






ACADEMIC HOPE AND SELF-REGULATION AS PREDICTORS OF CREATIVE THINKING AMONG UNDERGRADUATE STUDENTS

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Article History:

- received 2 January 2022
- accepted 2 September 2022

Abstract. Universities always strive to qualify students to be creative in their careers, so researchers in the creativity domain seek the factors that affect creative thinking to understand this concept more deeply. As a result, the current study aimed at exploring the predictive power of self-regulation and academic hope in the creative thinking among undergraduate students. A total of 481 (249 males, 232 females) undergraduate students from different universities in Saudi Arabia participated in this quantitative correlational study, and completed the scale of self-regulation scale, the academic hope scale, and the creative thinking scale. The findings showed that the level of creative thinking of the undergraduate students was medium, but they have high levels of the academic hope and self-regulation. It was also found that self-regulation and academic hope were good predictors of creative thinking. It was recommended that educators and practitioners should consider academic hope and self-regulation if they want to foster creativity thinking.

Keywords: academic hope, creative thinking, predictive power, self-regulation, undergraduate students.

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1. Introduction

Most university students in our different societies aim to graduate, to succeed, and to obtain a degree to get a job. Moreover, the vision of universities is to qualify students with a higher level of creativity represents in preparing a generation of young people who have the ability and the competence to think outside the box and to get them to a high level of creative thinking in the face of obstacles that may encounter them in various aspects of their academic, practical, and social life. Therefore, the researchers in the field of thinking, seek the factors that affecting creative thinking, such as personal, mental, and motivational factors. They found that hope, for example, plays an effective role on socioeconomic status, creative thinking (Yang et al., 2020), and creative self-efficacy (Zhang et al., 2019), so hopeful people positively reflect creativity in their careers (Anwar et al., 2020).

Moreover, some researchers suggest that one of the characteristics of creative people is autonomy and ambition, which are considered as aspects of the self-regulation concept, and affect their creative thinking (Montgomery et al., 1993). The self-regulation plays a significant role in fostering creativity and creative thinking through some common factors between both

of them such as setting goals, evaluating the reconstruct strategies, maintaining effort (Ivcevic & Nusbaum, 2017; DaVia Rubenstein et al., 2018; Sternberg & Lubart, 1991). Some authors (Liu et al., 2021) found that autonomy as an aspect of self-regulation positively correlated with creative self-efficacy. It was also found a positive relationship between self-regulated learning and mathematical creative thinking ability (Runisah et al., 2020), and a significant effect of the self-regulated learning on creative thinking within the contexts of electronic learning (Santayasa et al., 2021).

Based on the previous discussion, it is found that it is important to investigate factors that may predict students' level of creative thinking. Few studies examined the relationship between academic hope, self-regulation, and creative thinking. So, in order to expand our understanding of the creative thinking concept, the current study aimed at examining the predictive power of the academic hope and self-regulation on the creative thinking among undergraduate students.

1.1. Creative thinking in educational settings

Creativity is defined as the ability for coping with a given problem in authentic ways (Sternberg & Lubart, 1993). It can also be defined as synthesizing and redefining previous thoughts (Bessis & Jaqui, 1973). In creative thinking process individuals use their imagination, intelligence, insight, and ideas to deal with creative situations. In addition, they suggest new designs, generate several hypotheses, and solve problem to find new implementations (Glass, 2004; Hahn Young & Balli, 2014).

Creativity is consisted of several components, Guilford (1957) suggested a model for the creativity components. He suggested that creativity is consisted of: 1) sensitivity to problems, or the capacity of realizing problems; 2) fluency, which includes: a. ideational fluency, which is known as the ability to produce different ideas rapidly; b. associational fluency, that is the ability to generate several words; c. expressional fluency, which is the capacity to organize words into compatible text; 3) flexibility, which includes: a. spontaneous flexibility, is the capacity to present liveness; b. adaptive flexibility, which is the ability of generating novel responses. In 1966, Torrance (1966) developed the Torrance tests of creative thinking based on Guilford's (1957) theory, which included subtests of other problem-solving skills and divergent thinking. He suggested components of creative thinking: 1) fluency, the total number of meaningful and relevant responses; 2) originality, the scarcity of responses; 3) elaboration, the amount of detail in the responses (Kim, 2006).

Creative thinking was studied in relation to several factors, Li and Wu (2011) found that creative self-efficacy significantly and partially mediated the relationship between optimism and innovative behavior. Some authors (Lopes Lucas Carlomagno et al., 2014) found positive correlations between performance, hope, optimism and creativity, and hope and creativity were good predictors in performance.

