



Prediction of Need for Achievement and Responsibility based on Perceived Competence and Novelty-seeking in Islamic Azad University, Gachsaran Branch

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Abstract

The current study aimed at predicting the need for achievement and responsibility among students based on their perceived competence and novelty-seeking. The population consisted of all the 987 students of Islamic Azad University in Gachsaran, Iran, and, based on Cochrane's formula, a sample of 350 students was assessed using random cluster sampling. The study was practical and used a correlational design. The measures comprised the Herman's Achievement Motivation Test, the Responsibility Questionnaire, the Perceived Competence Scale, the Conner-Davidson Resilience Scale, and the Cloninger's Temperament and Character Inventory. Data from Pearson's correlation coefficients and multivariable regression analyses showed that perceived competence and novelty-seeking could both meaningfully predict the need for achievement. Novelty-seeking was also a meaningful predictor of responsibility. However, perceived competence did not predict responsibility. The independent variables also, directly and indirectly, predicted the level of responsibility through the need for achievement, novelty-seeking, and perceived competence.

Keywords: Need for achievement, novelty-seeking, perceived competence, responsibility

Introduction

One of the most important aspects of life is academic life –a realm that affects successful learning and in which one can prove his or her abilities and progress towards his or her goals. Nevertheless, people may face a variety of challenges, barriers, and tensions in their daily academic lives (Sharifi, 2010).

Academic achievement is one of the main indices based on which we evaluate students in our educational system, and all the efforts and actions in this system are means to this end. All pedagogical endeavors of teachers and professors converge at the aims of changing students' behaviors, thoughts, attitudes, and skills, which are finally assessed in the form of academic performance and achievement (Pasha Sharifi, Sharifi & Tangestani, 2011). All the

astonishing human progress is the fruit of learning. It is through learning that people acquire their capabilities and improve their mental capacities (McClelland, Atkinson, Clark & Lowell, 1953). The need for achievement and accomplishment is formed based on standards of excellence. This need motivates us to seek "success in the competition with a standard of excellence" (Brunstien & Maier, 2005). The need for achievement means motivation for overcoming an obstacle and engaging with an alleged difficulty. It is the key to progress and achieving our goals in life (Schultz & Schultz, 2004). Instead of getting assistance and guidance from others, people with higher levels of the need for achievement accept their responsibility in their success or failure (Ghafouri Vernosfadrani, Kamal & Nouri, 2006). One can point to several inner, personal as well as outer, situational factors that influence academic achievement.

One key factor in education, which plays an important role in determining people's morale, is

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responsibility. According to Glasser, responsible persons act more efficiently and less selfishly, hence they would be worthy of the name of healthy persons (Amiri Khorasani & Lavasani, 2014). Responsibility helps people to actualize their creativity and fully accomplish their undertakings. The future world would need more responsible people with more ability to choose; people who can plan according to their own needs, instead of the expectations of others (Brewer, 2013). In this sense, responsibility is one's ability to organize thoughts, feelings, and behaviors as well as one's will-power in making decisions as a response-able and liable person (Mergler, Spencer & Patton, 2008).

Zimmerman and Kitsantas (2005) postulated that responsibility is the mediator between some important variables such as doing homework and self-efficacy on the one hand and academic achievement on the other. Examining school organization, group responsibility, and optimism, and their impact on academic achievement, Johnson (2013) found that both school organization and group responsibility exert their indirect influence on academic achievement of students through optimism. Aulak, Quinn, and Wilson (2016) found that responsibility is a characteristic of hardworking students who also have high motivation for achievement.

Recent research has established that responsibility is higher among dedicated high-school students (Amiri Khorasani & Lavasani, 2014) as well as university students (Adan & Felner, 2001) who enjoy higher motivation for achievement. Some also argue that having a sense of autonomy and responsibility would lead to higher academic achievement among high-school students (Premuzic & Furnham, 2003).

