

The Relationship between Individual Creativity and Self-Regulation- From Grade Nine Students Viewpoints in Jordan

Raed Ahmad Al-kreimeen ⁺

Faculty of Education, Al-Balqa' Applied University, Salt, Jordan

Abstract. The study investigates the relationship between individual creativity and Self-Regulation from grade nine students' viewpoints in Jordan. The study responds to the following questions in particular:

What is the relationship between individual creativity and self-regulation from grade nine students' viewpoints in Jordan?

Are there significant differences between the averages of creative skills and self-regulated due to the student sex?

The sample of the study consists of (92) nine grade students from (2) public school, randomly selected.

To answer these questions, the researcher constructs two questionnaires to collect data: one to measure individual creativity and the other for self-regulation. The psychometric properties for these instruments were computed.

The analysis of the data showed the following:

There was a significant positive correlation between creativity and self-regulation for grade nine students for the correlation coefficient is (.80) ($\alpha=.01$).

There were no statistically significant difference ($\alpha=.05$) among means of students for both creativity and self-regulation due to the gender of the student.

In the light of the study, it is recommended for teachers to aware the students about the importance of self-regulation and creativity and its impacts on many schooling variables. Future research is needed for self-regulation components and its relationship to a number of other variables especially in Jordan.

Keywords: Creativity, Self-Regulation, Nine Grade Students.

1. Introduction

The ability to self-regulate is important for students at any level, but is especially valuable to those in high school students, as they need to be well-prepared, ready with comments and insights, able to admit if they do not understand, are driven to construct understanding, and taking tests which is the greatest cause of anxiety for them [1]. Some studies demonstrate that high school students are effective self regulators, while other studies indicate they are not [2] Despite this debate, it is clear that there are differences between those who use self-regulatory strategies and those who do not. Based on previous work [3]. It is assumed that everyone is capable of self regulation to an extent. What really differs between people is the quality and quantity of their self-regulatory processes. Students must be capable of self-regulation; this means that they must meet cognitively monitor the ways in which they think about the material they are learning. Knowledge itself is insufficient; students must accurately judge the strategies they are using.

Creativity, divergent thinking and innovation are becoming more important components in today's school curricula and have become valued skills that have found their way into many corporate cultures and job environments. Therefore, it is important that students' creativity is identified and fostered in classroom setting [4].

However, at the beginning of the 21st century, it has been recognized that in order to make creative pursuits workable, individuals use self-regulatory functions to monitor, evaluate, and strategically act on their behavior. This notion is recognized by some empirical evidences [5]. Studies show that the forms of creativity depend upon individual interests and abilities, opportunities to do what they want to do, and

⁺ Corresponding author.

E-mail address: raed_alkr@yahoo.com.

activities that give the greatest satisfaction [6], [7]. explains that creative cognition is resulting from a self-organizing system. This self-organizing system is part of the self- regulation components [8].

1.1. Definition of Self Regulation

Self-regulation refers to the self-generated thoughts, feelings, and actions for attaining one's goals [3]. This process definition focuses on one's beliefs and motives and does not treat self regulation as a specific trait or ability. This conceptualization is derived from Bandore's triadic view of self-regulation which involves the relationship between the person, their behaviors, and the environment. Self-regulating ones performance is cyclical in that the feedback from prior performances is used to adjust one's current approach. The personal, behavioral, and environmental factors are also adapted and changed throughout the learning process as one continues to grow and learn [3].

1.2. Definition of Creativity

Creativity is the ability to produce work that is novel and useful [9]. Producing new responses to new situations, which also may be unique outcomes. It also reflects how people's minds have gone far [10]. Creativity is the fluency in information and communication technologies Ministry of Education [11]. Additionally, creativity can be considered as the production of ideas, products, or procedures that are (a) novel and (b) potentially useful or practical [12]. This approach is product oriented and focuses on the extent to which outcomes are creative. Several researchers have proposed that self-rated creativity provides a valid approximation of individual creativity [13]. This argument is in line with evidence that creative people possess insight and awareness of their own creativity [14].

