

## A blended learning programme on hand-knitted goods

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**Abstract** :Purpose: This study aimed to reveal the effectiveness of a blended learning (BL) programme in a tertiary-level hand-knitted goods course. The sub-objectives were: (1) To compare the effectiveness of a traditional learning programme and a BL programme in terms of the development of hand-knitting knowledge and skills, and (2) To study the differences in students' skill performance levels between the two programmes, design: The study was conducted in the laboratories of the Fashion Design Department at Abdulaziz University in Saudi Arabia with 21 student participants. The research tools comprised (1) a questionnaire and (2) a skilled performance observation card to assess the production of hand-knitted goods before and after the application of each learning method. Findings: The results demonstrated significant differences in favour of the BL method ( $p = .01$ ) between the average skilled performance evaluations of students' production of hand-knitted goods for each of the two methods. Originality/Value: This study contributes to the improvement of learning outputs and increases the effectiveness of the educational process by applying the BL method in different fields of clothing largely based on skilled performance.

**Keywords:** hand knitting; blended learning; traditional learning; programme.

### Introduction:

As a mainstay in the progress of people and nations, educational methods are constantly being revised to make the learner active and positive, while changing the teacher's role to that of a mentor. These methods have included traditional (i.e. face-to-face) learning, e-learning, and, more recently, blended learning (BL).

At the end of the 1990s, traditional learning began to be replaced by the first wave of so-called e-learning, which focused on introducing advanced technology in teaching. Despite its multiple advantages, however, some experts came to believe that e-learning had a number of deficiencies. Thus, there was a need to adopt a new approach that combined all the advantages of both traditional and e-learning in order to overcome the deficiencies of each. This led to the introduction of blended learning, which means integrating traditional and e-learning to increase educational effectiveness (Gray, 2006; Kalafallah, 2010).

**Blended learning** is considered a natural evolution of e-learning, insofar as it combines traditional and e-learning (Mostafa, 2008). There are numerous examples of the application of BL using the Competency-Driven Mode (for example, collaboration software, one of the BL modes that combines performance) in order to develop competencies in the workplace (Valiathan, 2002).

This was asserted in the study titled "The Interaction Relation between Traditional Education and E-Learning as an Introduction in Teaching Basic design to 1st year students". This study aims at

formulating a proposed vision for the curriculum of teaching the design subject to take advantage of the blended learning for 1st year students as well as finding out the way to achieve effective integrated role between traditional learning and e-learning in the field of design through blended learning. The research results proved the success of the used blended learning method and its validity in the development of teaching methods (Elsyed, 2008, pp.19-26).

The studies on the importance of blended learning in the educational process, such as the study titled “Designing and Producing Credits Programmed According to the Model of Abdellatif El-Jazzar to Teach the Principles of Crochet for Preparatory Level Students”, were unanimous on their objective to find an effective and modern method to teach the principles of crochet to students. The results showed the effectiveness of the programmed credits on the skilled performance of the students in the implementation of the crochet goods (Halabya, 2013, pp. 519-539).

The assessment of blended learning was explained in the study titled “the Assessment of Blended Learning Program at the University College of Applied Sciences from the Point of View of Teachers and Students”. This study was conducted on 90 students and 10 teachers at the University College of Applied Sciences. The results showed that the blended learning program achieved its objectives on developing student practical skills and increasing their motivation toward the search for knowledge (Gorab, et al., 2013, pp. 1-23).

In addition, many studies confirmed the effectiveness of the blended learning in raising the efficiency of students' educational skills (Mohamed, 2009, pp. 177-226), (Alaam, 2014), (Ibrahem, 2014, pp.169-246).

With regards to the effectiveness of blended learning in raising the efficiency of student skills in the field of knitting, the following studies explained the effectiveness of this method, such as: the study titled “Proposed Curriculum for the Development of Hand and Automated Knitting Subject” aiming at reviving the art of knitting; one of the old manual skills. One of the results was the importance of developing educational curricula to develop curriculum related to hand and automatic knitting (Afefy, 2006).

Additionally, the study titled “The Effectiveness of an Educational Program for Developing Skills of Hand-Kitting” aimed at developing the hand-knitting skills of 4th-year students of Faculty of Specific Education to implement a hand-knitted jacket for a kid using the experimental approach. The results showed the effectiveness of the used program in the development of hand-knitting skills (Kalaf, 2010, pp. 1-438).

On the Problem Based Learning in the textile design, the study entitled “Problem Based Learning in Constructed Textile Design” showed that the staff observing undergraduate students enrolled on the BSc Hons Textile Design and Design Management programme in The School of Materials, The University of Manchester, identified difficulties with knowledge retention in the area of constructed textile design.

Consequently, an experimental pilot was carried out in seamless knitwear design using a Problem Based Learning approach, to determine whether or not this method of learning was more effective for design students. This article investigates the effects of the trial on the student volunteers and documents the shift of focus from teacher to student centered learning. It also outlines plans for future curriculum developments in other areas of constructed textile design (Sayer, et al., pp. 156-163).

