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ONLINE TEACHING COURSE TO DEVELOP STUDENTS' CREATIVITY IN HANDMADE EMBROIDERY

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ABSTRACT: *The present study aimed to identify the effectiveness of an online course in comparison with face-to-face teaching in the development of students' creative thinking enrolled in Handmade Embroidery course at the Department of Home Economics at the Faculty of Education, at Najran University. To achieve this aim, an creative thinking test regarding the content of Handmade Embroidery course was developed. Learning Management System Blackboard provided by the eLearning Deanship ant Najran University was also used in the design and production of the online course. The experimental approach was used through the experiment application to (50) students in their fourth level at the college of education. Participant students were divided into two groups of (25) students in each. The control group was taught via Face-to-Face learning, while the online course was used to teach participants in the experimental group. Findings proved the effectiveness of online course in developing students' overall creative thinking and mainly their flexibility and authenticity abilities whereas it was not effective in developing their fluency skill.*

KEYWORDS: Online Teaching Course, Students Creativity, Handmade Embroidery

INTRODUCTION

Rapid changes of scientific, technological and ICT progress have been a distinguished characteristic of present era. It is therefore very important to go along with these changes to catch up with advancement in a time remarked by knowledge explosion and tremendous technical development. Such changes have caused the emergence of numerous types and methods of teaching, in which the learner can progress according to his learning ability, pace, and previous experience and skills among which is his reliance on Internet for the provision of online courses. Most higher education institutions all over the world have begun to encourage the conversion of courses that used to be delivered via face-to face into online ones, (McCarthy & Samors, 2009). Online course is a term related to open and online education scalability that needs to be defined broadly, (OpenupEd, 2015). Widespread public attention has been garnered by online courses because of their potential as a new educational vehicle, (Anderson, e.al. 2014:1). Anything or activity that can be assigned or utilized in an online course can be assigned and utilized in the traditional one, (Serlin, 2005:1).

In online courses as well as face-to-face learning, five main criteria are there and can serve as "best practices" for the student, his peers, and self-ratings. These criteria are student-student and student-instructor interactions, instructor support and mentoring, lecture/content delivery quality, course content, and course structure. The main difference between both types lies in the use of technology and social networking tools related to content delivery, (Berk, 2013: 141). Creasman (2012: 2) stated that online courses usually

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enable learners to interact anytime with each other, on one hand and with the course materials via asynchronous activity. Students can also participate in multiple conversations simultaneously because of the existence of non-linear discussions on message boards and forms. Communication is primarily via written texts. An email is the primary means of slower communication between students and their instructor and the website availability grants greater time and social contact between both. Online courses also make available greater volume of information and resources. In addition, the instructor becomes learning facilitator who guides while staying aside. The most important benefits and uses of online learning include: its effectiveness in educating students, its use as professional development, its cost-effectiveness to combat the rising cost of postsecondary education, credit equivalency at the postsecondary level, and the possibility of providing a world class education to anyone with a broadband connection, (Nguyen, 2015:310).

Creativity, which is sought to be generated by online courses, is the generation of imaginative new ideas , involving a radical newness innovation or solution to a problem, and a radical reformulation of problems (Sefertzi, 2000, 2). It masters the process of making, producing, assessing, or judging. The term “creative” implies a critical component that empowers the individual to have or show imagination and artistic or intellectual inventiveness. The human's mind when engaged in high-quality thought, it simultaneously produces, assess, generates, and judges the products it fabricates, (Paul & Elder, 2008, 4). The importance of creativity or creative thinking is obvious and needs no emphasis. Each one needs to develop his/her ability to come up with new ideas as long as one's desire of having a competitive advantage in his/her profession exists. Creative learning refers to the possibility for learners to develop their thinking skills and learn in a new, creative way, Cachia, et.al. (2010). Creative thinking is the kind of thinking that leads to new insights, novel approaches, fresh perspectives, whole new ways of understanding and conceiving of things. It leads the person to new paths of creativity and enriches his/her life, (Adair, 2011, 1). Coughlan (2008:4) adds that skills of creative thinking are about talent as well as about attitude and self-confidence. Sefertzi (2000: 2) argues that creative thinking has many objectives, like for instance thinking beyond existing boundaries; awaking curiosity; breaking away from rational, conventional ideas and formalised procedures; relying on divergent and random imagination; and considering multiple solutions and alternatives.

Embroidery is the handicraft of decorating fabric or other materials with needle and thread or yarn. Other materials such as metal strips, pearls, beads, quills, and sequins can be incorporated in Embroidery to decorate caps, hats, coats, blankets, dress shirts, denim, stockings, and golf shirts, (Wikipedia, 2016). In the Medieval Islamic world, embroidery was an important and common art that was known as "craft of the two hands". It was a sign of high social status in Muslim societies and was visible on handkerchiefs, uniforms, flags, calligraphy, shoes, robes, tunics, horse trappings, slippers, sheaths, pouches, covers, and even on leather belts. Craftsmen sometimes embroidered items with gold and silver threads, (Stone, 2007). Therefore, the present study seeks to identify the effectiveness of online teaching compared with face-to face teaching on developing the skills of creative thinking of female students enrolled in "handmade Embroidery" course at the Department of Home Economics at the College of Education at Najran University.

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THE RATIONALE OF ONLINE TEACHING

It is very important to note that the use of technology within teaching environments should be based upon the dominant educational theories, (Patteurn, et.al., 2006). Consequently, online courses should do the same as they are one form of this technology use. Online course of the present study is based upon some of such theories. It believes, according to Behaviorism that learning occurs when conditional correlation happens between specific stimulus and response, (Smith & Ragan, 2005). Applications of Behaviorism in online courses are limited to content delivery such as assignments, short tests, and feedback. Cognitive theory is also considered in the construction of online courses. Learning, it states is a process of acquisition or re-organization of one's cognitive structures through which learners process and store information, (Good & Brophy, 1990). Therefore, applications of cognitivist involve the use of multimedia based learning. Creativity on the other hand, that the present study aims to develop, arises through the confluence of threes components, i.e. knowledge, creative thinking, and motivation. Figure (1) shows how creativity is developed, (Adam, 2005: 5).

Figure 1: Three Components of Creativity

Therefore, to develop learners' creativity, teachers have to consider students' expertise, creative thinking skills, and motivation.

RELATED LITERATURE

Many studies have asserted the effectiveness of online courses in the development of students' academic achievement mainly and their creative thinking skills in particular. For example, Nguyen (2015) examined the evidence of the effectiveness of online learning by organizing and summarizing the findings and challenges of online learning into positive, negative, mixed, and null findings. Particular attention is paid to the meta-analyses on the effectiveness of online learning, the heterogeneous outcomes of student learning and the endogenous issue of learning environment choice. Findings showed that , there was a robust evidence to suggest online learning is generally at least as effective as the traditional format. Lim, et. al. (2008), on the other hand, investigated the effects of three different methods of instructional delivery (online instruction, traditional face-to-face instruction, and a combination of online and traditional instruction) on student achievement and satisfaction levels used in an undergraduate Wellness course at a Midwestern university.

