using a Smith’s Quick Measure of Achievement. Resulting data was analyzed using a 2 x 2 ANOVA with anxiety as the dependent variable and motivation and need for achievement as independent variables and the results indicated that there was no significant main effect for need for achievement, $F(1, 36) = 1.81, p > .05$ as well as no significant main effect for anxiety, $F(1,36) = 1.49, p > .05$. There was also no significant interaction effect between anxiety and need for achievement, $F(1,36) = 1.85, p > .05$. These results were statistically insignificant and did not support the hypothesis. Detailed descriptions of the methods and analyses are discussed.

Achievement motivation and anxiety are interesting and relevant field of psychology that has been studied for the last few decades. Behavioral psychologists have observed that some people have an intense need to achieve, and others, and perhaps a large majority, do not seem at all bothered about achievement. Murray (1938) defines need for achievement an individuals desire for significant accomplishment, mastering of skills, control or high standards, often associated with intense, prolonged and repeated efforts to complete something difficult or having the determination to win (164).
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Lowell (1952) studied individuals with high and low levels of need for achievement and found that individuals with high need for achievement often performed better than those with low need for achievement. This is probably because of the fact that individuals with high achievement motivation have a better desire to succeed than individuals with low achievement motivation. French and Thomas (1958) hypothesized that when a problem is related to achievement goals, achievement motivation is related to problem solving effectiveness and to the length of time it took subjects to work on a problem without knowledge of results and their results showed that subjects who were high in achievement motivation were more likely to reach a solution and work longer than individuals who were low in achievement motivation. Also, Mclelland (1958) found that individuals who were high in need for achievement often chose a moderate distance where success is likely but not guaranteed while low achievers stood very close or too far when he tested 5 and 6 year olds by making them throw rings onto a wooden peg. This is probably why individuals who are high in need for achievement have a strong tendency to approach success, as they are persistent individuals and work hard to solve problems. This motivation to succeed, especially at a task tends to brings out different levels of anxiety in individuals. Mandler and Sarason (1952) define anxiety as a response to what is cognitively appraised as a state of apprehension or unease. Otherwise simply known as a threatening situation. When individuals are put in a situation that is unfavorable to them, or that they rather not be in, like completing a task for example, they are often faced with anxiety and this, as suggested by Nottelman and Hill (1977), may not generally be a bad trait as it serves as a motivation to make them work harder.
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The purpose of this research is to examine need for achievement and its effects on anxiety and motivation. It is hypothesized that individuals who have a high need for achievement will be motivated and as such, have high anxiety while individuals with a low need for achievement will have low motivation and have lower levels of anxiety.

Method

Participants

Forty students from Huron College and Western University were recruited as participants. It is worthwhile to mention that Huron College is a small, liberal arts and self-governing affiliate of Western University. From random observation, there were significantly more males than females, and the age range was typically between 18 and 23 although no effort was made to determine the ages of the participants. Sex was irrelevant and was not given any preference. No effort was made to obtain a precise breakdown of age or sex.

Materials

The materials used for this experiment included a letter of information (Appendix 1), a standard consent form (Appendix 2) a Smith’s Quick Measure of Achievement Motivation, condition specific instructions, a short story, questions relating to the story, a word search puzzle with 35 items and a standard debriefing form (Appendix 9). The Smith’s Quick Measure of Achievement Motivation (Appendix 3) developed by J.M Smith (1973) has a split-half, odd-even reliability computed using 89 scores with a coefficient of 0.56. Meaning that as a measure, it has a high face reliability and validity. The 167-word story (Appendix 6) contained a motivational story about a fictitious character and his activities and was derived from Higgins, Rholes & Jones
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(1977). The 10 questions regarding the story (Appendix 7) were developed by the experimenter and had not been tested for reliability or validity since the questions were irrelevant to the variables. The word search puzzle (Appendix 8) was created using an online word search generator and included random words. This also had no reliability or validity. Finally, the instructions (Appendix 4 & 5) were specific to each condition, and merely stated that, depending on the condition, participants had to complete the task within a time frame.

