

The Effect of Blended Learning Based Training Program on Developing Creative Thinking among Talented Students at King Abdullah II Schools for Distinction

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Doi:10.5901/jesr.2016.v6n3p13

Abstract

The objective of the current study was to investigate the effect of a blended learning based training program (BLBTP) on developing creative thinking (CT) among talented students at King Abdullah II Schools for Distinction (KASD). The study sample consisted of fifty-six grade ten students selected from KASD for boys at Irbid governorate. The sample was assigned randomly into two groups: experimental (26 students) and control (30 students). To achieve the objective of the study, the researchers prepared a BLBTP. They also used the Torrance Creative Thinking Scale - form A, containing three skills (fluency, flexibility, and authenticity). After establishing reliability and validity of these instruments, they were administrated to both groups.. Findings indicated significant differences in the means scores of the experimental group on creative thinking skills and whole skills due to the training program, in favor of the experimental group students. In light of the findings reported in the current study, the study recommends the need to encourage teachers to use blended learning (BL) more in schooling, as it has major effects on developing CT among students. Further future studies are needed to address different populations of students, and then compare the findings reported in these studies with those reported in the current study to achieve a thorough picture of the effective use of BL in the classroom.

Keywords: training program, creative thinking, high-achieving students, blended learning

1. Introduction

This age has been marked by a significant and rapid advancement in all walks of life, particularly regarding computers, communication, and information technology. It can be said that scientific knowledge multiplies every five years. Using and applying computer and information technology science in all areas of science and knowledge are among the most prominent variables of the age. The illiteracy of an individual is nowadays seen as being unable to positively deal with the age variables and comply with life requirements (Al-Far, 2002). Thus, important issues include how educationists deal with the teaching learning process as one of continuous renewal, and development. This shall result in facilitating the way individuals cope with their environment, and the slogan "Teach students how to learn and think" bears a prospectus of great importance (Jerwan, 2010).

Educational bodies are not able to deal with the issue without the continuous development of their curricula to keep up with such successive scientific changes. It is not only educating learners to read and write and perform some calculations that is important, but also learners need to be helped to comprehend the fundamentals of scientific culture, specifically in computer and information technology (Al-Far, 2002). To achieve this, well planned and efficient strategies have to be presented to teach and learn these skills, which should be purposeful, and efficiently achieve the goals of the educational process.

This entails a review of distinguished and talented students' curricula, along with their content of teaching and

learning strategies and methods. Strategies selected should be different from those prevailing conventional ones. Methods and strategies have a crucial effect on the progress and development of societies. Knowledge and scientific progress, as well as discoveries and inventions in different fields, are the production of the creative mind. Moreover, creative thinking has an effect on developing individuals' characters, and relieves them of conventional thinking models. Being enriched with skills enables them to take alternative tracks and find new solutions for the problems they face (Al-Omariah, 2008). Blended learning (BL) based education strategy aims at developing what are called twenty-first century skills. They aim at developing students' characters and prepare them to face life requirements.

BL means using modern techniques in teaching without departing the usual educational processes, such as textbooks and going into classrooms, where the focus is given to direct interaction by using modern communication devices such as computers, networks, and internet sites, which consequently save time, effort, and cost. Further more, it helps learners obtain information fast, so that the educational process can be managed and controlled, and learners' performance can efficiently be measured and assessed. (Shoumaly, 2007).

BL is seen as a supplement to regular educational learning methods. It is a major tributary of lecturing based conventional school learning. That is why this method is blended with regular teaching to easily, swiftly, and clearly support it. BL will not succeed if it lacks the prominent factors of current conventional learning elements. To achieve many of the indirect or unseen tasks, it needs students' collective attendance to enhance the importance of joint acts, and indirectly foster educational values. BL also needs a link with written textbooks to motivate students to think deeply about the texts they deal with (Abu-Mousa, 2005).