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The results of this study indicated that students in the online learning group and the combined learning group had statistically significant higher levels of achievement than students in the traditional learning group. Online courses are those in which at least 80% of the instruction is Internet-based. These courses are accessed online through the Internet, and are classified either as "delayed interaction" courses, in which the student accesses the course at times that are convenient for him/her, or as "simultaneous interaction" courses, in which he/she must be online at the same time as the instructor, (Johnson & Mejia,2014:4). Mokaram, et. al. (2011) also investigated the effects of a computer application, namely, designing electronic slides on the development of creative thinking skills of a sample of undergraduate students. the findings revealed significant differences between the experimental and control group groups in the total creative thinking scores in favour of the experimental one. The study concluded that designing electronic slides can enhance the creative thinking skills for students. Furthermore, Wimsatt, et. al. (2007) tried to reveal whether online education stifles or enhances students' creativity students' perceptions of how online courses impact their creativity were investigated. Based on students' feedback, it appears that taking online courses generally enhances their creativity. They were not only more inclined to be creative thinkers, but also more likely to be organized and exercise critical thinking. The students noted, however, that online instructors were largely instrumental in enhancing creativity. In conclusion, it can be claimed that online teaching can enhance students learning and achievement and to prove this, the present study aims to find out to what extent this kind of teaching can be effective in the development of Home economics students Handmade skills in an Embroidery online course.

STUDY QUESTIONS

The present study aims to answer these questions:

i. To what extent does an online course affect the development of the overall creative thinking of Home Economics students enrolled in "Handmade Embroidery" course at the college of education?

ii. To what extent does an online course affect the development of the creative thinking, namely fluency of Home Economics students enrolled in "Handmade Embroidery" course at the college of education?

iii. To what extent does an online course affect the development of the creative thinking, namely flexibility of Home Economics students enrolled in "Handmade Embroidery" course at the college of education?

iv. To what extent does an online course affect the development of the creative thinking, namely authenticity of Home Economics students enrolled in "Handmade Embroidery" course at the college of education?

METHODOLOGY

The present study aims to identify the effectiveness level of an online course in comparison with face-to-face learning in developing the creative thinking of students enrolled in "Handmade Embroidery" course at the college of education through answering a set of questions as mentioned before. The sample consisted of (50) female students at the fourth level at the department of Home Economics at Najran University. They were randomly

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assigned to control and experimental groups according to the experimental design of the study. Each group consisted of (25) students. The content of the "Handmade Embroidery" course was taught via Face-to Face learning to the students in the control group while students in the control group received their learning via an online course. Learning Management System Blackboard provided by the deanship of eLearning at Najran University was used to design and develop the Handmade Embroidery Online Course. Figure (2) presents the log in Scream to the online course.

Figure 2: Login screen to Handmade Embroidery Online Course

Teaching content of 'Handmade Embroidery" course consisted of (14) lectures using PowerPoint presentation that can be accessed via a specific link called "Content". Another link related to "Recorded Lectures" was also added to Blackboard System for the sake of providing students with a set of practical lectures that show students how to implement each embroidery stitch required by students. All recorded lectures were using Echo System for the sake of developing students' creative thinking in handmade embroidery. Social interactions and cooperation between students and their instructor or among students themselves were accounted for, too. The developed online course involved a set of interaction tools such as discussion throughout forums, groups that facilitate cooperation among students and allow them to strengthen their virtual relations with colleagues, and blogs as a tool for open communication for students to share and exchange ideas. Figure

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(3) illustrates the main screen of the developed educational Handmade Embroidery online course with regard to Blackboard System.

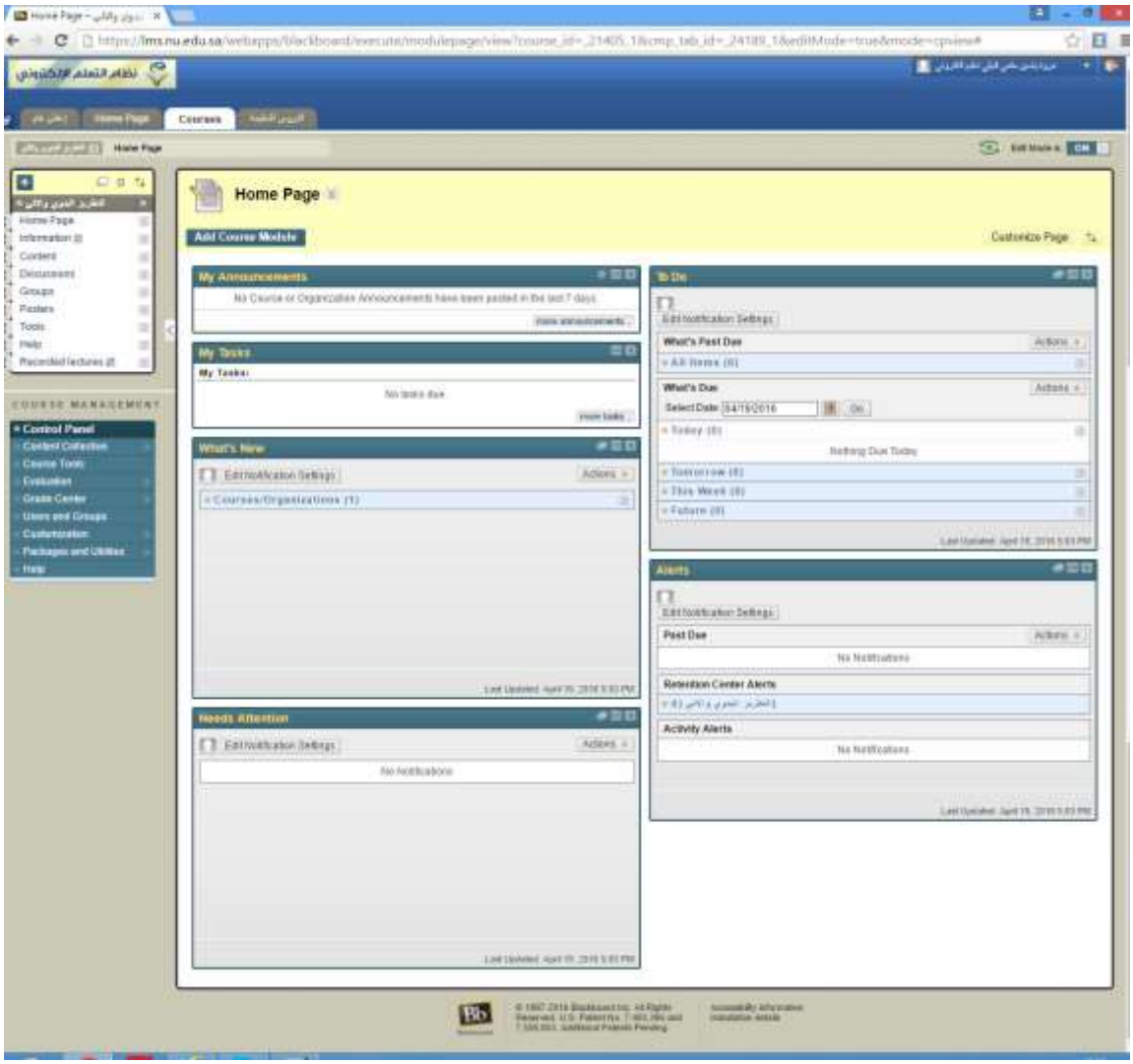

Figure 3: Main screen of Handmade Embroidery Online Course

As soon as students click on the "Content" link on Blackboard system, the content of the "Handmade Embroidery" course appears in front of them. Figure (4) illustrates this process.