The creative strengths include fluent thinking, which is to come up with many ideas, flexible thinking or generate different types of ideas, original thinking ,thinking of ideas that no one else would think of, elaboration, or the ability to expand on ideas , and resistance to premature closure, which is being open to new ideas [15].

1.3. Component of Creativity

According to [4], [15]. There are four components:

- Fluency – Producing a large number of ideas.
- Flexibility – Producing a variety of different ideas.
- Elaboration – Adding details to improve upon ideas.
- Originality: Producing statistically new, unusual, and innovative ideas. Resistance to premature closure: openness, deferred judgment.

2. Previous Research

Researchers have shown that self-regulated learners set clear and realistic goals, use strategies, self-monitor, and evaluate their progress, as well as complete tasks on time, report high levels of motivation, and exhibit skill acquisition [3]. Kitsantas, A pointed that a self regulated learner is a strategic planning, has the ability to select strategies that will enable them to accomplish these goals. He even gone farther more to say Learners who are highly capable of self regulation are evaluation their strategies more often, experience greater self-satisfaction, and make better adaptations than poorly self regulated individuals” [16]. Schneider and Pressley [2]. Have shown that competent self-regulated learners have the knowledge and strategies needed to learn and remember information, and the ability to apply these skills to specific learning tasks. Koriart and Bjork state that "...learners seem to rely on their metacognitive feeling in regulating their behavior, and, to the extent that these feelings are accurate, and it help to improve memory performance" [17].

Accurate monitoring is also used to effectively guide learning, and evaluations of one's knowledge can be used to drive the learning process forward. Those who are overconfident tend to find that their learning evaluations fall short of their learning goals. [18].

[7] Explains that creative cognition is resulting from a self-organizing system. This self-organizing system is part of the self-regulation components [8], [19] found that the scholar creative type is high on self-

regulation components such as risk taking, and are able to generate multiple ideas when presented with a problem.

One mechanism of self-regulation employed by creators is their willingness to take moderate risks [20]. An individual can choose a familiar and relatively common place option or a more unconventional route leading to greater originality. Risk-taking is related to originality on tests of creative ability [21]. Creativity also involves hard work, and persistence [22].

Although each of these studies offers important information about the relationship between self-regulation and creativity, there is still a looming concern that needs to attend further, especially in Arab World in general and in Jordan in specific, therefore this paper investigates the relationship between individual creativity and Self-Regulation from grade nine student's viewpoints in Jordan. We take this concern seriously and, in this article, show the kind of this relation using descriptive method.

3. Study Questions

The study responds to the following main questions in particular:

What is the relationship between individual creativity and Self-Regulation from grade nine students' viewpoints in Jordan?

Are there significant differences between the averages of creative skills and self-regulated due to the student sex?

4. Methodology

4.1. Participants and Procedure

Survey data were collected from two schools in Salt, randomly selected. 4 classes of nine grade students from these schools participated in the study. To sum up, the sample consisted of 92 students, (52.2%), Male and (47.8%) female.

4.2. Instrumentation and Procedures

Two questionnaires have been used to collect the data of this study: self-regulation and creativity. Self-regulation was assessed using a questionnaire consisting of (28) items constructed by the researcher from the theoretical literature related to self-regulation and reviewed by his colleagues. All items were rated on a 5-point scale: (1) never; (2) infrequently; (3) sometimes; (4) frequently; (5) always. Sample item is: "Do you make lists of the things you have to do each day?" refers to confidence on long-range planning. Scores for all items were averaged, to derive an overall score which range from (28-140). Cronbach's reliability coefficient was calculated from a pilot study group and it was (0.89).

Creativity was assessed using a questionnaire consisting of (20) items constructed by the researcher from the theoretical literature related to self-regulation and reviewed by his colleagues. All items were rated on a 5-point scale: (1) never; (2) infrequently; (3) sometimes ;(4) frequently; (5) always. Sample items are: "I come up with creative solutions to the problems", "I am a good source of creative ideas" refer to originality and fluency. Scores for all items were averaged, to derive an overall score which range from (20-100). Cranach's reliability coefficient was calculated from a pilot study group and it was (0.91).