In the last century, academic achievement has been the focus of much research in psychology and related sciences (Alam, 2014). On the other hand, responsibility is an inner sense of liability and commitment to doing our tasks in an ideal manner (Adan & Felner, 2001). Students who take responsibility for their mistakes and failures enjoy higher levels of self-esteem (Usher & Pajares, 2008). Awareness of one's capabilities and competences is one of the most influential factors in increasing the motivation for achievement and responsibility among students (Usher & Pajares, 2014).

Competence is a psychological need (Rio, 2010). It is one's need for having an influence on the environment along with experiencing optimum levels of challenge and mastering those challenges using one's talents and skills. Earning skills could satisfy the need for competence in learners. A learner who successfully overcomes his or her challenge would

achieve perceived competence (Deci & Ryan, 2000). Perceived competence is a sign of growth in one's motivations. It is defined as how a person imagines his or her capabilities in different areas of life. It develops along with the development of the person. Adolescents high in perceived competence have more confidence in their abilities and cope better with their problems (Atkins, 2014). When doing a task satisfies this psychological need, the result is feelings of satisfaction and contentment. This would in turn motivate the person to repeat or maintain his or her activity. This psychological energy (i.e. motivation) provides the thrust for doing various tasks. Hence, it is expected that a person with higher levels of perceived competence in academic tasks would have higher motivation in accomplishing those tasks (Denes & Grecu, 2011). Perceived competence has a positive relationship with doing tasks competently, and helps individuals in bearing failures and misfortunes (Mirzaei, Kiamenesh, Hejazi & Bani Jamali, 2014).

How students feel about a task and the extent to which they like it and strive for it would determine their cognitive and metacognitive as well as self-management strategies (Ghasem & Hosseinchari, 2012). There have been studies that show a positive relationship between competence beliefs among students and their academic performance and achievement (Komarraju & Nadler, 2013; Verana, Ricarda & Birgit, 2012). Research by Bahar mogadam (2012) indicated that teaching achievement strategies could improve students' sense of competence. Studies by Hard (2006) also suggested that perceived capability influence people's engagement and efforts toward academic achievement. A learner who enjoys a sense of capability puts more effort to accomplish his or her homework. Martin and Marsh's study (2006) showed that perceived competence and self-efficacy is one of the most important predictors of academic achievement and resilience, since its improvement would, through a restructuring of learning, lead to more chances of achievement. Verana, Ricarda, and Birgit (2012) also demonstrated in their paper that there is a positive relationship between students' competence beliefs and their academic achievement in mathematics. The study by Komarraju and Nadler (2013) showed that competence and self-efficacy beliefs among students have a positive, meaningful relationship to their academic performance.

Other research has established that one's perception of the class would indirectly (i.e., with the mediation of achievement beliefs and behaviors) predict academic achievement (Bai, Hassanabadi &

Kavousian, 2015). In a study comparing perceived cognitive and social competence among low-achievers, slow-learners, and average students, researchers showed that, unlike slow-learners, the low-achievers obtained lower scores only in two subscales of perceived cognitive competence and perceived peer acceptance (Behpejough & Salimian, 2001). Generally, academic achievement and responsibility are functions of various factors, including personality traits. Research has shown that, overall, personality and cognitive variables (i.e. personal factors) could explain 70% of the variance in academic achievement, compared to 30% for other environmental, social, and situational factors (Friedman, 2002).

As studies by Ranjbar and Bayanfar (2008) and Zare and Mohamadzadeh (2008) have shown, there is a positive, meaningful relationship between personality traits and motivation for achievement.

Novelty-seeking and creativity are among the personality traits that could influence individuals' achievement motivation and commitment to goals (Cloninger, 1994). Novelty-seeking is associated with the behavior activation subsystem of the reward system, harm avoidance is associated with the behavior inhibition (i.e. punishment) system, reward dependence is associated with social reinforcement as well as sensitivity to stimuli, and persistence is associated with maintaining a specific behavior despite extinction conditions (Adan, Grabulosa, Caci & Natale, 2009).

Cloninger's theory of temperament and character explains how people higher in novelty-seeking are often inclined to exploratory activities, enjoy the stimulation, and get emotional when stimulated. They also tend to be more creative (Cloninger, 1994) although several studies have explored these main variables, an investigation on these variables in a single inquiry on students remains lacking. Hence, the main question in the current paper is whether or not perceived competence and novelty-seeking behavior can predict the need for achievement and responsibility in students.