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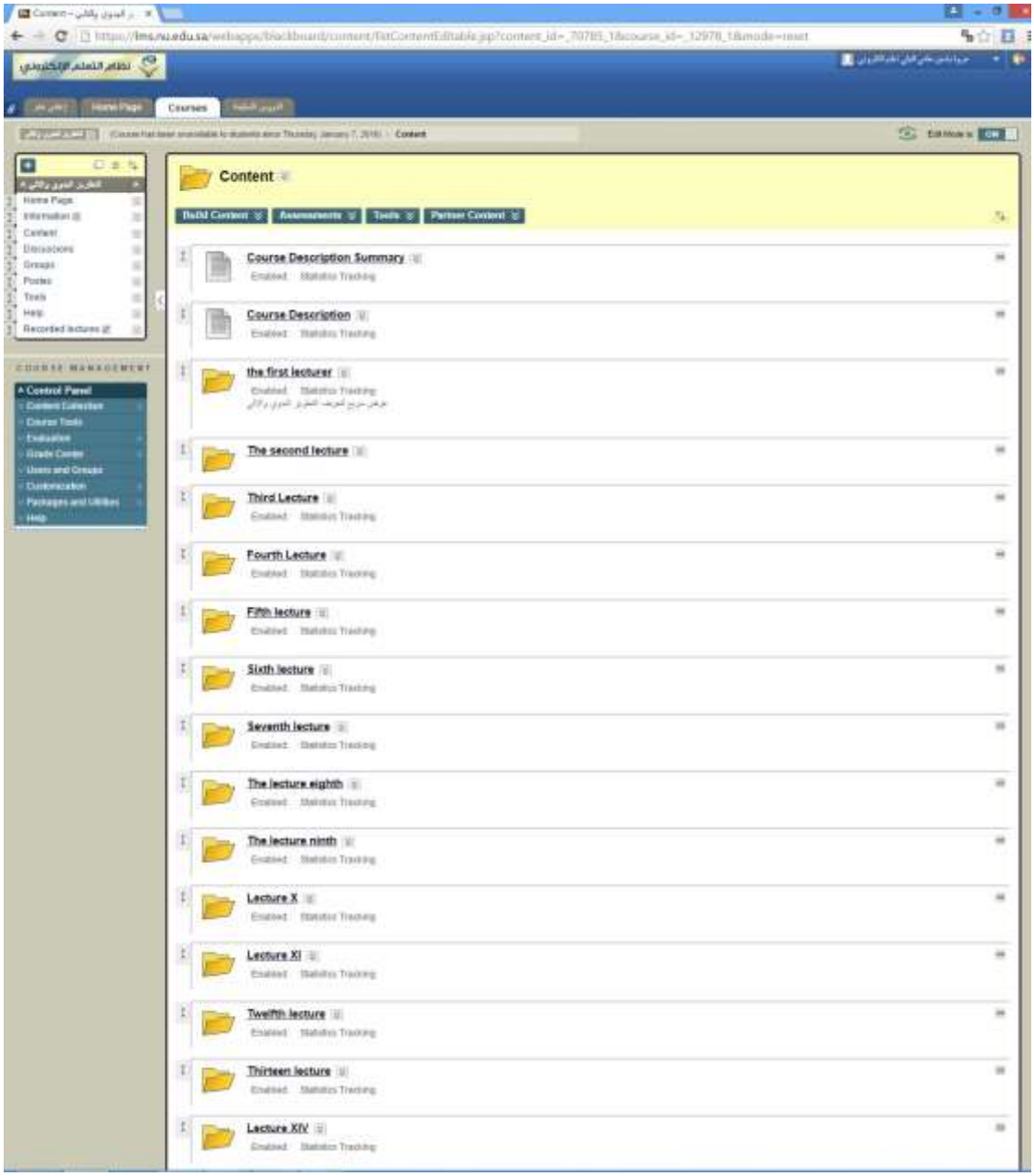

Figure 4: Content of "Handmade Embroidery" course

STUDY DESIGN

The quasi-experimental research approach was used in the present study. Pre-test and post-test of equivalent groups were implemented for both groups as illustrated in table (1).

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Table 1. Research Design

	Pre-test	Treatment	Post-test
Experimental Group	O_1	X_1	O_2
Control Group	O_1	X_2	O_2

Note. O_1 = Creative Thinking of pre-test X_1= Online Course Treatment

O_2 = Creative Thinking of post-test X_2= Traditional Treatment

An creative thinking test specific to the content of "Handmade Embroidery" course was prepared. It aimed to measure Home Economics Students' ability to think creatively in light of the definition of creative thinking that states that "creative thinking is the student's ability to employ embroidery stitches to produce handmade embroidery designs on various products of fabrics of Home furnishings. Students' products were required to be distinguished by intellectual fluency, spontaneous flexibility, and remote ramifications in response to a problem, situation, or stimulus. In addition, the test was developed after reviewing much of the related literature and research that tackled creative thinking test building related to specific content. The primary version of the test consisted of eight items taking into account the verbal image and the open-ended nature when drafting them. Each item was to test the three skills of creative thinking, i.e. fluency, flexibility, and authenticity which in turn formulate the student's creative thinking ability.

For asserting test validity, a set of arbitrators were requested to check the connection between its items and aim. In light of the remarks that arbitrators provided, some modifications were done such as rewriting some items. Test reliability was also examined by checking the relation between its application results on a pilot sample of (10) students of Home Economics department at Najran University and William's test application results. Reliability coefficient was (0.84) indicating a high one that can be trustful for the use in the present study.

TEST PRE- APPLICATION

Test pre-application means the application of the study instrument, which was the creative thinking test that was associated with the content of "Handmade Embroidery" Course on the experimental and control group before starting teaching them. The aim was to make sure of their homogeneity and to determine their academic level. Results of both groups in that pre-test application were analyzed using ANMOVA for the difference between the means of both groups. Results are illustrated in table (2).

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Table 2: differences between the experimental and control groups in the Creative Thinking Pre-Test

	Sum of Squares	DF	Mean of Square	F. ratio	Sig.
Between Groups	5.120	1	5.120	0.824	0.368
Within Groups	298.160	48	6.212		
Total	303.280	49			

Results in table (2) indicate that F. ratio (0.824) was insignificant (α=0.05). In other words, there were no significant differences between both groups means in the creative thinking pre-test. That is, participants' levels in both groups were homogeneous regarding creative thinking before the experiment.