1.2. Academic hope and creative thinking

Some authors (Snyder et al., 1997) defined hope as a state of positive motivation that leads to inner activity and supports a sense of success. According to hope theory, hope is a cognitive

process which is directed by goals that includes an ability to think about goals, generate strategies to fulfill those goals, and instigate motivation to exploit those strategies in order to obtain what a person is seeking effectively, any dereliction in that cognitive process will result in hopeless people (Snyder, 2000). Rand and Cheavens (2011) defined it as the capacity that the individual perceives which provides him/her with motivation to find appropriate ways to achieve the desired goals. Hope has the ability to predict success at the academic life (Snyder et al., 2002). Some authors (Cheavens et al., 2006) revealed the effectiveness of the hope therapy in enhancing some aspects of the personality such as self-esteem and meaning in life, and reducing some pathological aspects such as depression and anxiety. High levels of hope are very important for those who have experienced difficulties or academic failure, as hope helps them restore psychological balance (Kivimäki et al., 2005). In one of their studies, some authors (Snyder et al., 2002) indicated that hope is positively correlated with school performance and social acceptance, and thus hope is correlated to an individual's ideas about his capabilities necessary to achieve goals. These authors (Snyder et al., 2002) found a positive association between hope and good academic performance. Meanwhile, Rand and Cheavens (2011) found a correlation between hope and optimism, current and past academic performance, and expected goals. Kwon (2000) found a negative correlation between hope and defense methods and Beck depression and anxiety inventories (Beck et al., 1961, 1988), but hope was positively associated with social adjustment.

1.3. Self-regulation and creative thinking

Self-regulation is known as the cognitive processes which individuals use to control their thoughts, emotions, impulses, and behaviors, it is the control over oneself. Self-regulation is the synonym of self-control (Vohs & Baumeister, 2004) and it usually involves stopping or inhibiting an action although it sometimes involves initiating an action (Baumeister, 2014). Some authors (Eisenberg et al., 2014) define self-regulation as an effective control process, leading to respond to changes in the internal and external environment, including emotional and physiological responses. Meanwhile, Campbell et al. (2006) define self-regulation as a psychological process when an individual activates an indivisible behavior instead of performing detailed behaviors, or when he/she forces himself/herself to pay attention to difficult tasks while thinking in another direction, self-regulation is a psychological process that requires self-effort to change the internal state or respond in a specific way to achieve certain goals. Therefore, the individual's response is committed to achieving those goals. Moilanen (2007) defines self-regulation as the ability to activate, observe, persevere, and adapt behavior, attention, emotion, and cognitive strategies, as a response to internal cues or environmental arousal instructions, or as a response to feedback from others to achieve personal goals. Some authors (Munahefi et al., 2018) found that self-regulation is in line with the mathematical creative thinking: it is said that the self-regulation affects the ability of mathematical creative thinking. Moreover, self-regulation is viewed to be related with other psychological concepts, for example, Kaya and Kablan (2013) found that the effort of regulation and metacognitive self-regulation contributed significantly to the science achievement.

1.4. Problem statement

The current study aims at detecting the predictive power of the academic hope and the self-regulation in the creative thinking of undergraduate students. When researching in creative thinking, the factors that are expected to affect it should be investigated, so it is noticed that there are some common processes between those variables. There are common factors between self-regulation and creative thinking, such as setting and adjusting goals, revising and reorganizing, sustaining and maintaining effort, in addition to those the creative processes of self-regulation have three phases: forethought, performance, and self-reflection (Ivcevic & Nusbaum, 2017; DaVia Rubenstein et al., 2018; Sternberg & Lubart, 1991), and there are common factors between academic hope and creative thinking such as pathway thinking (creating ways or strategies to achieve those goals) (Snyder, 2000) which is similar to the one of the creative thinking element: flexibility. Therefore, the current study aimed at detecting if creative thinking can be predicted from the variables of self-regulation and academic hope. In addition, there is a lack in investigating the relationship between these variables. Therefore, the current study addresses the following questions:

1. What is the level of creative thinking among the undergraduate students?
2. What is the level of the academic hope among the undergraduate students?
3. What is the level of the self-regulation among the undergraduate students?
4. Do academic hope and self-regulation predict the level of creative thinking among the undergraduate students?

2. Methodology

2.1. Participants

A total of 481 (249 males, 232 females) undergraduate students from different universities in Saudi Arabia participated in the study. They were chosen purposively from three colleges of education, economic, and applied medical. The scales were distributed to 15 classes from the above-mentioned colleges. The participants responded to the scales online by Google Forms because of the method of teaching which was online because of COVID-19 pandemic. Their mean age was 20.6 years.

2.2. Instruments

1) Academic hope scale was developed to collect data from the sample. It contained 27 items, derived from domain hope scale revised (Snyder et al., 2005), and modified to the Arab community by adding some items to fit the culture of the participants. All items utilized a five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"). Cronbach's alpha of the internal consistency was .85.