Several studies indicate the possibility of developing creative thinking skills by using different training programs, since it is a capability that every human being obtains and can be developed when appropriate conditions are available. A study by Houser (1989), which used a training program about creative thinking and collective assessment and skills of solving grade ten and eleven gifted students' problems, found statistically significant differences with the group exposed to the program. Another study by Al-Heilah (2001) found an artistic activities to have an impact on the creative thinking of basic stage female students in Irbid Educational Directorate, Jordan. Brana's study (1991) confirmed the importance of computerized training programs in developing the creative thinking skills of the individuals who had training on them.

Several educational readings and studies confirm the strategic importance of BL for several reasons. A study conducted at the University of Central Florida (2001) found that BL achievement was higher than that of conventional (face to face) and full electronic learning. Blended learning also increased students' ratios of retaining learning. Singh (2004) found that including some simultaneous electronic activities to the syllabus of the subject instructed conventionally increased the retention percentage to about 94%. Anderson (2002) also found in a study conducted on about 4000 male and female students that blended learning improved the students' level of achievement.

Collis (2003) said that it provided an easy access to knowledge and information, especially to students who cannot regularly join classrooms, and also encouraged regular school attendance and eliminated school runaway. In their study, Dean, Stahle, Sylwester, and Pear (2001) found that it reduced the level of effort and material expenses of learning. Job (2003) explained that it speeded up performing tasks and accuracy. His study agreed with Thomson's (2003) study, when students also performed and achieved tasks fast. Rovai & Jordan (2004) found that it was conducive to social interaction, communication, and openness to the community process. Wingard's study (2005) declared that it increased interaction among students as well as teachers, and it also increased students' learning percentage.

Colin (2005) found that it reduced paper references and replaced them with electronic references, as well as reducing the time of being away from family and the time of students' unhealthy sitting at classroom desks. Valerie (2005) found that it extended and improved the learning experiences of learners. Dzivban, Hartman, and Maskal (2004) found that it helped teachers improve as designers of active learning environments, and became more facilitating and interesting while teaching students. Finally, the Sparrow establishment (2003) issued a report about justifications for developing BL, and using this strategy in learning and training. Students' responses showed that they were able to apply learning methods, individually find exact solutions, improve the learning percentage, and reduce the time allocated for events in the classrooms. This shows that the BL strategy is important, and focuses the teaching environment on the learner rather than on the teacher, and can be applied on all educational stages.

1.1 Study problem and objectives

During their field supervision of many special education centers and some state schools, the researchers noticed that most of the students, especially the gifted, suffered from school related problems. There was no time for extracurricular activities, and students often felt lazy, as the curriculum focused on memorization, although normal students' teaching

methods had been used (Ayasreh & El-Omari, 2016). That is why this study intends to detect the effect of the blended learning based training program (BLBTP) in developing the creative thinking skills (CTSs) of gifted students of KASD, and also constructing a BLBTP.

1.2 Study question

This study intends to answer the following main question:

Are there statistically significant differences ($\alpha = 0.05$) between the experimental group performance and the control group in developing creative thinking skills attributed to the blended learning based training program?

1.3 Study importance

This study is important as it tries to unveil the efficiency of a BLBTP in developing CTSs of a sample of gifted students at KASD. The study also has quite a good educational literature and literature review. Moreover, it is seen as an addition to the Arabic educational library, with its contribution for increasing the human cognition about giftedness, excellence, BL, and CT. The study might be a good reference for scholars and learners. The importance of the study emerges from the prominent role of BL, which helps develop the CTSs. This would give a view to those in charge of the educational process about the importance of BLBTPs in developing CTSs and self-concept. It would also contribute to the setting up of plans, programs, methods, and curriculum design, which helps meet the needs of gifted students on whom the nation's prospects and expectations for building society rely.

2. Definitions of Study Terms

1. **The program:** It is a blend of activities, interactions, experiments, and experiences which members of the group experience as individuals and group members who help in their development and growth physically, mentally, socially, and psychologically (Al-Otbi, 1996).
2. **Training program:** A set of procedures, trainings, and activities based on blended learning and designed to actualize the objectives of the study of the sample students of KASD in the Irbid Governorate.
3. **Blended learning:** As defined by Alexander (2006), it is a style of learning which depends on blending regular styles of learning with electronic learning, and audio and video learning aids for a better teaching and learning process. As for procedural means it is a teaching strategy based on learning by multi methods where electronic and regular learning are blended for better educational outputs.
4. **Creative thinking:** It is an intentional, complex, mental activity, directed by a strong desire to find solutions or achieve original outputs never obtained before and distinguished with totalitarianism and sophistication. It also contains ethical and affectionate elements that form an outstanding mental state (Jerwan, 2008). In procedural means it is defined as the grade obtained by an examinee as per creative thinking meter used in this study.