RESULTS AND DISCUSSION

As soon as the experiment finished, participant students' grades in both group on the creative thinking test were registered and subjected to analysis. T. test for two independent samples was used to identify the difference between the modified gain ratio of students grades in both groups in creative thinking associated with the content of Handmade embroidery' course. Findings are shown in table (3).

Table 3: The difference between the Modified Gain Ratio of students' means in the experimental and control groups with regard to the overall creative thinking

Group	N	M	SD	Mean Difference	T. Ratio	Sig.
Experimental Group	25	35.2800	2.38956	4.1200	4.467	0.044
Control Group	25	31.1600	3.94419			

Table (3) shows that the difference between the Modified gain ratio of students' means in both groups with regard to the creative thinking test (t=4.467) was significant (α=0.05). Mean score of participant students in the experimental group was (35.28) while the mean score of participant students in the control group was (31.16). That is, there were significant differences between students in both groups with regard to their creative thinking level in favor of the experimental group that was taught via an online course. This difference is a strong indicator that an online course was effective in developing the overall innovating thinking of students. Figure (5) illustrates this difference.

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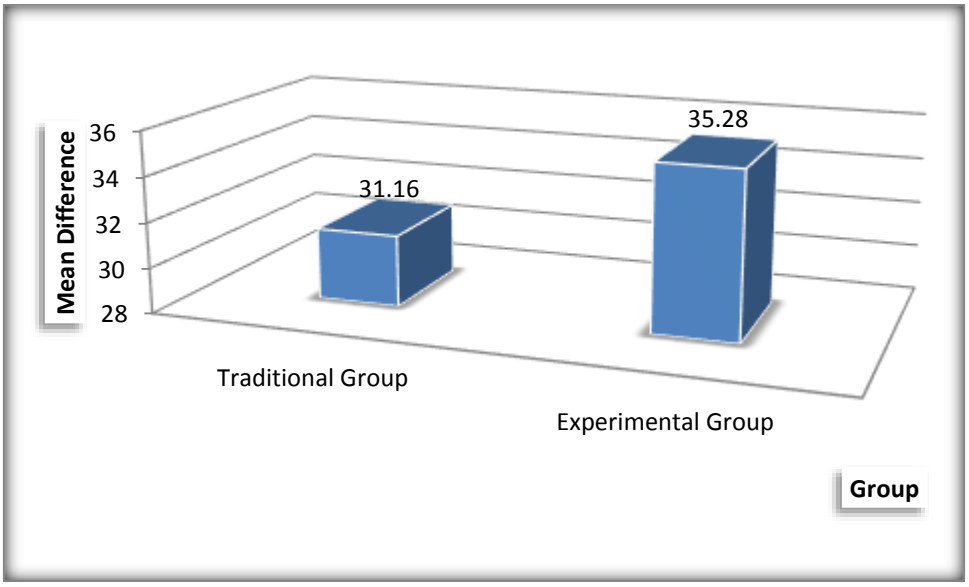

Figure 5: The difference between students' overall creative thinking

In addition to the statistical analysis of the overall score of students' creative thinking capabilities, a statistical analysis was conducted for each skill. Findings are presented in table (4), table (5), and table (5).

STUDENTS' FLUENCY IN CREATIVE THINKING

Table (4) presents the difference between students' modified gain ratio regarding fluency in creative thinking.

Table 4: The difference between the Modified Gain Ratio of students' means with regard to students' fluency

Group	N	M	SD	Mean Difference	T. Ratio	Sig.
Experimental Group	25	18.4400	1.58325	0.1200	0.208	0.696
Traditional Group	25	18.5600	2.41661			

Table (4) reveals that the difference between the Modified Gain Ratio of students' grades in both groups according to their fluency skill (0.208) was insignificant. The mean score of students in the experimental group was (M=18.44) while the mean score of students in the control group was (18.56). That is, there was no statistically significant difference (α=0.05) between the Modified Gain Ratio of students' grades in the experimental group who were taught via an Online course and control group who were taught by face-to-face learning. This insignificant difference could be an indication that both ways of teaching whether online course of face-to-face learning have nearly similar effect in developing students' fluency skill. Figure (6) clarifies the difference between students in both groups regarding fluency.

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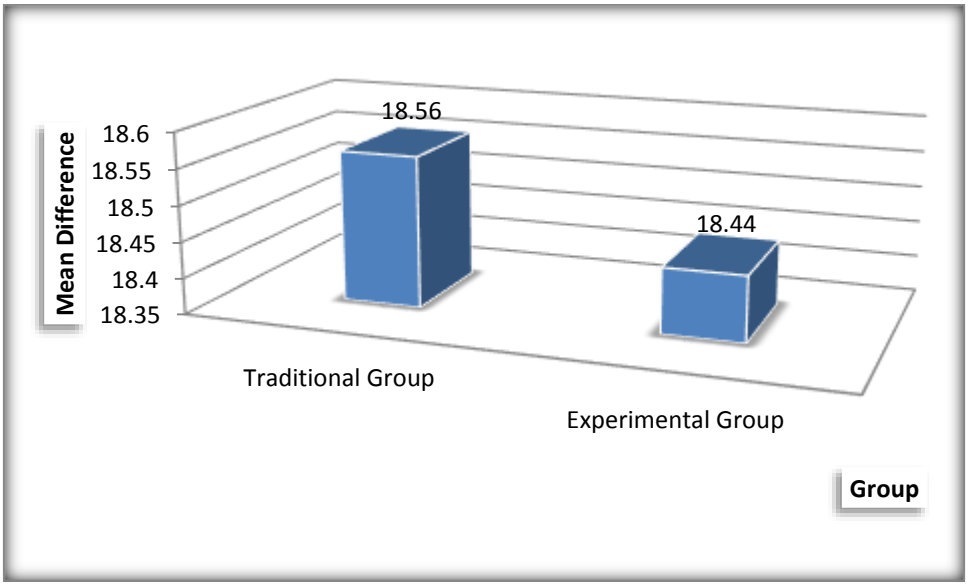

Figure 6: The difference between students in both groups regarding fluency in the creative thinking test

STUDENTS' FLEXIBILITY IN CREATIVE THINKING

Table (5) presents the difference between students' modified gain ratio regarding flexibility in creative thinking.

Table 5: The difference between the Modified Gain Ratio of students' means with regard to students' flexibility

Group	N	M	SD	Mean Difference	T. Ratio	Sig.
Experimental Group	25	14.2400	1.16476	3.0400	6.468	0.039
Control Group	25	11.2000	2.04124			

Table (5) reveals that the difference between the Modified Gain Ratio of students' grades in both groups according to their flexibility skill (6.468) was significant. The mean score of students in the experimental group was (M=14.24) while the mean score of students in the control group was (11.20). That is, there was statistically significant difference (α=0.05) between the Modified Gain Ratio of students' grades in both groups in favor of the experimental group who were taught via an Online course. This significant difference could be an indication for the effectiveness of the online course in developing students' flexibility skill. Figure (7) illustrates the difference between students in both groups regarding flexibility skill.