Based on the previous research outlined above, in the present study, the knitted fabric curriculum in the Fashion Design Department of Abdulaziz University will be discussed in terms of students' knowledge and skills development following the merging of traditional and e-learning methods to increase the effectiveness of the education.

Abdulaziz University developed a curriculum at the beginning of the 2007/2008 year, based on integrating technology in education, and benefiting from various learning sources. These principles and their application formed the basis for this study as a means to spread the culture of BL and illustrate its effectiveness.

### **Research Terminology**

#### **Knitted Goods:**

Knitted goods are known procedurally as clothing handicrafts and hand-knitting accessories using knitting needles and yarns and a simple rectangular and round plastic-made loom.

#### **Blended Learning:**

BL comprises the integration and pairing of traditional classes and electronic classes, a type of learning that combines several ways to maximise the results of education by achieving practical educational goals (Elgamdy, 2007; Curtis and Graham, 2005; Reeves, 2002).

It is known procedurally as the blending of traditional and e-learning in order to repeat and confirm information and skills, and retrieve them as needed anywhere and anytime.

### **Research Objectives**

1. To identify the knowledge and skill levels of students in the field of hand knitting.
2. To investigate the effectiveness of traditional and blended learning programmes, respectively, on the development of knowledge and skills in the field of hand-knitting before and after their application.
3. To investigate the differences in skill level of students in producing hand-knitted products using traditional and blended learning, respectively.
4. To study the correlation between students' levels in the post-test/application of research variants.

### **Method& Research Design:**

The research Participants was selected from students in the fourth-level who study the curriculum of knitting in the Fashion Design Department, and distributed to three divisions, the first one consists of 8 students, the second consists of eight students, and the third consists of five students; thus the overall Participants consists of 21 students.

The study was implemented over a 12-week period, once a week for each group, for an average of five hours per week (theory=two hours; application=three hours), for a total of 60 hours per group. The programme took place during the second semester of the academic year 2015/2016.

### **Research/ instruments/ Tools**

1. A questionnaire to measure students' knowledge level in the field of knitted clothing products before and after the two treatments; this questionnaire comprised 30 cognitive statements distributed on 10 axes with three items per axis. Axis 1=knitting concepts and terminology; axis 2=knitted fabric structures, types, and characteristics; axis 3=knitting yarn types, raw materials, characteristics, and use; axis 4=knitting tools; axis 5=reading/interpreting knitting pattern symbols; axis 6=knitted stitch types and uses; axis 7=natural and mechanical characteristics of knitted fabrics; axis 8=phases in producing knitted products; axis 9=knitted-products care methods; axis 10=quality standards of knitted products.

The responses were distributed on a 3-point assessment scale, where 'I know'=3 points, 'I'm not sure'=2 points, and 'I don't know'=1 point.

2. A questionnaire to measure the skill level of students in the field of knitted products before and after the two treatments, comprising 30 statements to measure students' skill levels, distributed on 10 axes (see description above). The responses were distributed on a 3-point assessment scale, where 'yes'=3 points, 'sometimes'=2 points, and 'no'=1 point.
3. Skilled performance observation cards were used to assess the skilled performance of students before and after the traditional learning programme (six weeks) and BL programme (an additional six weeks), respectively. This observation card included six axes: diversity of design components; achieving the design basis; operational aspects; aesthetic aspects; precision of execution; and precision in finishing. An assessment scale of jury opinions was used (from 20 faculty members specialized in the field of clothing), consisting of three responses, where 'present'=3 points, 'present to some extent'=2 points, and 'not present'=1 point. The final total points was 18, divided into three categories depending on level: low (1-6) for percentages below 50%, average (7-12) for percentages of 50-75%, and good (13-18) for percentages above 75%.

### **Validity and reliability of the instruments**

The questionnaire statements measuring knowledge and skill levels were presented to the jury, to ensure their clarity, validity, comprehensiveness, and ability to achieve the research objectives. The reliability of the knowledge and skill level scale was ensured using Split-half, and the correlation coefficient was calculated using SPSS version 21. The average value of the reliability coefficient of the questionnaire assessing knowledge level was 0.891 ( $p \leq .05$ ). The reliability coefficient of the questionnaire assessing the skill level was 0.901 ( $p \leq .05$ ).

The skilled performance observation cards were checked by the jury to ensure conformity with the dimensions associated with the design and implementation of hand-knitting. They were also piloted with five student participants to test their effectiveness. Inter-rater agreement was identified using the Cooper equation. The agreement percentage =  $(\text{number of agreements} / (\text{number of agreements} + \text{number of times of disagreement})) \times 100$ . Inter-rater agreement ranged from 89% to 90%. Amendments were made based on proposals by all jury members in relation to the proposed list of skills on the observation card, before being finalised with six axes to assess skilled performance.