3. Study Limitations and Determinants

1. **Spatial and temporal:** This study was conducted at KASD, in the Irbid city, Jordan, during the second semester 2013 / 2014.
2. **Human:** The study was excluded to the excellent tenth grade male students.
3. **Tools:** Accuracy level of extracting credibility and reliability indications of study tools are the training program, Torrance Test verbal version form A for measuring creative thinking, and the possibility of approving study findings.

4. Literature Review

Several studies were conducted on the relationship of blended learning with creative thinking and the obstacles to provide different cultural evidence, objectives, and variables.

Al-Sawalmeh (2008) aimed to deduce the efficiency of using a blended teaching / learning form for developing scientific thinking, and stimulate the active learning of 138 grade eight students in science and their trends towards it. Findings showed that the students who used the blended teaching / learning form surpassed those who studied

according to the normal method.

Wilkinson (2009) aimed to detect the effect of teaching concepts and cartoons by using a blended learning program (BLP) on 14 male and female fine arts students randomly selected from Leeds University. A questionnaire and a creative thinking test were used to collect data, in addition to a "blended learning" training program. Findings noted that there was a statistically significant positive effect of using the BLP for improving the creative abilities of the fine arts students taking part in the study. The program was effective in clearly improving students' productions of cartoons to be more creative.

Honebein (2009) aimed to detect the effect of using a BLP on the experiences of special education programs students. The study sample consisted of 416 male and female normal and exceptional students randomly selected from a set of schools that provide special education programs in the U.S.A. For collecting data purposes, the study used an achievement test and a creative thinking test. Findings showed that the BLP was able to promote the creative and innovative capacities of the students taking part in the study, and its effect was more efficient with the exceptional students than the normal ones.

Gregurovic (2010) aimed to detect the effect of BLP in language learning at the creative level of 216 male and female students selected from a number of courses of learning English as a second language at an American university. The study used a questionnaire, creative thinking test, and an achievement test to collect data. Findings showed a positive effect for using a blended learning based form for teaching English as a second language on the level of students presenting innovative solutions of problems given to them inside the classroom at the course of reading comprehension.

Liamthaisong and Pumipuntu (2011) aimed to develop a blended learning form structured on the network by using the process of solving creative problems to develop CTs and skills of solving problems of university students. Study sample consisted of three groups of students. The study used a blended teaching and learning form, Torrance creative thinking test, problem solving test, and an achievement test. Findings showed that using the blended learning form in the study improved the level of CT and the problem solving skills of the students. This was reflected in the students' achievement of higher grades in the academic courses of the problem

The present study benefited from these studies for understanding BL and its applications on gifted students. The studies also clarified the CTs. Considering the samples of the studies, most of them belonged to normal students. In fact, none of the studies were about gifted students. The samples also varied. Some of the studies used samples of normal university students, such as Liamthaisong and Pumipuntu (2011), Gregurovic (2010), and Wilkinson (2009). However, others were about normal school students (basic and secondary), such as Honebein (2009) and Al-Sawalmah (2008). The present study is different regarding the aim and sample. The researchers, as far as they know, did not find any study which investigated the effect of BL in improving the CTs and the self-concept. This study is also distinguished regarding the sample, since the researchers did not find any study which used gifted students who study at a special school for gifted students. That is why this study is different from other studies mentioned in the literature review.