2) Self-regulation scale was used, it was developed by Moilanen (2007). It consisted of two dimensions: long-term self-regulation (11 items) and short-term self-regulation (6 items), with a total item number (17 items). All items utilized a five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"). Cronbach's alpha of the internal consistency were 0.88 for the long-term self-regulation, and .78 for the short-term self-regulation.

3) Creative thinking scale was used, it was modified by Sadiq Alhayek and Alaa Omoush (2017). It contained four dimensions: fluency – 10 items, originality – 10 items, flexibility – 10 items, and sensitivity – 10 items. All items utilized a five-point Likert scale (from 1 = “strongly disagree” to 5 = “strongly agree”). Cronbach’s alpha of the internal consistency were 0.80 for fluency, .79 for originality, .81 for flexibility, .81 for sensitivity, and .92 for the total scale.

2.3. Procedures

This study is a descriptive correlational study. After verifying the psychometric properties of the scales, 15 classes were randomly selected from the previously mentioned colleges, and the scales were distributed electronically by using *Google Forms*. After collecting the data, they were statistically analyzed by using *SPSS* version 23 program. Means, standard deviations, correlations, and linear regression were conducted to answer the study questions.

3. Results

3.1. Preliminary analyses: levels of creative thinking, academic hope, and self-regulation

The analysis of the data showed that the level of the total creative thinking was medium ($M = 144.12$, $SD = 19.115$). Concerning the dimension of the creative thinking, the mean of the sensitivity was the biggest ($M = 38.90$, $SD = 5.796$) and it was at high level, fluency came at the second rank ($M = 35.83$, $SD = 5.502$) with medium level, originality was at the third rank ($M = 34.88$, $SD = 6.188$) with medium level, too. Finally, flexibility was the last rank ($M = 34.51$, $SD = 5.147$) with medium level. The analysis of the academic hope data showed that it was at high level ($M = 111.76$, $SD = 13.651$). The analysis of the self-regulation data showed that it was at high level ($M = 129.45$, $SD = 13.54$).

3.2. Correlational analysis

Correlations were conducted in the current study to examine the relationships among the dimension of the creative thinking, academic hope, and self-regulation, besides the total score of creative thinking, academic hope, and self-regulation. Table 1 showed that all the

Table 1. Pearson correlation coefficients among the dimension of the creative thinking, total score of creative thinking, academic hope, and self-regulation (source: created by authors)

	1	2	3	4	5	6	7
1. Fluency	1						
2. Originality	.621*	1					
3. Flexibility	.555*	.609*	1				
4. Sensitivity	.620*	.628*	.665*	1			
5. Total score of creativity	.826*	.857*	.828*	.864*	1		
6. Academic hope	.457*	.454*	.515*	.606*	.601*	1	
7. Self-regulation	.578*	.636*	.592*	.649*	.729*	.626*	1

Note*: Correlation is significant at the 0.01 level (2-tailed).

correlations among the dimensions of the creative thinking, academic hope, and self-regulation were significant. All the dimensions of creative thinking have high significant correlations with self-regulation and academic hope. With respect to the total score of creative thinking there was a significant correlation with academic hope ($r = .601, p < .000$), and a significant correlation with self-regulation ($r = .729, p < .000$).

3.3. Regression analysis

Multiple regressions were conducted to define the composite effectiveness of the predictors in predicting students' creative thinking, with creative thinking as dependent variable, but academic hope and self-regulation as independent variables. Two regression models were formulated as shown in Table 2.

Table 2. Regression analysis using self-regulation and academic hope as predictors and creative thinking as being predicted (source: created by authors)

Variables	R ²	R ² change	F-value	Significant change of F-value	Unstandardized beta	Standardized beta	t-statistic	Significance
Model 1	.531	.530	541.877	.000				
Self-regulation					1.028	.729	23.278	.000
Model 2	.565	.564	310.922	.000				
Self-regulation					.818	.579	14.978	.000
Academic hope					.334	.239	6.169	.000

Notes: a. Predictors: (constant), self-regulation; b. Predictors: (constant), self-regulation, academic hope; c. Dependent variable: creativity.

Model 2 of regression analysis indicated that self-regulation explained 53% of the variance of the creative thinking, but when the academic hope was included, it added 3.4 % of the variance. The model also indicated that self-regulation $\beta = .579, t [478] = 14.978, p < .000$ and academic hope $\beta = .239, t [478] = 6.169, p < .000$ significantly predicted the creative thinking.