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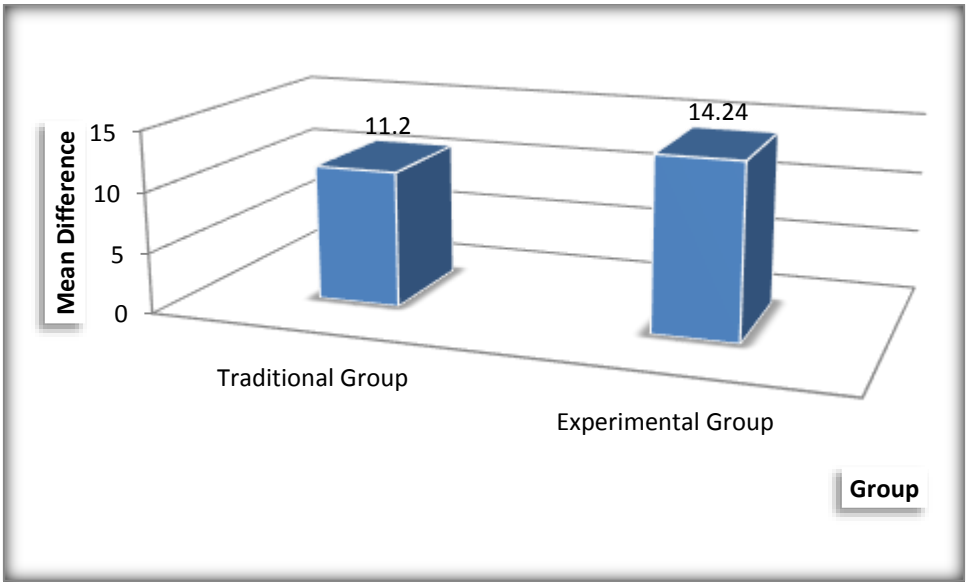

Figure 7: the difference between students in both groups regarding flexibility in the creative thinking test.

Flexibility is the skill to direct and divert thinking along with the change in stimulus or requirements of the context. It is the opposite of mental stiffness or fossilization. It is the actual skill of the individual to change thinking attitudes towards more than one direction and not being frozen or insistent on one direction. Furthermore, it is what leads to the production of responses distinguished by variability and irregularity. Therefore, variance between students in both groups was referred to the way of delivering the course content that involved a number of multimedia and the fulfillment of activities cooperatively with colleagues or individually. Furthermore, varied teaching contexts and learning resources were created by the use of the online course that contributed to making it flexible. Consequently, the course flexibility was reflected to create flexibility within students in the experimental group. Various interaction types within the environment of the online course that encouraged students to respond differently to various contexts were also helpful in developing the flexibility skill of students in the experimental group.

STUDENTS' AUTHENTICITY IN CREATIVE THINKING

Table (6) presents the difference between students' modified gain ratio regarding authenticity in creative thinking.

Table 6: The difference between the Modified Gain Ratio of students' means with regard to students' authenticity

Group	N	M	SD	Mean Difference	T. Ratio	Sig.
Experimental Group	25	2.6000	0.5000	1.2000	6.267	0.040
Control Group	25	1.4000	0.81650			

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Table (6) shows that the difference between the Modified Gain Ratio of students' grades in both groups according to their authenticity skill regarding creative thinking (6.267) was significant. The mean score of students in the experimental group was (M=2.60) while the mean score of students in the control group was (1.40). That is, there was statistically significant difference (α=0.05) between the Modified Gain Ratio of students' grades in both groups in favor of the experimental group who were taught via an Online course. This significant difference indicates the effectiveness of the online course to develop students' authenticity skill in creative. Figure (8) illustrates the difference between students in both groups regarding authenticity in creative thinking.

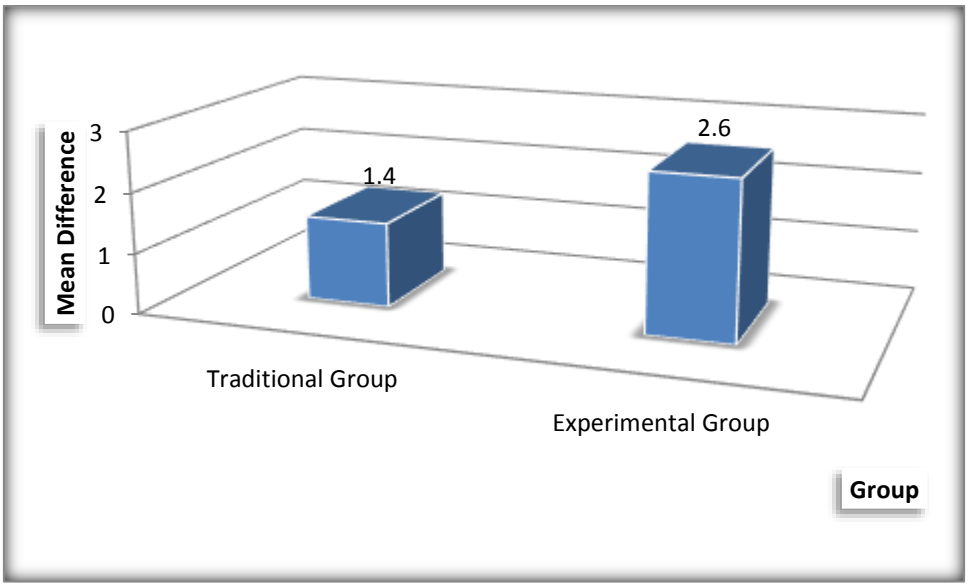

Figure 8: the difference between students in both groups regarding authenticity in creative thinking.

Authenticity means the skill to produce non-public responses, remote, unusual and having unconventional relations. It is the face that reflects creative thinking and once the idea gets a less prevalence degree, the more authentic it becomes. Therefore, variance between the authenticity skills of students in both groups could be due to the nature of online course environment that allowed students a lot of freedom to express their own ideas and deploy them through the course website. In addition, the inclusion of many activities that motivated students to present their own ideas via chatting room and discussion forum had also affected the development of students' authenticity making their ideas more remarkable than the ideas of their colleagues.

In conclusion, the present study has concluded that the provided online course was effective in developing students' creative thinking skills and capabilities, mainly students' flexibility and authenticity ones. But it was not effective in developing their fluency skill. These results can be explained in light of a set of facts among which are:

i. The provided content through the Online Course included images and fixed drawings, which enhanced visual thinking. As a result, students' interest in drawings that played a significant role in the development of their creative thinking was aroused.