5. Method and Procedures

5.1 Study sample

The study sample consisted of 56 grade ten male students of King Abdullah II School for Distinction in the Governorate of Irbid, Jordan of the school year 2015 / 2016. The sample was of the soft kind and intentionally selected. Subjects of the sample were distributed into two sections (Tenth grade Hashem and Tenth grade Hussein). The two sections were again labeled into experimental and control groups randomly. Each one of the two sections was made a group. Using the toss the coin method, Tenth Grade Hussein was the experimental group which would undergo a BLBTP, while the Tenth Grade Hashem would be the control group which would receive no training or treatment. Table 1 below shows the distribution of the study sample onto the two groups:

Table (1): Distribution of study subjects into experimental and control groups

Group	Section	No. of students
Experimental group	Tenth grade Hussein	26
Control group	Tenth grade Hashem	30
Total	Hussein and Hashem	56

Subjects of the study sample are 56 grade ten male students of King Abdullah II School for Distinction in the Governorate of Irbid, Jordan of the school year 2013 / 2014. The sample is of the soft kind and intentionally selected. Subjects of the sample are distributed into two sections (Tenth grade Hashem and Tenth grade Hussein). The two sections are again labeled into experimental and control groups randomly. Each one of the two sections is made a group. Using toss the coin method, Tenth Grade Hussein is the experimental group which will undergo a blended learning based training program, whereas the Tenth Grade Hashem will be the control group which will receive no training or treatment. Table 1 below shows the distribution of the study sample onto the two groups:

5.2 Study instruments

To achieve the purposes of the study, two instruments were used:

- Blended learning based training program, which is prepared by the two researchers.
- Torrance creative thinking scale (verbal image, form A).

5.2.1 First instrument: Blended learning based training program

After the researchers had reviewed the theoretical literature related to the subject of the study to know how lessons are prepared according to the blended learning theme which requires several electronic means with the existence of the teacher inside the classroom, a computerized training program was prepared. It consisted of three lessons (Etiquette of asking for permission and greetings, Description of fever, and Stem cells) from the Arabic tenth grade curriculum. The power point and word processor programs were used. Each file was independently saved so that it could be presented by using the Internet Explorer program which is specifically set to upload websites on the internet. The following stages were taken:

1. **First stage: Selecting and designing the learning material – hard copy:** Three topics were selected (Etiquette of asking for permission and greetings, Description of fever, and Stem cells) from tenth grade Arabic textbook second semester. Topics were divided into lessons which were designed so that each one should include observable and measurable educational outputs by analyzing the lesson content into concepts, realities, terms and skills, values and trends, exercises and activities, and electronic means which include self training and evaluation. This is all done through the electronic website prepared for these lessons besides enrichment and remedial activities, work sheets as homework, and lesson related electronic addresses. Bearing in mind that the description of the teaching material was not as it is in the curriculum, but it had been developed according to the cognitive, psychomotor, and affective objectives and study purposes. The content analysis was submitted to several specialized Arabic teaching referees. Accordingly, necessary and appropriate amendments were made.

Expected educational outputs were identified after being analyzed, then submitted to educational referees, and some objectives amended. Teaching material was designed on paper, taking the form of teaching frames by identifying the teaching material (texts, pictures, sounds, additional information). Basics of designing computerized training programs was strictly followed, regarding the need of programs including special use instructions, so that a learner could easily and properly use the program software. To increase interest and enjoyment while using the program software, comfortable and appropriate colors were added, besides providing suitable effects during slide presentation. Programs software were also provided with different pictures that harmony the topic of the unit, taking in consideration the amount of information on a single slide to match its size.

The designed educational program software was refereed as a hard copy before the execution stage by a number of specialists in Arabic, educational technology, measurement and evaluation, and educational psychology at a number of universities (Yarmouk, Balqa Applied, Islamic Sciences, and M'utah universities). It was considered that the program need to be easy to use by the learner, program software should be suitable to the content and totality, effects had to be used such as colors, drawings, suitable and eye-comforting backgrounds, and even considering appropriateness of information quantity presented on a single slide.

2. **Second stage: Preparation of the teaching material electronically:** The training program is designed by using programs of power point, word processor, and flash memory. At the beginning of each software item there is a page for the title of each lesson. Moreover, necessary sounds and pictures to present the content of the lesson are added.