4. Discussion

The results showed that creative thinking among the participants was at medium level. This result may be explained in term of the nature of the study community – like the rest of the Middle Eastern societies – which was not interested in creativity, but it has begun to pay attention to this concept recently (Alhajri et al., 2016; Hariri & Kassis, 2017), especially by the assistance of the faculty members which was found that they have a crucial role of in developing creative thinking among students (Al-zaboot, 2017). Another reason of the medium level of creative thinking is that creative thinking in the universities – particularly in Middle East – faces some problems such as low skills of the faculty in nurturing creative thinking skills (DeHaan, 2009). Weak teaching environment reflects on students' creativity negatively and restrict their abilities of innovation and creation. In addition, adopting the traditional educational methods may affect implementing creative thinking skills negatively (Roy, 2013). Some factors also affect creative thinking negatively such as the difficulty of completing tasks,

the low self-confidence, the obstacles of the logical analysis, the weakness of abstraction, the weak need for compliance, and the obstacles of the physical context (Al-Khalifa et al., 2010).

Moreover, the results showed that the level of academic hope among the participants was high, and the reason for this was due to the relationship between academic hope and academic achievement (Dixson et al., 2018; Gallagher et al., 2017). Teaching methods at the targeted universities are students- centered which allow students taking part in setting that they seek to achieve, and this confirms what Snyder (2000) found that the individuals with hope may have the will and insistence to pursuit and fulfill their goals, also they have different approaches to achieve those goals. We have to mention that the participants are from young category, and as Marques and Gallagher (2017) view that hope grows as the individual grows up until he reaches its pinnacle early-middle adulthood (ages 30–45) and late-middle adulthood (ages 46–64). We must also emphasize that the participants of the current study contain females, and they are – as some studies indicated – more hopeful than the males (Hartanto et al., 2019), and this may explain the high level of the hope among the participants. Another reason of the high level of academic hope can be attributed to the high self-esteem of students (Abu Hammad, 2019), this point is confirmed by some authors (Snyder et al., 1997) that people with high hope are self-esteem, and have strong beliefs of their ability of solving problems and confronting obstacles.

The results also revealed a high level of self-regulation which interpreted that university students in Saudi Arabia generally study in a college called Preparatory Year College, which includes a course called self-development skills. The course contains many self-regulation skills such as setting goals, self-control, self-reflection, like these skills are components of self-regulation, besides, the students in the universities often get support from their tutors in several domains, like this support fosters self-regulation (Zimmerman, 2002).

It is noteworthy that during the COVID-19 pandemic, universities shifted to distance education which required the students to rely on themselves and that resulted in increasing the level of self-regulation (Alt & Naamati-Schneider, 2021; Barak et al., 2016; Berger et al., 2021). Again, the participants contain females, and this is maybe the reason of the high level of self-regulation, which consistent with the studies that found that females have more self-regulation than males (Coyne et al., 2015; Magat, 2013; Sawalhah & Al Zoubi, 2020).

The last result found was that self-regulation relatively account for the variance in creative thinking which confirms what some authors (Munahefi et al., 2018) found that self-regulation is in line with the creative thinking. This result may be due to some common characteristics between self-regulation and the creative process, such as setting and adjusting goals (Sternberg & Lubart, 1991). Ivcevic and Nusbaum (2017) determined two groups of self-regulation processes related to creativity: 1) revising and restrategizing which compromises regulating process expectations, adjusting approach, and managing ambitious goals-embracing risk and 2) sustaining effort which compromises planning and organization strategies, persistence in the face of obstacles, and managing emotions. The creative processes related to self-regulation have three stages: forethought, performance, and self-reflection (DaVia Rubenstein et al., 2018). Moreover, people use several ways of behaving and thinking before engaging in tasks, they set goals and plan. They also behave during the performance; they regulate their emotions and monitor themselves. Finally, they act after completing the process, they evaluate

themselves and use causal attributions. Motivational beliefs, attitudes, intrinsic motivation, and self-efficacy are taken part and play an unexampled role in this process. An individual's interest, motivation, and enjoyment related to procedures enable a creative activity (Agnoli et al., 2019).

It was also found out that the academic hope accounted for some variance of creative thinking as shown in results. This may be due to the relation between hope and creative thinking, and that was confirmed by some authors (Snyder et al., 1997) who suggested that persons with hope are more creative, skilled in social situations, have high self-esteem, and have good academic results.

5. Conclusions and implications

The results revealed that academic hope and self-regulation play an important role in predicting creative thinking. This point must be taken into account by educators and practitioners, if they want to raise creativity, they must do their best to increase students' abilities of self-regulation, and to instill academic hope in them by exposing them more to the experiences of success.

6. Limitations

The generalization of the results of the current study is restricted by the fact that the scales were distributed to the participants electronically because of the COVID-19 pandemic, so the validity of the results depend on the extent to which the participants take the answers about the measures seriously.

Acknowledgements

The researchers thank the administration of Prince Sattam bin Abdulaziz University (Saudi Arabia), King Saud University (Saudi Arabia), and Princess Nourah Bint Abdul Rahman University (Saudi Arabia) for the facilities they provided to carry out this research.

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