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ii. The online interaction whether direct through chat rooms or indirect through news forum helped students to develop their creative thinking.

iii. The provided content through various means of media such as texts, images, and fixed drawings undoubtedly helped to develop students' creative thinking skills.

iv. The use of chat room and discussion forum tools to make an unlimited number of debates enhanced brainstorming techniques and in turn helped students to develop their creative thinking.

v. The provision of the online course with the formative assessment system that was used autonomously helped students to develop their creative thinking.

Figures from (9) up to (20) can shed light on students creative thinking skills. They show some samples of students' work regarding the use of embroidery stitches

Figure 9: Simple and complex branch Stitches (the experimental group)

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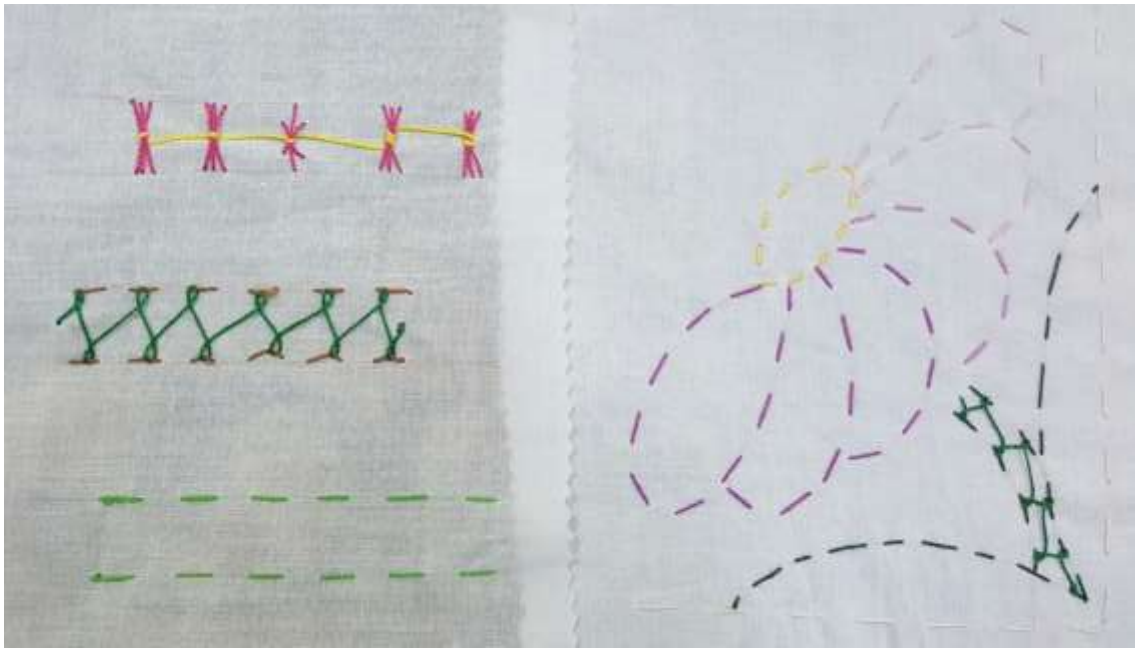

Figure 10: Harness and decorative harness stitches (the experimental group)

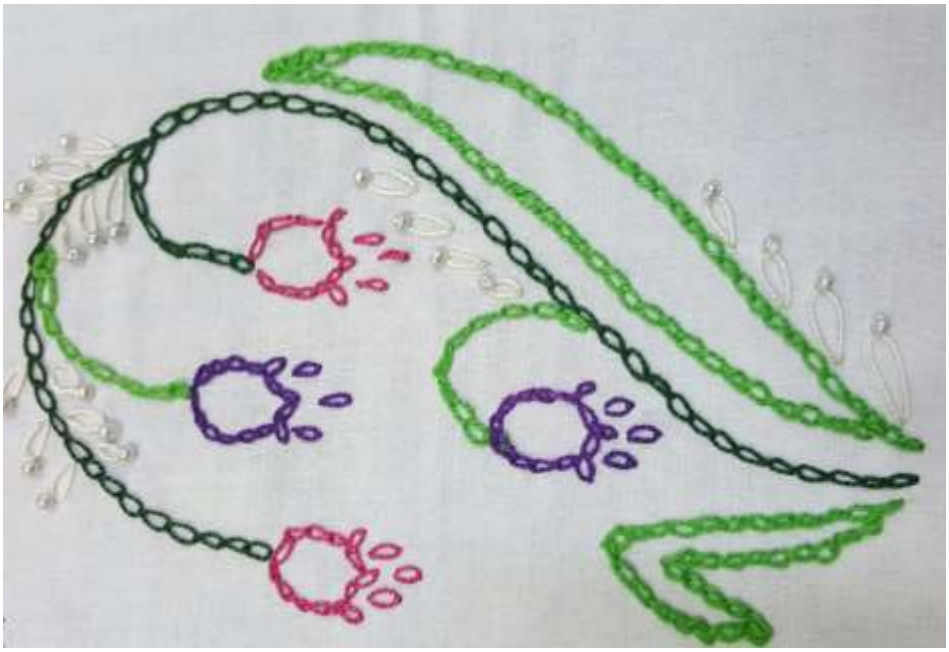

Figure 11: Connected and separate chain stitches (the experimental group)

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Figure 12: Fillers stitch (the experimental group)

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Figure 13: Seeds and Rococo stitches (the experimental group)

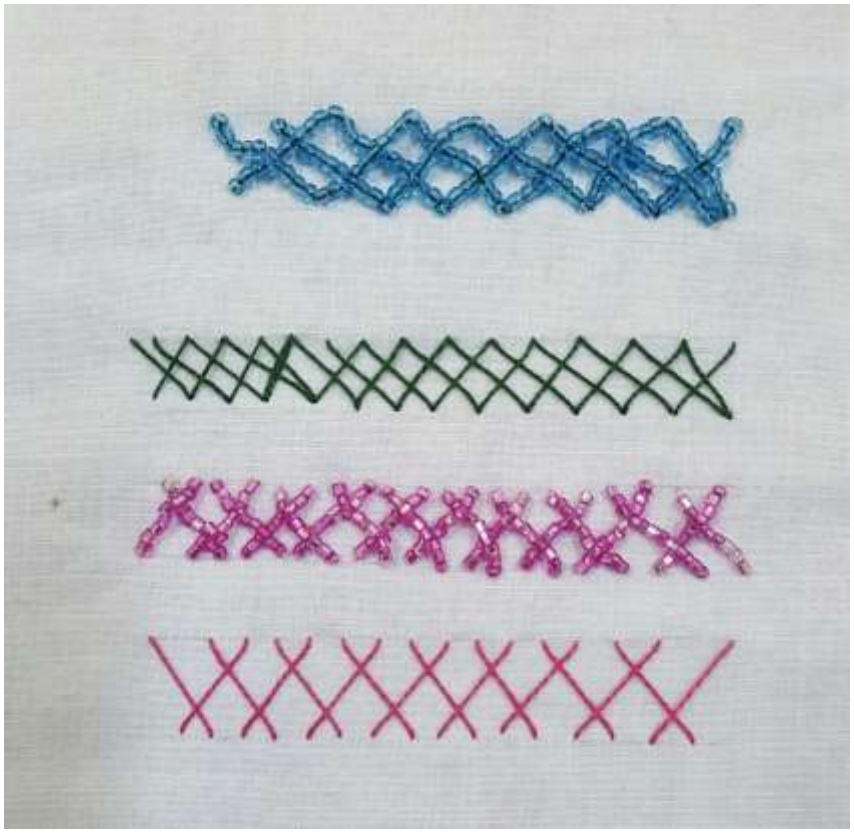

Figure 14: Crowfoot and shade stitches (the experimental group)

