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The Science Curriculum based on STEM Approach with Islamic Perspective and its effect on Improving Love of Learning among 9thstudents in Gaza.

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Abstract: The current study aimed at revealing the effect of integrative STEM approach from an Islamic perspective in improving love of learning among talented students of 9th grade at science course, and the study followed the Quasi-experimental approach according to pre-post design for one case, as the study sample was (20) talented students of 9th at Mustafa Hafez School. To answer the study main question, love of learning scale was used. The results showed that there are statistically significant differences in the result of love of learning scale between the pre and post application, also it showed that there is an effect to use science course that based on integrative STEM approach from an Islamic perspective in teaching science, this is as a result to overcome the problems that face teachers during presenting the scientific knowledge.

Keywords: (STEM approach with Islamic Perspective, Love of Learning, Talented 9th grade students)

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I. INTRODUCTION

The 21st century has tremendous and rapid developments in all fields, as the ruling and dominant element of this century become the scientific and technological progress. Thus, it's important to prepare a new type of learning in keeping with the requirements of the age. In recent year, many instructional strategies, models and approaches have been used and applied in learning environments, in an effort to overcome the disadvantages associated with traditional learning environments. In the same concern, some of these approaches have given clear indication in improving learning results and increased the motivation to learn, which is considered integrative STEM approach one of the most recent approaches that can be circulated.

Integrative STEM approach is defined as an approach that takes math, engineering, technology and science learning as it's produces innovative minds contributes in solving problems,Briney& Hill study(2013). Abu Owda& Abu Musa study (2019) defined it as an approach which stands onintegrate concepts with the reality, through practical application of science which the approach of science, technology, engineering, math and technology are integrated. In addition,Moor et al (2014), ensured that it's an approach that aims at constructing relations between the subjects enhance studentslearning. Also, Harrison (2011) states that STEM aims at achieving the quality of educational system outputs. Efforts have been diversed in the study of integrative STEM approach from different diminution. DeJarnette study (2018) &Ozkanm&Topsakal(2017) in their studyhandled it as STEM and Art. Additionally, Ismail & Sevcan study (2019) discussed that it's STEM + Environment approach. Other studies discussed it as STEM + Computer. Apparently, this study discusses STEM approach as from an Islamic perspective. AL-Hidabi& Abu-owda study (2019) defined it as an approach which incorporates between science, technology, engineering, maths and Qur'anic miraclesthrough a group of integrative activities which aim at achieving learning. Also, AL-Hidabi, & Abu-owda (2019) ensured that it's an approach which helps in forming human personality from his behavior and ethics in addition to practical and scientific excellence.

In order to integrate STEM approach from an Islamic perspective and achieve an effect in learning, users should have the interests trends and ability to learn at first in order to achieve love of learning. Peterson & Seligman studies (2004) considered love of learning as a force that makes the person interacts with things that he loves to learn. Krapp&Lewalter (2001), Renninger&Shumar (2002), &Snowdon (2001)considered that love of learning has benefitsthat make the students participate actively in their school homework.Also, it maintains on remaining learning effect in to long periods. Al-Gage, Al-Hidabi& Al-Hamady (2019) considered it as a gradual emotional feeling start with intimacy for learning, pass with passion for learning and end with commitment on learning thatensures continuity of learning. Liston (2004) indicated that good learning achieves

love of learning. Additionally, he ensured that love of learning needs pursuit from the teacher to attract students attention to continue with the scientific contents, and release their potential.

In the light of that, there's no pervious study took STEM approach and it effect on love of learning, but there are some studies that discussed STEM approach like;Saleh (2016)study, that achieved positive attitudes toward science and technology, also it helped learning to make decision and practice many skills. Stohlmann, Moore &Roehrig (2012) assures that it achieved attitudes and students trends toward science and Math's learning. Marsha (2006) explained that improving in the students attitudes as a result of teaching the knowledge by using STEM approach. Rehmat (2015)states that learning by STEM improves students attitudes toward learning.Doppelt, et al, study (2008) sees that learning STEM has a role in enhancing students interest in learning.

In the light of the previous as a general presentation to integrative STEM approach, and a special presentation to integrative STEM approach from an Islamic perspective, the researchers have afeeling that it's important to use science teaching in the light of students reluctance toward science study.Also, the researchers observed (as they are members of teaching staff in different universities and followers to the educational field) that there is a weakness among the students in understanding concepts and scientific theories as a result of using traditional methods in teaching the students.

In the same concern, they observed that although there are studies took integrative STEM, STEM + A, STEM + C, STEM + E approach, there is no study took STEM from an Islamic perspective in any previous study. Moreover, there is no previous study searched on STEM effect in improving love of learning, although there are studies searched on STEM effect on the attitude, this made the researchers to study the Science Curriculum based on STEM Approach with Islamic Perspective and its effect on Improving Love of Learning among students in Gaza.