3. **Third stage: Trying the educational software:** The educational software was tried on a ten student pilot study sample outside this study sample of different achievement levels. The software was presented to the students and some notes were taken such as clarity of instructions on each screen, time needed for each student to see the software, capacity of the software to help students develop creative thinking skills and self concept. In light of the pilot study sample students' views, appropriate amendments were made so that the computerized teaching material would be presented in its final edition.

5.2.1.1 Reliability of the educational program

To ascertain that the program is reliable, it was presented to a group of specialized referees in technology, networks, and teaching aids, in addition to several educationists. Their notes and suggested amendments were considered, such as implementing the program in an attractive interesting way. That is why colors and backgrounds of the slides were carefully selected to be appropriate and comfortable for the learners. Any distracting effects were excluded, and suitable lines were selected to be different from those in the textbook which are cognitive based texts only.

5.2.1.2 Program application

After ascertaining the reliability of the appliances to be used in the training program application, experimental group students' capabilities to use the training program and the computer sets were also confirmed with some necessary exercises to carry out the experiment. After that, training began to the experimental group students on both the computerized program and the conventional teaching method. The application process lasted for six weeks.

The control group students were taught according the normal direct traditional method with usual teaching aids (board, chalk, pictures and figures in the textbook). Here the largest load lies on the teacher, and the students are merely recipients of the information without considering the individual differences among them.

5.2.2 Second instrument: Torrance test for creative thinking, verbal image, form (A)

This test, which was amended for the Jordanian environment, is used to test the degrees of study sample individuals' creative thinking. The test consists of seven sub tests which measure the following skills:

1. **Fluency:** Represented in the number of expected answers of the situation in a temporal static unit.
2. **Flexibility:** Represented in the diversity of expected answers categorization of the situation in a temporal static unit.
3. **Originality:** Represented in the number of unique new answers in a temporal static unit.

These skills form the elements of creative thinking. Each one of these seven tests needs seven minutes to answer besides the time required for instructions and guidance. The seven tests which Torrance Test (the verbal image) consists of are:

- First test:** Giving the question, i.e. asking the examinee interrogative questions about an incident.
- Second test:** Guessing the reasons, i.e. the examinee guesses the possible reasons of the incident.
- Third test:** Guessing the consequences, i.e. the examinee mentions the expected consequences of the incident.
- Fourth test:** Improving the product, i.e. the examinee gives suggestions to develop and improve something.
- Fifth test:** Uncommon uses, i.e. the examinee mentions uncommon substitutes uses of something.
- Sixth test:** Uncommon questions, i.e. the examinee asks unfamiliar questions about something.
- Seventh test:** Suppositions, i.e. the examinee gives several expectations of a supposed and unreal situation.

Torrance (cited in Abu-Jado and Naofal, 2007) recommended the omission of subtest six, as consecutive researches noted that it does not contribute in the predictive reliability of the whole degree of the test, so this test was omitted at the application of the study.

5.2.3 Reliability of Torrance test for creative thinking (verbal image A)

The test has reliability indications in the Jordanian environment. Al-Shanti (1983) conducted a study which aimed at identifying the indications of reliability and consistency of Torrance tests for creative thinking (verbal image A) in the Jordanian environment, and statistically analyzed the extracted data and studied their reliability from several perspectives:

1. **Stake reliability:** This is done by calculating the correlation coefficient among total degrees of creativity (verbal image A) which the examinees obtained and the degrees they achieved in their teachers' estimation lists. The correlation coefficient was 0.70 which is statistically significant ($\alpha = 0.05$).
2. **Internal consistency:** Al-Shanti (1983) calculated the correlation coefficient among the examinees' sub-degrees for skills of fluency, flexibility, and originality which they achieved for each test with the total degree of a single test. Correlation coefficient values ranged between the examinees' sub-degrees and the total degree of a single test on the verbal image of Torrance test of creative thinking between (0.40 – 0.75). Fluency dimension was (0.46 - 0.75), flexibility dimension was (0.40 – 0.62), and originality dimension was (0.49 – 0.72), all of which are statistically significant. The correlation coefficient values among the examinees' sub-degrees (fluency, flexibility, and originality) the students achieved in each test with the total degree of the creativity test was (0.37 – 0.83), all of which are statistically significant.