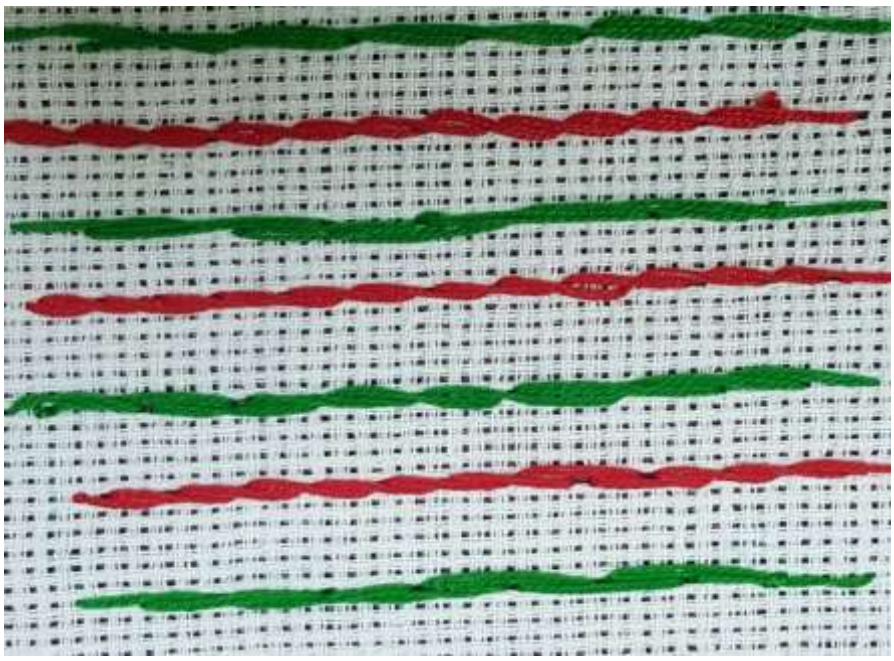

Figure 15: Simple and complex branch Stitches (the control group)

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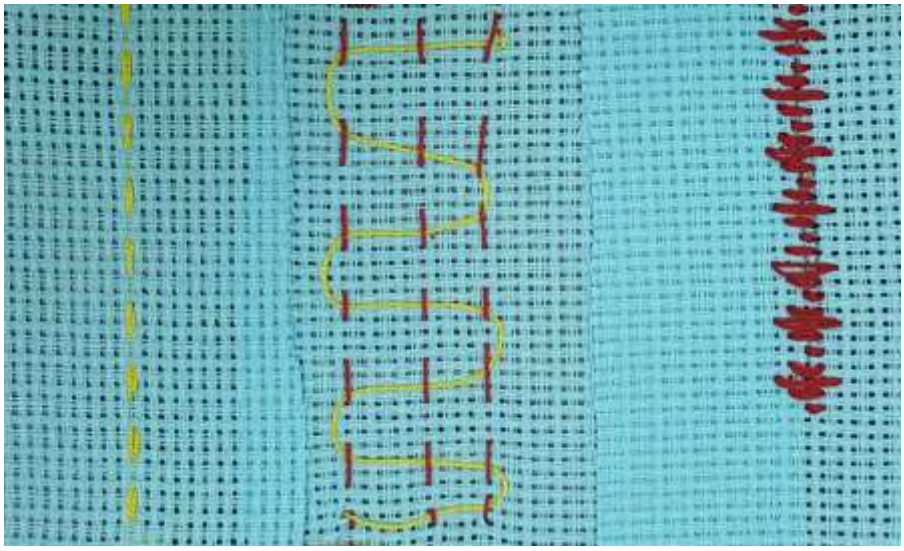

Figure 16: Harness and decorative harness stitches (the control group)

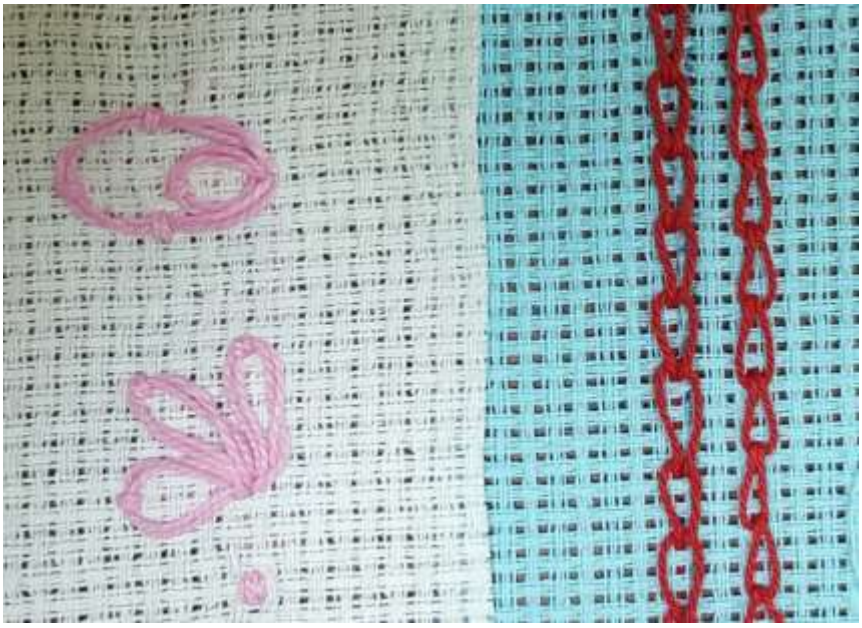

Figure 17: Connected and separate chain stitches (the control group)