The two questionnaires were administrated to the students individually during classes. Data collection took place during the first semester of the academic year (2013-2014). The data were fed into the computer and statistical computation using SPSS package was carried out. Data analyzed included means and standard deviation, Person reliability coefficient, and t-test.

5. Results

In this section of the paper we present an analysis of the research questions.

5.1. Descriptive Statistic and Reliability Coefficient

To answer the question: What is the relationship between individual creativity and Self-Regulation from grade nine students' viewpoints in Jordan? Pearson Correlation was computed. Table (1) shows the result.

Table 1. The means, standard deviation for the study variables

Study Variables	N	Mean	Std. Deviation	Pearson Correlation
Self-regulation	92	97.99	12.78	0.80**
Creativity	92	45.28	8.52	

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

As shown in Table (1) the means for self-regulation is (97.99) which is equal to the (52%) of the total score, while the mean for creativity is (45.28) which is equal to (45%) of the total score. The table also indicates that the correlation between self-integration and creativity is (0.80); this indicate that the total self-regulation is correlated positively with creativity statistically ($\alpha=.01$).

5.2. T- test for Comparing Means

To answer the 2nd question which is: Are there significant differences between the averages of creative skills and self-regulated due to the student' gender at ($\alpha=.05$)? The mean and standard deviation for subgroup (male and female) were computed and T-test was used to compare the means. Table (2) shows the results.

Table 2. T-Test for Comparing Means of Self-regulation and Creativity according to Gender

Study Variables	N	Mean	Std. Deviation	t	df	significance
Self-regulation male	40	98.71	14.40	0.87	87	1.49
Self-regulation female	52	94.06	15.11			
Creativity male	40	46.18	8.65	0.884	87	0.379
Creativity female	52	44.5	9.03			

As shown in Table (2) the means for self-regulation male is (98.71) against (94.06) for females. Also the table shows that the means for creativity male is (46.18) against (44.5) for females. Table (2) results also indicates that no statistically difference found at ($\alpha=.05$) between the averages of creative skills and self-regulated due to the student's gender.

6. Discussion and Recommendations

The present study is the first one that attempts to empirically explore the relationships between self regulation and creativity. Results show that individual creativity was positively and significantly related to self-regulation. This is in line with previous research findings indicating that creativity depend on individual interests and abilities, opportunities to do what they want to do, and activities that give the greatest satisfaction. [5]. Moreover, this is agrees with what Andreasen reported that creative cognition is resulting from a self-organizing system. [7]. More specifically Ivcevic and Mayer mention that the scholar creative type who is able to generate multiple ideas is high on self-regulation components such as risk taking. [19].

The findings of the study also reveal moderate average of self regulation and creativity for the subject of the study which reflect unawareness of the importance of self regulation and creativity which will produce competent learners who generate and adapt his/her knowledge and strategies needed to learn. [16]. Such learners rely on their metacognitive feeling in regulating their behavior, and, to the extent that these feelings are accurate. [17]. Finally the results indicates that there is no statistically difference found at between the averages of creative skills and self-regulated due to the student' gender, the results of the previous studies varied at this point. While the Results of Radaidi pointed out that female are more self regulated than male. [23]. Abdel Hameed's results showed that male is more self regulated. [24]. But the result of this study was confirmed with the result of Hong which showed no difference between students self regulation in homework due to gender. [25]. We believe that the results obtained in this study have some noteworthy theoretical and practical implications.

In the light of the study findings it is recommended that: The need of the teaching staffs to aware the students about the importance of self-organization and creativity and their impacts on academic achievement and self organization.

Future research is needed using experimental methods to measure the relationship between creativity and self-regulation, and to study self-regulation components and their relationship to a number of other variables such as motivation, critical thinking and psychological toughness among university and school students, in view of the lack of studies dealing with the changing environment in Jordan.