Method

This study was applied in nature and employed a correlational design. Among the entry requirements, participants must be studying at the Islamic Azad University, Gachsaran Branch, have complete satisfaction from participating in the exam and answer complete questions. Participants could also skip the test in case of any illness, problem or non-response.

Participants

The population of the study consisted of 987 students. Based on Cochran's formula, we selected a sample size of 350 from the students of Islamic Azad University of Gachsaran using a random cluster sampling method. Among the samples, 306 people submitted the questionnaires. The sample of this study consisted of 147 females and 159 males, 229 single and 77 married (Table 1).

Table 1.
Demographic Characteristics of the Sample Group

| | n | % |
|-----------------------|-----|------|
| Sexuality | | |
| Male | 147 | 0.48 |
| Female | 159 | 0.52 |
| Marital Status | | |
| Single | 229 | 0.75 |
| Married | 77 | 0.25 |

Instruments

The data was gathered using the following instruments:

1) *Hermans' Achievement Motivation Test*. This is one of the frequently used tests in assessing the need for achievement. It consists of 29 items designed by Hermans in 1977 based on theoretical and empirical science on the need for achievement. The final instrument was developed after conducting some experiments, analyzing the data, and estimating the correlation of each individual item with the whole pool of 20 items. It was based on only 9 basic characteristics.

The items are in the form of an incomplete sentence, followed by different options. In order to equalize the weight of questions, four options were provided for each question. Each item is scored from 1 to 4 (or in reverse fashion in case of negatively-presented questions). The total score of the test is calculated according to the nine characteristics based on which the questions are designed. Some of the items are presented in positive voice and others in negative voice. Using Cronbach's alpha coefficient, Hermans estimated the reliability of the questionnaire as 0.84 (Nadaf, Sharifi, Heydari & Asadzadeh, 2018).

2) *Responsibility Assessment Questionnaire*. In order to assess responsibility, we used the responsibility subscale of the California Psychological Inventory which has 42 items. This inventory was first developed by Harrison Gough in 1951. It had 648 items and 15 subscales corresponding to 15

personality traits. The subscales were reached to 18 in 1957, and then it was revised again by Gough in 1987. This time the items reached 168 and the number of subscales increased to 20. The 42-item subscale of Responsibility Assessment was developed to assess traits such as conscientiousness, commitment, diligence, industriousness, reliability, discipline and responsibility. Validity concerns with the question of whether a certain instrument actually measures what it claims to measure (Sarmad, Hejazi & Bazargan, 2011). In another study (Aghaei, 2015) the questionnaire has proven to have adequate content and face validity. Reliability concerns how consistently an instrument could measure whatever it measures. In other words, given the same circumstances, how likely that is the instrument leads to the same results (Sarmad, Hejazi & Bazargan, 2011). Cronbach's alpha coefficient was over 0.75 for this questionnaire (Aghaei, 2015)

3) *Perceived Competence Scale*. This scale, developed by Harter, (1985) assesses perceived competence in four dimensions of behavioral competence (items 1-8), academic competence (items 8-14), social competence (items 14-21), and physical competence (items 22-27). Each item is scored using a Likert scale from 1 (low competence) to 4 (high competence). In an Iranian study, Cronbach's alphas were estimated as 0.61, 0.68, 0.66, and 0.61 for behavioral, academic, social, and physical subscales, respectively. The total internal consistency coefficient was 0.70 (Bai, Hassanabadi & Kavousian, 2015).