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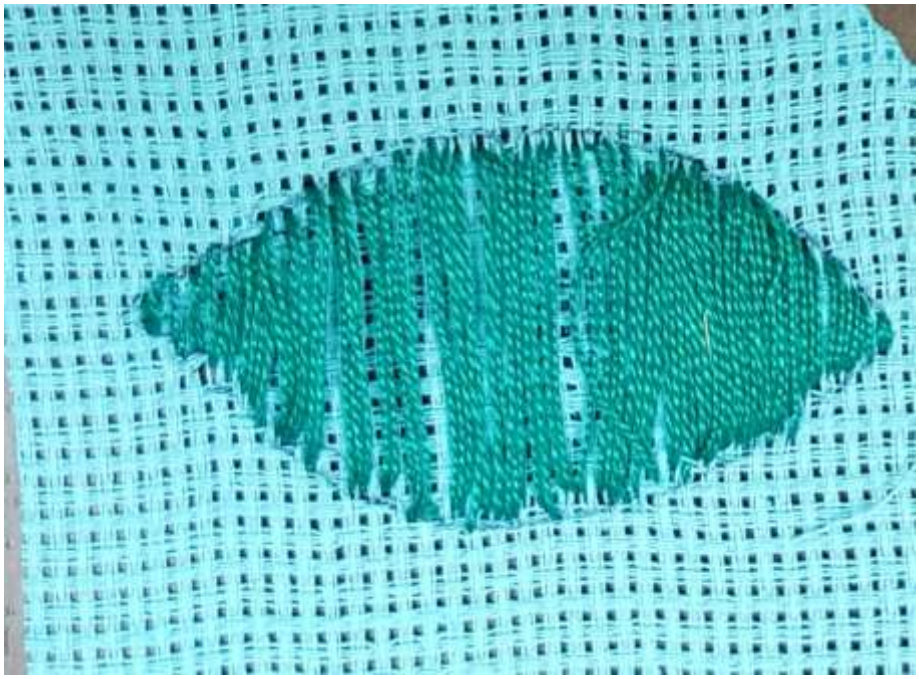

Figure 18: Fillers stitch (the control group)

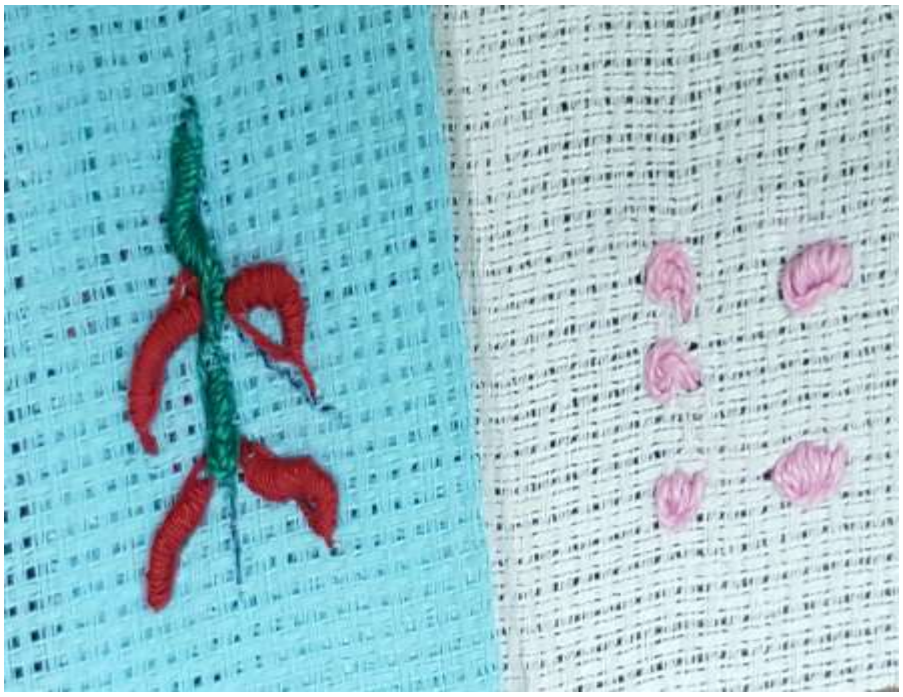

Figure 19: Seeds and Rococo stitches (the control group)

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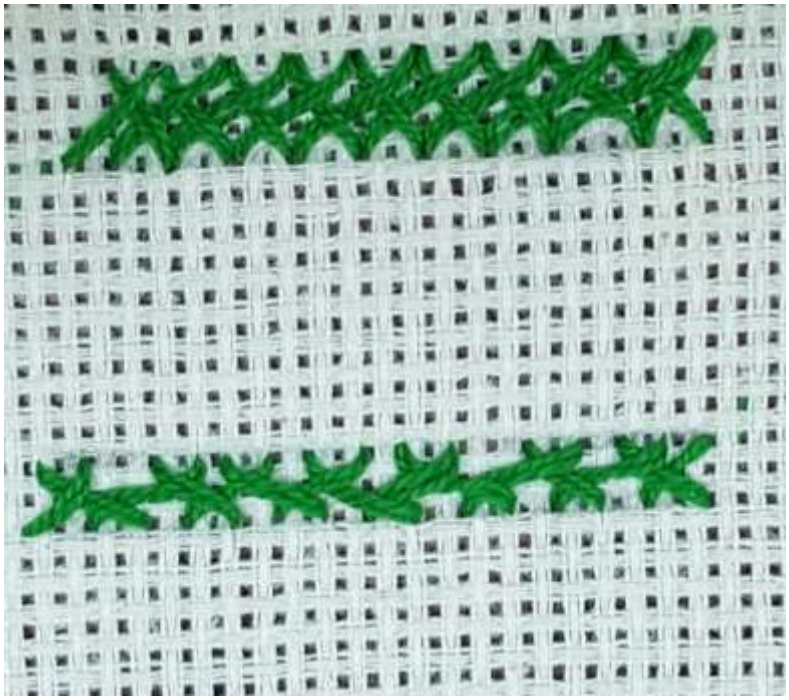

Figure 20: Crowfoot and shade stitches (the control group)

RECOMMENDATIONS FOR FUTURE RESEARCH

In light of the results concluded by the present study, the following set of recommendations is made for future benefit:

i. Use online courses for similar educational situations.

ii. Make use of the system of online course when training students at the college of education the skills of Handmade Embroidery.

iii. The use of Online courses instead of traditional teaching while teaching students.

iv. Involve learners in the process of developing and designing online course to identify their desires and encourage them to contribute positively to the learning content that will encourage them to learn.

v. All universities and educational institutions should care about raising the awareness of faculty members and students of the importance of online courses in improving the learning process.

vi. Train faculty members on how to prepare their courses' content to fit the online course through training workshops to develop their capabilities.

FURTHERMORE, THE FOLLOWING RESEARCH TOPICS ARE RECOMMENDED:

i. The impact/effect of online Course on the development of students' critical thinking skills and attitudes that were not covered by the research.

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ii. A training program for the development of faculty members' skills to build teaching Online-based teaching courses.

iii. Conducting similar studies but on other courses for other university disciplines.

iv. A proposed training program to help students of the college of education to acquire the skill of coping with internet educational applications.

v. A proposed training program to develop the skills of Home Economics students to use chat rooms and discussion forums in the teaching process via Internet.

vi.

CONCLUSION

This study examined the effect an online course versus Face-to-Face teaching in developing the creative thinking of students enrolled in "Handmade Embroidery" course at the department of Home Economics at Najran University. The study found out that the online course was effective in developing students' overall creative thinking skills and capabilities. In addition, it was found out that Online course played a significant role in developing students' flexibility and authenticity ones, but it was not effective in developing their fluency skill.

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