7. References

- [1] Zimmerman, B. J., & Schunk, D. H. (2004). Self-regulating intellectual processes and outcomes: A social cognitive perspective. In D. Y. Dai, & R. J. Sternberg (Eds.), *Motivation, emotion, and cognition: Integrative perspectives on intellectual functioning and development* (pp. 143–174). Mahwah, NJ: Lawrence Erlbaum.
- [2] Peeverly, Brobst, Graham & show. (2003). College adults are not good at self-regulation: A study on the relationship of self-regulation, Note taking and teast taking. *Journal Education Psychology*, V0l, 95, No, 2, 335-346.
- [3] Zimmerman, B. J. (2000). Attainment of self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeider (Eds.), *Handbook of self-regulation:13-39*. San Diego, CA: Academic Press.
- [4] Hamza, M. K. Kimberly G. Griffith. (2006). Fostering Problem Solving & Creative Thinking in the Classroom: Cultivating a Creative Mind. *National forum of applied educational research journal-electronic*, vol, 19 No, 3.
- [5] Holmes, F. L. (2004). *Investigative pathways: Patterns and stages in the careers of experimental scientists*. New Haven: Yale University Press.
- [6] Simonton, D. K. (1994). *Greatness: Who makes history and why*. New York: Guilford Press.
- [7] Andreasen, N. C., & Press, D. (2006). A review of the creating brain: The neuroscience of genius. *Psychology of Aesthetics, Creativity, and the Arts*, 8, 51-52.
- [8] Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41: 64-72.
- [9] Lubart, T. (2000). Creativity across cultures. In Sternberg R.J., *Handbook of Creativity*, 339-350. Cambridge: Cambridge University Press.
- [10] Sternberg, R. J. (2006). Creating a vision of creativity: The first 25 years. *Psychology of Aesthetics, Creativity, and the Arts*, 1, 2-12.
- [11] Ministry of education in Jordan, (2005, *The General Framework for Mathematics Curriculum for primary and secondary in Jordan*, Amman, Jordan.
- [12] Zhou, J., & George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal*, 44, 4:582-696.
- [13] Batey, M., & Furnham, A. (2008). The relationship between measures of creativity and schizotypy. *Personality and Individual Differences*, 45, 816–821.
- [14] Zampetakis, L. A. (2008). The role of creativity and proactively on perceived entrepreneurial desirability. *Thinking Skills and Creativity*, 3, 154–162.
- [15] Hamza, M. K., & Farrow, V. (fall, 2000). Yes, you can foster creativity and problem solving in your classroom. *Kappa Delta Pi- Record*, 37 (1), 33-35.
- [16] Kitsantas, A. (2002). Test preparation and performance: A self-regulatory analysis. *The Journal of Experimental Education*, 70,101-113.
- [17] Koriat.A, & Bjork, R.A. (2006). Mending met cognitive illusions: A comparison of mnemonic-based and theory-based procedures. *Journal of Educational Psychology: Learning, Memory , and Cognition*, 32,1133-1145.
- [18] Dunlosky, J. & Rawson, K.A. (2012). Overconfidence produces underachievement: Inaccurate, self evaluations undermine students' learning and retention. *Learning and Instruction*, 22:271-280.doi:10.1016/learninstruc.

- [19] Ivcevic, Z., & Mayer, J. (2007). Creative types of personality. *Imagination, Cognition and Personality*, 26: 65-86.
- [20] Sawyer, R.K (2006). *Explaining Creativity: The science of human innovation*. New York: Oxford University Press.
- [21] Friedman, R. S., & Forester, J. (2001). The effects of promotion and prevention cues on Creativity. *Journal of Personality and Social Psychology*, 81:1001-1013.
- [22] Sternberg, R. J., & Lubart, T. I. (1995b). An investment approach to creativity: Theory and data, In S. M. Smith, T. B. Ward, and R. A. Finke (eds.), *The Creative Cognition Approach*, MIT Press, Cambridge, Massachusetts, pp. 269-302.
- [23] Radaidi, Z.Bin Hasan. (2002). Motivation believes and self regulation strategies and its relation to the academic achievement for female students in Manarat School, *Journal of Education, Zaqazeeq*, 41:171-234.
- [24] Abdel Hameed, Azat (1999). Motivational structure and strategies of self regulation and its relation with academic achievement for educational faculty student, *Zaqazeeq University. Journal of Education, Zaqazeeq*, 33:101-152.
- [25] Hong, E.; Peng, Y.; & Rowell, R. (2009). Homework self-regulation: Grade, gender, and achievement-level differences. *Learning and Individual Differences* 19: 269-276.