II.RESEARCH PROBLEM

The study problem is determined on the ways to benefit from using integrative STEM approach from an Islamic perspective in improving love of learning so the main question of the research problem can be formulated as the following:

What is the effect of using curriculum of science according to integrative STEM approach from an Islamic perspective to Improve Love of learning among students in Gaza?

According to the previous, the current research seeks to answer the following sub-questions:

1. What is the level of achievement to integrative STEM approach from Islamic perspective to love of learning degree in teaching science course among talented female students of 9th grade?
2. Are there any statistically differences at the level of ($\alpha \leq 0.05$) between the student's grades in love learning scale pre and post the application?

IV. RESEARCH HYPOTHESES

To answer the research questions, some hypotheses are formulated:

1. Integrative STEM approach from an Islamic perspective to love of learning degree in teaching science course doesn't achieve more than (62%) among talented students of 9th grade.
2. There is no statistically significant difference at the level of ($\alpha \leq 0.05$) between the student's degrees average in love of learning scale pre and post the application?

III. RESEARCH OBJECTIVES

The research seeks to achieve the following goals:

- To improve Love of Learning dimensions among the students through using integrative STEM approach with Islamic perspective.
- Detect the level of integrative STEM approach from an Islamic perspective to love of learning degree in teaching science course among talented female students of 9th grade.
- Detect the effect of the STEM approach with Islamic perspective in science to improving the Love of Learning of students in the target group.

V. RESEARCH IMPORTANCE

The importance of the research is:

- Contributing in discovering the role of Science curriculum Based on STEM approach and Islamic Perspective in developing Love of Learning.
- Presenting a motivation to use integrative STEM approach from an Islamic perspective in teaching science field.
- Taking an important side of education process, is to present solutions and suggestions to activate teaching

science course.

VI. THE LIMITS OF THE RESEARCH:

The application of the research is on a purposed sample from 9th talented female students at Mustafa Hafez School which followed to west Gaza region, the research was applied on a unit of science course (human body organs), in the second semester of (2018-2019).

VII. DEFINITION OF TERMS

The researchers define the research terms operationally as:

- **STEM approach with Islamic Perspective:**

The researchers define it as an approach which combines between scientific knowledge, math, engineering, technology, and scientific miracles through a group of completed activities, that the researchers used in improving Love of learning dimensions.

- **Love of learning:**

It's an expected enjoyment that the student feel during learning science by using integrative STEM approach from an Islamic perspective, the dimensions of love of learning are measured by the degree that the talented students of 9th grade achieve in love of learning scale.

- **Talented 9th grade students:**

Students of 9th grade who have high degree in performance in science, math and technology, also they have the ability to think and innovate.

VIII.METHODOLOGY

The researchers used Quasi-experimental curriculum in implementing research experiment, as they adopted one group design, which is one of Quasi-experimental designs that depends on (pre-post) measure to the same group.The research sample was chosen in intentional method from talented students of 9th grade, to apply the pre scale on it and after experiment, treatment by using science curriculum that stands on integrative STEM approach from an Islamic perspective then applying post scale to measure the differences between the two scales.

8.1 Data Collection Instruments:

The researchers reviewed the educational literature that is related to love of learning, as the researchers adopted Al-Gage, Al-Hidabi& Al-Hamady (2019) scale to love of learning with making some modifications on the scale in order to suit the natural and the research sample. The scale was (15) paragraphs distributed on there dimensions as the following: Learning Intimacy dimension (4 paragraphs), learning Passion dimension (5 paragraphs) and learning Commitment dimension (6 paragraphs).

8.2 Scale validity:

To ensure the validity of the scale, the scale was applied on pilot sample consist of (30) students (out of the study sample), as the validity was measured through the interned consistency validity, correlation co-efficient between the scale paragraphs and dimensions were calculated. All correlations co-efficient between the scale paragraphs dimensions have a statistically significant at the level of (0.01, 0.05). Thisindicates that the scale paragraphs are highly connected with the scale dimensions that indicates the validity of the scale.

8.3 Scale Reliability:

The correlation of reliability scale was calculated as whole by using (Coronbach's Alpha), the value of reliability scale was (0.70), and it’s a reassuring reliability scale to this scale, and it indicates the ability to use the scale.

8.4 Data Analysis:

The research was applied on a sample consisted of (20) talented students of 9th graders from Mustafa Hafez school. The class was monitored, the data were added and treated statistically by using SPSS program version (18). In addition, to test the accuracy of the hypothesis, paired samples (T-test) were used to study the differences before and after the experiment of love of learning scale

IX. FINDINGS

The results related to the first question:

The First question: what is the level of achievement to integrative STEM approach from Islamic perspective to love of learning degree in teaching science course among among talented female students of 9th grade?

To answer this question, the researchers formulated the hypothesis:

- Integrative STEM approach from an Islamic perspective to love of learning degree in teaching science course doesn't achieve more than (62%) among talented students of 9th grade.

To check the accuracy of this hypothesis, the researchers calculated the arithmetical mean, standard deviations and percentage (%) in the scale. The following table shows the arithmetical averages, the standard deviations and percentage (%) in the scale.