4) *Cloninger's Temperament and Character Inventory*. In order to measure novelty-seeking in students, we used Cloninger's Temperament and Character Inventory (TCI) (Cloninger, 1994) which was standardized in Iran in 2007 by Kaviani. It has a total of 125 item and consists of four temperament subscales (novelty-seeking, harm avoidance, reward dependence, and persistence) and three character subscales (self-directedness, cooperativeness, and self-transcendence). It is an easy-to-score instrument, with each subscale consisting of five items and the sum of the scores for these items constitutes the score for that subscale. Reliability of the inventory (Cronbach's alpha) ranged from 0.65 for persistence to 0.89 for self-transcendence subscales. Moreover, it has been standardized in different countries and the Cronbach's alpha has been estimated in samples in the Netherlands (from 0.64 for persistence to 0.86 for

self-transcendence), Korea (from 0.60 for persistence to 0.87 for self-directedness), France (from 0.61 for persistence to 0.86 for harm avoidance), and Italy (from 0.79) for persistence to 0.91 for reward dependence). Factor analysis using the main components showed that these seven factors could explain as much proportion of total variance as 0.63 in the Netherlands, 0.64 in Italy, and 0.65 in the U.S. In a psychometric study on this inventory in Iran, one- to two-month test-retest reliabilities were shown to be between 0.73 for reward dependence and 0.90 for self-directedness (Kaviani & Pornasah, 2005). Cronbach's alpha had a range from 0.55 for persistence to 0.84 for self-directedness.

Procedure

In order to gather data, 350 university students were selected through random cluster sampling from which 306 students answered the study questionnaires. The participants were made sure of the confidentiality of their answers and that the data would be used only for the research purpose. The questionnaires were administered to the participants in person or through e-mail, if necessary, and after making the purpose of the study clear for the participants, their honest answers were requested. After gathering the data, they were analyzed statistically.

Findings

According to our results, the first perceived competence model had a poor fit, but devising a relationship between physical and social competence, the indices of fit improved and the model reached ideal goodness of fit. The indices for novelty-seeking model also showed a poor fit, reaching an ideal fit when non-meaningful paths were removed. The goodness of fit for the need for achievement and responsibility models was also poor (Table 2). Hence, we first examined the assessment model, the results of which are provided in Table 2. Then, using the curtailment of the measure, four exemplar items with the highest factorial load on the latent variables of novelty-seeking, need for achievement, and responsibility were considered as indices of those variables and then the relationship between variables were analyzed (Fig. 1.).

Table 2.
Evaluation of Goodness of Fit indices of the Measurement Model

| Indicator | Perceived Competence Model | | Novelty-Seeking Model | | Need for Achievement Model | | Responsibility Mode | |
|----------------|----------------------------|-------|-----------------------|--------|----------------------------|---------|---------------------|----------------|
| | Revised | Main | Revised | Main | Revised | Main | Revised | Main |
| CMIN | 5.40 | 58.50 | 0.99 | 76.611 | - | 1803.70 | - | 3266.63 |
| DF | 1 | 2 | 2 | 104 | - | 377 | - | 819 |
| CMIN/DF | 5.40 | 29.25 | 0.49 | 5.88 | - | 4.78 | - | 3.99 |
| P | 0.020 | 0.001 | 0.610 | 0.001 | - | 0.001 | - | 0.001 |
| GFI | 0.991 | 0.916 | 0.998 | 0.787 | - | 0.651 | - | 0.571 |
| AGFI | 0.913 | 0.578 | 0.992 | 0.722 | - | 0.597 | - | 0.527 |
| IFI | 0.993 | 0.911 | 1 | 0.336 | - | 0.485 | - | 0.366 |
| CFI | 0.993 | 0.911 | 1 | 0.321 | - | 0.480 | - | 0.359 |
| RMSEA | 0.120 | 0.304 | 0.001 | 0.127 | - | 0.111 | - | 0.099 |

Table 3.
Goodness of Fit Indices for the Initial Assumed Structural Model

| | X ² | df | CMIN/DF | P value | GFI | AGFA | TLI | CFI | RMSEA |
|--------------------------|----------------|-----|---------|---------|-------|-------|-------|-------|-----------------|
| Assumed Model | 516.07 | 179 | 2.88 | 0.000 | 0.867 | 0.829 | 0.897 | 0.896 | 0.079 |
| Acceptable values | - | - | - | P>0.05 | >0.90 | >0.95 | >0.95 | >0.95 | >0.10 |