Procedure

Each participant was recruited and asked to participate in this experiment by the researcher. Generally, participants were approached at study lounges or at campus cafes and it was very clear that participation was voluntary, and that the experiment would take some time. Upon agreement, each participant was given a letter of information and asked to sign a consent form. They were then randomly assigned to either a high anxiety condition or a low anxiety condition. Afterwards, each participant received and filled out the Smith’s quick measure of achievement motivation and afterwards, received instructions regarding the story and the subsequent word search puzzle. Participants in the high anxiety condition were given instructions to read the story under a given time frame and then asked to answer the questions without referring to the story. Thereafter they proceeded to solve the word search puzzle. Participants in the low anxiety condition were asked to read the story and answer the questions without a time limit and were also permitted to refer to the story. Thereafter they solved the word puzzle. Only 6 participants solved the word puzzle in its entirety, others quit after solving an average of 6 words. Participants were then given a debriefing statement that outlined the rationale
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and objective of the study (appendix) and thanked for participating. It should be noted
that most participants took part in the study in groups of twos and threes depending on
where they were recruited, and this had an effect on the performance on the word search
puzzle. Specific information about this is detailed in the discussion section. Each
participant's performance was analyzed based on the word search puzzle. The story and
questions about it were only used to induce anxiety and motivation.

Results

A median split was used to analyze the Smith's Quick Measure of Achievement
in order to categorize participants into high and low need for achievement. 9 participants
ended up in the high need for achievement group and 11 in the low need for
achievement group. A 2 x 2 ANOVA was performed on the data with an alpha level of
.05 on all tests and the results obtained were insignificant (table). There was no
significant main effect with need for achievement with F(1, 36) = 1.81, p > .05, as well
as no significant effect with anxiety with F(1, 36) = 1.49, p > .05. The interaction effect
was also insignificant with F(1, 36) = 1.85, p > 0.5. The means and standard deviations
for each condition is outlined in table 2. With these results, it is reasonable to conclude
that the results did not correspond with, or support the hypothesis.

Discussion

The hypothesis for this experiment was that there would be an interaction effect
between need for achievement and anxiety and the prediction was that individuals who
scored high on need for achievement would have high state induced anxiety when faced
with a task, while individuals who scored low on need for achievement would have low
Figure 1. Mean scores 1 representing low anxiety and 2 representing high anxiety.
Need for Achievement and Anxiety

Table 1

*Analysis of Variance (ANOVA)*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
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<tr>
<td>nAch</td>
<td>29.88</td>
<td>1</td>
<td>29.88</td>
<td>1.81</td>
<td>.187</td>
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<tr>
<td>Anxiety</td>
<td>24.582</td>
<td>1</td>
<td>24.582</td>
<td>1.491</td>
<td>.230</td>
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<tr>
<td>nAch*Anxiety</td>
<td>30.58</td>
<td>1</td>
<td>30.58</td>
<td>1.85</td>
<td>.182</td>
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<tr>
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<td>593.53</td>
<td>36</td>
<td>16.48</td>
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<tr>
<td>Total</td>
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<td>40</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
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Table 2

*A table of means and standard deviations.*

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High nAch – High Anxiety</td>
<td>5.77</td>
<td>1.64</td>
</tr>
<tr>
<td>High nAch – Low Anxiety</td>
<td>9.11</td>
<td>3.33</td>
</tr>
<tr>
<td>Low nAch – High Anxiety</td>
<td>9.27</td>
<td>5.69</td>
</tr>
<tr>
<td>Low nAch – Low Anxiety</td>
<td>9.09</td>
<td>3.98</td>
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</table>
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state induced anxiety when also faced with a similar task. Using a 2x2 ANOVA, data analyses showed that the results from this experiment do not support the hypothesis. This could have been as a result of the numerous sampling, control, measurement and extraneous issues that plagued the experiment.