Table 1: shows the M, S.D, (P) value, and percentage (%).

Scale	df	Mean	S.D	P value	Sig	Percentage (%)
Love of Learning	19	49.40	5.73	4.797	0.000	82.33%

From the previous table, it,s shown that calculated (P) value is more than tabular (P) value in love of learning scale by using integrative STEM approach from an Islamic perspective and this is considered a statistically significant, as the calculated average was more than the critical average which is (62%) as Al-Gage, Al-Hidabi& Al-Hamady (2019) study, and this is what the current study ensure. So we reject zero hypothesis and accept the alternative hypothesis which states:

Integrative STEM approach from an Islamic perspective to love of learning degree in teaching science course doesn't achieve more than (62%).

The second question: Are there any statistically differences at the level of ($\alpha \leq 0.05$) between the student's grades in love learning scale pre and post the application?

To answer this question, the researchers formulated the hypothesis:

- There is no statistically significant difference at the level of ($\alpha \leq 0.05$) between the student's degrees average in love of learning scale pre and post the application?

To check the accuracy of this hypothesis, the researchers calculated the arithmetical mean, standard deviations and effect size in the pre and post-scale. The application of pre and post-scale of Love of learning was conducted (20) female students. The following table shows the arithmetical averages, the standard deviations and effect size in the pre- and post- scale.

Table 2:shows the M, S.D and η^2in the pre- and post- scale.

scale	df	Test	Means	S.D	P value	Sig	p^2	η^2	Effect size
Intimacy	19	Pre	10.00	1.77	6.212	0.000	38.59	0.67	Large
		Post	13.90	1.71					
Passion	19	Pre	13.60	1.90	3.352	0.003	11.24	0.37	Large
		Post	16.05	2.56					
Commitment	19	Pre	17.35	2.05	2.364	0.029	5.59	0.23	Large
		Post	19.45	2.93					
Total Scale	19	Pre	40.95	3.60	4.797	0.000	23.01	0.55	Large
		Post	49.40	5.73					

From the previous table, it's shown that the mean of the pre-scale scores is (40.95) and it is less than the mean of the post-scale scores which is (49.40).

The "P" value of calculated for the total score of the Love of learning scale is (4.797) which is greater than the value of the "P" tabled at a level of significance (0.05), which is (2.365). Therefore, the zero hypothesis was rejected and the alternative hypothesis is accepted, meaning that (There are statistically significant differences at ($\alpha = 0.01$) between the average scores of the Love of Learning dimensions of the students in the pre and post-scale applied in favor of the post scale)

To determine the effect size the value of η^2 was computed as shown in table (2) the values of η^2 for all the scale love of learning,the effect size is (0.55). This means that the Science Curriculum based on integrative STEM Approach with Islamic Perspective has a very significant effect on the dependent variable (love of learning) and with a very high degree of effect.

X. DISCUSSION

This study was conducted to determine the impact of teaching design according to integrative STEM approach with Islamic perspective on improving love of learning among talented 9th grade female students. Study results showed that there is a positive impact in raising the level of love of learning of female students of the Pre-post group after the study of The Science Curriculum based on STEM Approach with Islamic Perspective. The researchers think that the reason refers to:The interaction of the students toward the presented course by integrative STEM approach from an Islamic perspective, and this gives the students appurtiunty to improve their love of learning. Also, the course make the students have many questions which lead to increasing their love of learning, more over the course included group of activities technological and engineering project and visual effects, which entailed attracting the students attention this leads to intimacy and passion for learning. In the same context, science course helped in presenting integrated scientific knowledge that's difficult to find in the school book. Additionally,, the current research used a new method on the students to present the knowledge that leads to suspense the students so the students become committed to learn.

The researchersdidn't find any previous study in love of learning as a dependent variable. Thus, it's difficult to compare the study results with the previous studies. Moreover, the current study agreed with the previous studies, the Hidabi & Abuowda (2019) study that showed that the integrative STEM approach from an Islamic perspective that leads to improve critical thinking skills. While the study Ismail, & Sevcan (2019) showed the increasing in the environmental awareness among the study sample as a result of using E-STEM approach. And confirmed the study Gulhan & Sahin (2018) increased scientific creativity, while the study for Sarican & Akgunduz (2018) ensured that STEM approach presents positive contributions toward the student achievement. In additon, Abuowda & Abumousa (2019) confirmed that using integrative STEM approach leads to improve scientific practices. On the same concern,Rehmat study (2015) ensured that learning by STEM improves students attitudes toward learning. Doppelt, et al, study (2008) said that learning STEM has a role in enhancing students interest in learning.

XI. RECOMMENDATION:

The current study recommends on the following:

- To benefit from using integrative STEM approach from an Islamic perspective in order to overcome the problems and the obstacles that faces the teachers in presenting the scientific knowledge.
- To benefit from using integrative STEM approach from an Islamic perspective in different education stages.

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