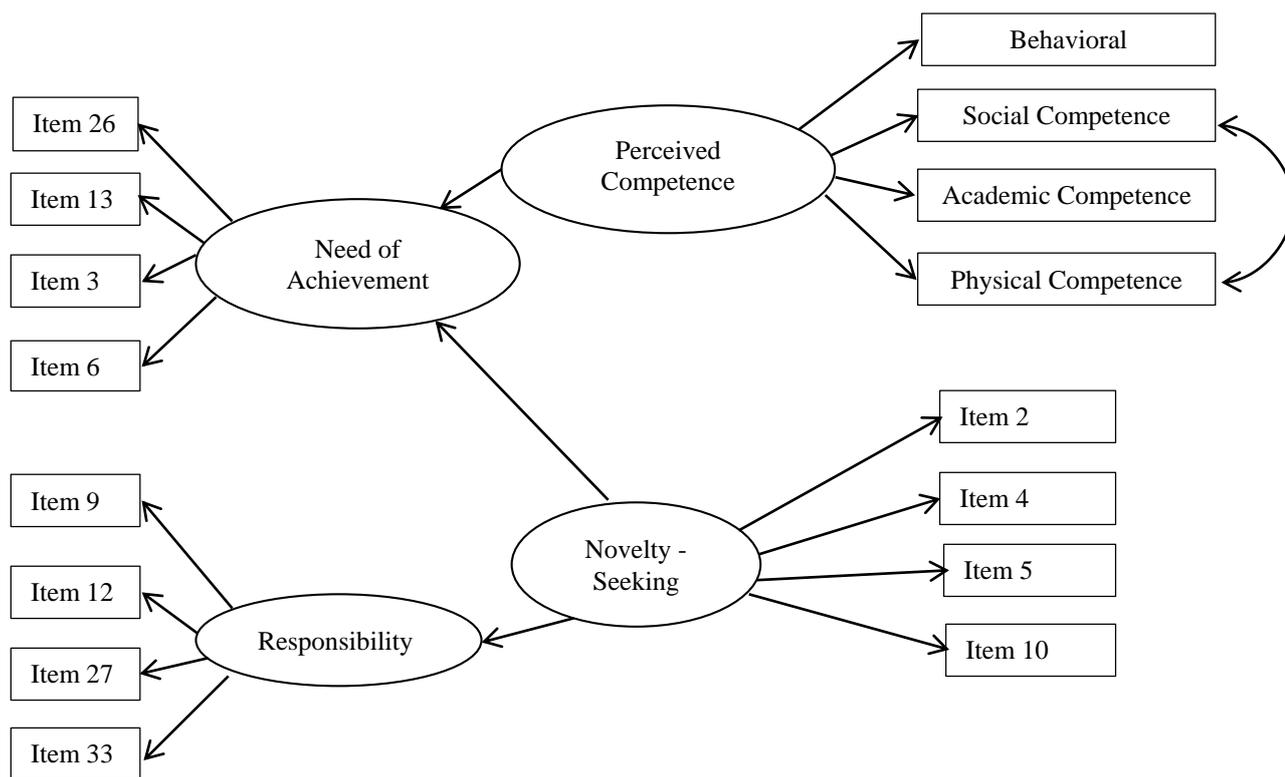


Figure 1.
Modified Model

Table 4.
Models of Fit of the Modified Structural Model

| | X ² | df | P Values | GFI | AGFA | TLI | CFI | RMSEA |
|--------------------------|----------------|----|----------|-------|-------|-------|-------|-------|
| Revised Model | 228.52 | 99 | 0.000 | 0.912 | 0.879 | 0.933 | 0.944 | 0.065 |
| Acceptable Values | - | - | P>0.05 | ≥0.90 | >0.95 | >0.95 | >0.95 | 0.1> |

With except of RMSEA, no other indices of the goodness of fit were acceptable, and it could be posited that the model lacks an acceptable fit. The predicting variables could explain 57% of the variance of need for achievement and 96% of the variance of

responsibility (Table 3) and the two indices of RMSEA and GFI were in an acceptable range. Moreover, the TLI and CFI were near 95%, indicating an acceptable goodness of fit. In sum, the final model seems to have a good fit (Table 4).

Table 5.