With regards to control, factors that could have affected the outcome include the ways in which the experimenter collected the data. To begin with, the participant pool was a wide one, with samples drawn from students at a small liberal arts college as well as students from a major university which the college has affiliations with. Whereas this is a good thing, it is not necessarily best because of random sampling errors. In addition, the participants were drawn from a wide variety of undergraduate programs with different backgrounds and not to mention the timing for the experiment, which did not favor most of the participants as they were inundated with school work and due dates. In addition, participants were also approached at different times of the day, on different days and at different locations. One particular group of 4 participants was recruited while playing a game of Frisbee. It could be argued that these participants did pay complete attention to the experiment because they wanted to go back to their game or other cases, they just wanted to go back to what they were doing. There is no telling if participants took part in the experiment to the best of their efforts or they just took part and lackadaisically completed the task for the sake of being polite. In terms of time of day, the different times in which participants were approached and recruited to participate may have had an effect on the outcome of the results. Participants were recruited during the late afternoons and early evenings at one point, some participants were recruited as late as 930 pm. Weith & Zacks (2011) show evidence suggesting that
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there are circadian rhythms in various cognitive functions, including attention, memory, decision-making and problem solving with a general pattern of better cognitive performance at peak than at non-peak circadian arousal (388). This means that most of the participants took part in the experiment mostly during their non-peak circadian arousal periods, and were not as well alert or aroused as they would be during periods of peak circadian arousal. Furthermore, there may have also been a lack of motivation for the participants. There were no rewards for taking part in the experiment and as a result, there were situations where some participants abandoned the task simply because there was no incentive to complete it. While this could have been resolved by offering some sort of incentive such as monetary rewards or otherwise, it may have created more problems than it could have fixed given that the experimenter did not have an experimental budget to begin with.

With regards to sampling, certain obvious issues affected the outcome of the results. There were no restrictions on participations. The only stipulation was that they had to be of legal age – i.e. 18 years of age. Another problem was that participants were drawn from a population of university students. It may have been worthwhile to include participants from a pool of non-university students. However, even though the random sampling method used was less than ideal, it was still a decent one because it had a lot of range and variability. In addition, with regards to sex, no effort was made to distinguish between males and females, as the experiment did not call for such distinction. Despite a lack of a precise breakdown of sex, it was obvious to the experimenter that the participants were made up of significantly more males than females and this may have influenced the way the results turned out.
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With regards to measurement, a few problems had an effect on the outcome of the experiment. The Smith’s Quick Measure of Achievement was used as part of the experiment. This inventory is a self-report measure designed to provide a quick measurement and it can be argued that it is not a precise measuring tool as it had issues with measurement errors. Most of the participants did not understand most of the questions on the inventory and had to seek clarification. Also, the Smith Quick Measure of Achievement does not distinguish between a approaching success or avoiding failure. Atkinson (1964) suggests that achievement motivation is made up of the tendency to either approach success or avoid failure. Feather (1961) also found that individual who were had high motivation to approach success persisted longer on tasks. This may have had an effect on the task motivation as most of the participants quit after an average of 6 trials. In addition, there was no basis for the assignment to high or low anxiety as participants were randomly assigned to either high anxiety or low anxiety. Anxiety was induced by restricting participants using a time limit while they read a story about a fictitious character and his motivation to seek excitement and answered questions about it. The results could have been better if there was a measure of anxiety that would have been used to split the participants into high or low anxiety conditions. Also, previous research illustrates that individuals who are high in need for achievement will demonstrate strong tendencies to succeed while individuals with a low need for achievement will demonstrate a significantly lower level of the same tendencies. Although it was difficult to determine the tendencies required for individuals who scored low on need for achievement, it can be argued that there was no strong desire to succeed which was displayed when they abandoned the task. Furthermore, as previously
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mentioned, the story, its questions and the subsequent word search puzzle had no reliability or validity and were merely created by the experimenter and this too could have affected the outcome. Finally, participants were required to solve a word search puzzle with 35 words. While this activity was not timed, the word search was significantly hard and long, leading to task abandonment especially when the participants were not motivated enough to do it. This high difficulty level of the word search also had an impact on outcome of the experiment and in hindsight; the word search should have been limited to significantly less words.

In as much as the results of this experiment were insignificant and did not support the hypothesis, the experiment bears repeating with some adjustments to certain parameters especially control, sampling and measurement. In terms of sampling, the experiment could test a sample of students against a sample of non-students. It could also test a sample of males against a sample of females – the combinations are endless. Future experiments should also control for the number of males and females in a sample so as to avoid sex bias. With regards to measurement, a reliable and valid test of anxiety, or an anxiety inducing condition can be used to achieve desired effect and split the participants properly in to high anxiety and low anxiety. Also, a reliable task could be used as qualitative analysis rather than a word search, or if a word search is to be used in the future, efforts should be made to ensure that it is reliable and valid. The practical implications of this kind of research relate to a lot of aspects of life. The need for achievement drives individuals to succeed and this is evident in schools, businesses and even relationships. Whether or not individuals approach success or avoid success, need for achievement is what keeps students at schools as well as certain
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professionals at their jobs. In addition, anxiety is common to all human beings especially before or after an event. In universities among students it is very evident especially during the exam season when the stakes are high and need for achievement, i.e. success at a task is evident. Further research in this field may help to further understand how the two relate to each other and could lead to theories and breakthroughs on ways and methodologies for anxiety reduction.
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References