5.2.4 Stability of Torrance test for creative thinking (verbal image A)

Al-Shanti (1983) worked out the stability coefficient of Torrance creative thinking tests by using the retest method on a sample of 120 male and female students with a week time difference between the two applications. The stability coefficient of the total degree of the creative thinking test was 0.70, and the stability coefficient of each one of the test dimensions was (0.74, 0.73, 0.38) fluency, flexibility, and originality respectively. The test also has indications of stability with some studies in the Jordanian environment, such as the studies of Besharah (2003), and Al-'Abweeni (2008) with stability coefficients (0.83, 0.87, and 0.74) respectively.

To ascertain the test stability of this study, it was applied on a pilot study sample outside the sample of this study. The sample was 39 distinguished school students. Working out the Pearson Coefficient Correlation, the stability coefficient total degree of the whole creative thinking test was (0.745).

5.2.5 Checking Torrance test for creative thinking (verbal image A)

Procedures of checking the test were carried out according to the following steps:

1. Checking forms for examinees' answers and forms for listing grades were prepared so that non-related answers could be excluded before giving the grades.
2. An examinee gets total grades for fluency, flexibility, and originality on the verbal image A out of the total sub-grades of these skills in each sub-test of the six tests of the verbal image A.
3. Fluency: The sub-grade is credited out of the total answers which the examinee has answered for a single test, so he / she is given one grade for each correct related answer.
4. Flexibility: The sub-grade is credited out of the total answers which the examinee has answered for a single test, so he / she is given one grade for each related answer category. However, for the last sub-test, an examinee gets one grade for a related answer which has a unique thinking quality.
5. Originality: The sub- grade is credited out of the total grades of originality which the examinee has got for each answer, so for originality the grade (0 or 1) is given.
6. Estimating examinees' answers and judging their performance, means and standard deviations are calculated for each one of the creative thinking test dimensions and the whole test through the highest and lowest marks a student has got. The statistical standard is worked out to explain their answers, and table 2 below shows this.

Table 2: Statistical standard explaining answers of study sample individuals on Torrance creative thinking test

Dimension	Lowest mark	Highest mark	Standard	Level
Fluency	34	75	- 34 less than 47.67	Low
			- 47.67 less than 61.34	Medium
			75 – 61.34	High
Flexibility	14	34	- 14 less than 20.67	Low
			- 20.67 less than 27.34	Medium
			34 – 27.34	High
Originality	4	18	- 4 less than 8.67	Low
			- 8.67 less than 13.34	Medium
			18 – 13.34	High

Dimension	Lowest mark	Highest mark	Standard	Level
Creative thinking as a whole	52	127	- 52 less than 77	Low
			- 77 less than 102	Medium
			102 - 127	High

5.3 Study variables

The study has the following two variables:

First; Independent variable: Blended learning based training program

Second; Dependent variable: Creative thinking skills measured through the total grade a student achieves on the Torrance creative thinking scale, verbal image A.

5.4 Study Design

Statistical quasi-experimental design is used as explained in figure 1 below.

Control Group	O	-	O	GR
	1		2	1
Experimental Group	O	X	O	GR
	1		2	2

Figure 1: Statistical quasi-experimental design

5.5 Statistical process

It is intended to answer the study questions by using the means and standard deviations besides the T-test.

6. Study Findings

Answering the study question: "Are there statistical significant differences at the level of ($\alpha = 0.05$) between the performances of the experimental and control groups on the creative thinking skills test, attributed to blended learning based training program?", the means and standard deviations of the two study groups' (experimental and control) performance on the creative thinking skills test and the test as a whole as per the group variable are reckoned. To explain the significant statistical differences among the means, the T-test is used. Table 3 below explains this.