Summary of Non-Standard and Standard Regression Coefficients

| Dependent Values | Independent Variable | Non Standard Coefficient | Non Standard Error | Standard Coefficient | P< |
|----------------------|----------------------|--------------------------|--------------------|----------------------|-------|
| Need for Achievement | Perceived Competence | 0.085 | 0.016 | 0.69 | 0.001 |
| Need for Achievement | Novelty-Seeking | 1.51 | 0.716 | 0.20 | 0.035 |
| Responsibility | Perceived Competence | 0.002 | 0.006 | 0.025 | 0.731 |
| Responsibility | Novelty-Seeking | 4.98 | 1.31 | 1.03 | 0.001 |

The path between perceived competence and responsibility was also eliminated from the model due to not being meaningful. The final model is presented in Fig. 2. These results also showed that perceived competence and novelty-seeking could meaningfully predict students' need for academic achievement. Perceived competence did not predict responsibility, but novelty-seeking did (Table 5).

Discussion and Conclusion

In this study, we aimed at exploring how the need for achievement and responsibility could be predicted by perceived competence and novelty-seeking in students, which yielded to the following hypotheses. According to our results, it could be argued that perceived competence predicts the need for achievement.

This finding concurs with the findings of Ranjbar and Bayanfar (2008), Zare and Mohamadzadeh (2008), Mirzaei, et al (2014), Ghasem and Hosseinchari (2012), Bahador mogadam (2012), Bai, et al (2015), Verana, et al (2012), Komarraju and Nadler (2013), Hard (2006), Martin and Marsh (2006), as well as Fridedman (2002).

Therefore, it follows that perceived competence would increase knowledge and skills and directs thought patterns. When a person perceives him/herself as competent to accomplish a task, his or her self-confidence and self-efficacy, as well as interest in experiencing challenges and building skills, increase, all of which could contribute to his or her achievement.

Moreover, our finding that novelty-seeking predicted the need for achievement is congruent with previous research in Iran (Ranjbar & Bayanfar, 2008; Zare & Mohamadzadeh, 2008). It may be the case that people higher in novelty-seeking enjoy more

diligence, persist in their tasks despite outside pressures, show flexibility in unexpected conditions, and seek challenge in the face of hardships. These characteristics would increase the need for achievement in these individuals.

The findings also showed that perceived competence is not a meaningful predictor of responsibility. This contradicts the current literature in Iran (Janson, 2013). In a study with similar findings, Akinleke (2012) demonstrated that students with better self-conceptions score higher in academic responsibility compared with students with poor self-conceptions. In their research on the relationship between self-confidence and responsibility among nurses, Shiri and Kazemi (2014) also showed that self-confidence and its components (i.e. importance, competence, power, and virtue) are meaningfully correlated with responsibility. Among those components, competence and power had the strongest relationship with responsibility.

There is a few research concurring with our finding that novelty-seeking predicted responsibility. Poor Kran and Taghi (2006) found meaningful differences between female and male students in the relationship between responsibility and personality traits.

In explaining the latter finding, it could be argued that people with higher levels of novelty-seeking have a propensity to exploratory activities; exhibit emotions in the face of novel ideas; dislike monotony and get bored easily; are inclined to creativity; can make prompt decisions with little information; insist on making changes; show interest in taking risks; are disciplined and prefer planned works; show good concentration; and, finally, are committed, conservative and frugal with money, time and energy. Avoiding harm is a type of inhibitory behavior in

response to punishing stimuli or in the lack of reinforcements.

To sum up, our results demonstrate that perceived competence and novelty-seeking are meaningful predictors of the need for achievement and responsibility. Considering the finding that the need for achievement and responsibility could be predicted by resilience, novelty-seeking, and perceived competence, there seems to be necessary to devise proper pedagogical programs for improving novelty-seeking and perceived competence in students. This would improve their achievements and responsibility. Conducting this study was not without its limitations, among which the fact that the data were gathered using inventories, making room for biases due to participants' fatigue, boredom, or simple ambivalence in responding. Future researchers should focus on other factors influencing responsibility and the need for achievement, hence making better decisions in this regard possible.

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