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## Appendix

<table>
<thead>
<tr>
<th>Item #</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Letter of information</td>
</tr>
<tr>
<td>2</td>
<td>Consent form</td>
</tr>
<tr>
<td>3</td>
<td>Smith’s quick measure of achievement motivation</td>
</tr>
<tr>
<td>4</td>
<td>High anxiety condition instructions</td>
</tr>
<tr>
<td>5</td>
<td>Low anxiety condition instructions</td>
</tr>
<tr>
<td>6</td>
<td>Story</td>
</tr>
<tr>
<td>7</td>
<td>Questions</td>
</tr>
<tr>
<td>8</td>
<td>Word search puzzle</td>
</tr>
<tr>
<td>9</td>
<td>Debriefing statement</td>
</tr>
</tbody>
</table>
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Appendix 4

Instructions:

You have a minute to read the following story. Thereafter you will be asked specific questions about it. Please read carefully as you will not be permitted to look back at the story for reference. I will inform you when you are out of time.
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Appendix 5

Instructions.

Please read the following story. Thereafter please answer the questions attached to it. Feel free to refer back to the story for answers if you need to.
Donald spends a great amount of his time searching for exciting activities. He had successfully climbed Mount McKinley, shot the Colorado rapids in a kayak, driven in a demolition derby and piloted a jet-powered boat—without knowing much about boats. In his quests, he had risked injury, and even death, a number of times. Now he is in search of a new excitement. He thinks that perhaps he may do some skydiving, bungee jumping or sail across the Atlantic. By the way he behaves, one could guess that Donald was well aware of his ability to do many things well. Other than business engagements, Donald’s contacts with other people were limited. He felt he did not need to rely on anyone. Once he made up his mind to do something, it was as good as done no matter how long it might take or how difficulty it might be. Only rarely did he change his mind even when it might well have been better if he did.
Instructions.

Please answer the following questions with a brief response or write “I don’t know” if you are unsure about the answer or write “not applicable”, if you believe the question is not relevant to the passage you read. When finished, please proceed to fill out the scale on the following page. You are free to leave whenever you feel like you have completed the tasks to the best of your ability.

1. How many times has Donald risked death?
2. Donald has climbed Mount Everest. True or False
3. What is Donald thinking he may do, in his search for new excitement?
4. What type of car does Donald drive?
5. Donald is extremely social and enjoys the company of others, True or False
6. What does Donald spend much of his time in search of?
7. How much does Donald know about boats?
8. What is the name of Donald’s wife?
9. Donald is a very determined person. True or False?
10. Donald shot the Colorado rapids in a Kayak. True or false?
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Appendix 8

Word Search

Instructions.
Find as many words as possible on the puzzle using the key provided below.

Alarm
Bacon
Bus stop
Carpool
Chores
Coffee
Comb
Commuters
Danish
Dawn
Daybreak
Doughnut
Granola
Hot cocoa
Jelly
Newspaper
Oatmeal
Omelet
Pushups
Radio
Robe
Sausage
School bus
Shower
Slipper
Stretch
Tea
To do list
Toast
Wake up call
Walk
Yawn
Dawn
Rooster
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D PX SHOWER Z AL ON ARG Q NM
R F Q SERO OH CAM RE PPIL SFQ
L SFPSTNFETOASTDKEBT
NQJTUNEDWTUNHGUODBON
ECOMBKWBVRVECPRHZEOSO
HZBALTSTSTRETCHNARPC
JAQAVZPXAOBUSTTOPPLA
GJWUYVATELEMIOUSLWCFB
NDSHEQPWMCOMMUTERSCX
WAAGESEBJWXLPTIOIUKD
AYUTFSLCFMNSEAAGAP
YBCFCROYQRIRWUARTZWSK
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