Table 3: Means, standard deviations and T-test of group effect on study sample individuals' performance on the creative thinking test of distinguished students

Method	Group	No.	Mean	St. div.	T. value	F degree	Sig.
Fluency	Control	30	44.23	10.46	- 4.372	54	.000
	experimental	26	57.23	11.78			
Flexibility	Control	30	18.33	3.75	- 6.590	54	.000
	Experimental	26	24.88	3.66			
Originality	Control	30	6.80	1.56	- 6.035	54	.000
	Experimental	26	9.27	1.48			
Total creative thinking	Control	30	69.36	13.19	- 5.752	54	.000
	experimental	26	91.38	15.46			

Table 3 above shows statistical significant differences ($\alpha = 0.05$) attributed to the teaching program of all sub skills of creative thinking and on the total grade. Differences are for experimental group individuals who have studied by using the

blended learning method compared to the control group individuals who have studied by using the normal conventional one. The experimental group has the means 57.23, 24.88, and 9.27 respectively for each one of the creative thinking skills (fluency, flexibility, and originality). The control group has the means 44.23, 18.33, and 6.80, for which the statistical significance values are less than the significance level ($\alpha = 0.05$). This means that the program was efficient for developing the creative thinking skills of the experimental group individuals.

6.1 Findings Discussion

Findings of the T-test show that there are statistical significant differences ($\alpha = 0.05$) between the means of the two student groups' (experimental and control) performances on the post test of the creative thinking test, attributed to the training program for the experimental group, who studied according to the blended learning method. This is compared to the control group, who studied in the normal conventional method. The experimental group performance mean for the post test is (91.38), whereas their peers' performance mean of the control group is (69.36). This indicates the superiority of the experimental group, who studied by the method of blended learning for the development of creative thinking skills over the control group.

These findings agree with Liamthaisong and Pumipuntu's (2011) study, which found that the blended learning form was able to improve students' creative thinking and the problem solving skills. It also agrees with the findings of Gregurovic (2010), which show that there is a positive effect of the use of the blended learning form, which is based on teaching English by using a second language which proves the improvement of students' ability to find creative solutions for the problems they might face in the classroom. The findings also agree with what Wilkinson's (2009) findings, which show there is a significant positive effect of the use of the blended learning form in improving students' creative capabilities. The study also agrees with Honebein (2009), who stated that the blended learning program strengthened the creative and innovative capabilities of the students taking part in the study, and the effect of the blended learning program is more efficient with the outstanding students compared with the normal ones.

These findings can be attributed to the efficiency of the blended learning method for the privileges it enjoys, as it merges more than one learning method. In fact, it blends the advantages of the conventional method with the electronic, and therefore it helps get rid of the negative phenomena of normal learning which gives students the chance of self learning. This has contributed in providing a sort of self freedom which allows students to make use of their previous experiences, and invest their real efforts and capabilities in the learning material. This method also increased students' realization of the importance of what they learn, and also their awareness of applying it for new situations and thus increasing the effect of learning transference. Moreover, the program handling blended activities which motivate thinking, realization, understanding, search, and meditation, besides students' benefit of what the computer provides of characteristics and privileges as an effective tool to explain and facilitate lessons, increase their ability to think creatively, and be more aware of the way they think and learn.

The researchers found that using the computerized program in teaching increased students' interaction, understanding, and comprehension of the content of the educational material. This has contributed in provoking students' thinking and departing the usual conventional methods because of the exciting methods the computerized blended program consisted of; consequently, this improved the educational environment and increased students' enthusiasm towards learning. This ultimately enabled students to interact in a way which enhanced their creative skills. Using this educational software made the students the center of the teaching learning process, whilst the role of the teacher turned to be a supervisor and director to the students' work. This helped in creating an interactive educational environment between students and the learning material, on the one hand, and between the students and the teacher on the other hand, which enabled them to display their ideas and cognition without limiting themselves to what the teacher dictates on them. It is worth mentioning that an environment set for creativity gives the opportunity to students to show the utmost of ideas related to the topic discussed, while it also releases them of any limitations.

The educational software presented to the students of the experimental group consisted of questions which make each student the core of the educational situation. It made the student a figure posing the required incident to be implemented. This requires students to be positive during the educational process to foster their creativity by finding solutions, reformulating life situations, or facing the challenges imposed by the teaching text. The blended learning method is distinguished, in that it does not prevent learners from enjoying interacting with teachers and colleagues face to face. This helps students benefit and learn from their colleagues through the collective or cooperative work.

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