### **Research Procedures**

1. Determining the learning subject, which was to develop students' knowledge and skills in hand-knitting methods.
2. Determining the list of main skills, knowledge, and concepts related to the educational unit.
3. Determining the educational objectives
4. Determining the educational programme content
5. Determining the learners' general characteristics, scientific level, and abilities
6. Determining the learning method: Two methods were used—traditional and blended learning—divided into two phases over the semester: phase 1 (weeks 1-6) during which the traditional learning method was applied; and phase 2 (weeks 7-12) during which the BL method was applied. By the end of each phase, the student had created the same knitted product (of a type selected by the student) to ensure accuracy when comparing the skill performance level achieved after each learning method. Previous training in phase 1 was taken into account when assessing students' results in phase 2.
7. Design tutorials: Tutorials (theoretical and practical) were designed in accordance with the curriculum.

**Phase 1**, the traditional learning method, involved discussions and demonstrations using photographs and live models in the classroom. Phase 2, the BL method, comprised a combination of traditional and electronic methods; for example, watching educational films about the implementation of knitting stitches and their tools, and phases in the production of various knitted products, both clothing and accessories.

**Validity of the educational programme:**

The educational programme was presented to a jury specialized in fashion design to solicit their views on: the extent to which the programme was associated with the educational objectives and the clarity of those objectives; the validity of the wording; the suitability of the objectives to the curriculum content; the suitability of the objectives to the students’ age-group; the suitability of the means of assistance, tools, and materials; and the logical sequence of educational programme topics. Interrater agreement reached an average of 93-95% for all items, demonstrating the validity of the programme.

**Results:**

A paired participants’ t-test was performed to compare the average scores of students before and after the two learning methods. Table 1 illustrates that the t-value was significant at a level of .01 in favour of the post-application, indicating a statistically significant difference between the average levels of students in the pre- and post-applications of the knowledge level scale (knowledge list) in favour of the post-application. The gain ratio was 1.12, which is an acceptable value achieving a modified gain ratio (Blake’s constant) larger than the identity element. Thus, the proposed educational programme was characterized by an acceptable degree of effectiveness regarding the development of knowledge in the field of hand-knitting.

This may have been due to the influence of the activities, teaching strategies, and assessment methods used in the two learning methods. The current research results are consistent with Abdelbaset’s (2007) study, which reported the necessity for integration between traditional learning and e-learning in all its forms (i.e. blended learning).

**Table (1). T-test Results to Compare between Pre and Post Average Levels of Students on the Knowledge Level Scale (knowledge list)**

The Application	No. of Students	Average	Standard Deviation	Degree of Freedom	T-value	Significance Level	Gain Ratio	Significance
Pre	21	41.67	6.00	20	16.72	Significant at 0.01	1.12	Acceptable
Post		76.86	6.26					

Table 2 indicates that 100% of respondents had average knowledge levels (31-60) before the two treatments, while after the treatments the knowledge levels of 100% of respondents were good (61-90). Studies have confirmed that the integration of e-learning with traditional learning in the teaching process contributes to the development of scientific thinking and the trend towards a knowledge society of students (Shinan, 2010).

**Table (2) Number and Percentage of Knowledge Levels of the Research Participants**

The Application	Knowledge Levels					
	Low Knowledge Level Category (1-30)		Average Knowledge Level Category (31-60)		Good Knowledge Level Category (61-90)	
	No.	%	No.	%	No.	%
Pre	0	0	21	100	0	0
Post	0	0	0	0	21	100

A paired participants' t-test was performed to compare the average scores of students before and after the two treatments.

Table 3 illustrates that the t-value was significant at .01, in favour of the post-application, indicating a statistically significant difference between the average levels of students in the pre- and post-applications on the skill level scale (skills' list). The gain ratio of the skill aspect (as a whole) was 1.44, which is an acceptable value as it achieves a modified gain ratio (Blake's constant) that is larger than the identity element. Thus, the learning methods were characterized by an acceptable degree of effectiveness regarding the development of skills.

**Table (3) T-test Results to Compare between Pre and Post Average Levels of Students on the Skill Level Scale**

The Application	No. of Students	Average	Standard Deviation	df Degree of Freedom	T-value	Significance Level	Blake Gain Ratio	Significance
Pre	21	33.81	3.21	20	62.58	Significant	1.44	Acceptable

Table 4 illustrates that 80.95% of respondents had average skill levels (31-60) before the two treatments, while this increased to 100% and the respondents obtained good skill levels (61-90) after the treatments.

**Table (4).Number and Percentage of Skill Levels of the Research Participants**

The Application	Skill Levels					
	Low Skill Level Category (1-30)		Average Skill Level Category (31-60)		Good Skill Level Category (61-90)	
	No.	%	No.	%	No.	%
Pre	4	19.04	17	80.95	0	0.00
Post	0	0.00	0	0.00	21	100

A paired participants' t-test was performed to compare the average scores of students before and after the treatments. Table 5 illustrates that the t-value was significant at the .01 level, in favour of the post-application, indicating a statistically significant difference between the average levels of students in the pre- and post-applications of the knowledge and skills' aspects (as a whole), in favour of the post-

application. The gain ratio of knowledge and skill aspects (as a whole) was 1.29, which is an acceptable value achieving a modified gain ratio (Blake’s constant) as it is larger than the identity element. Thus, the learning methods were characterized by an acceptable degree of effectiveness regarding the development of knowledge and skills, in accordance with the results of previously mentioned studies within the theoretical framework.

**Table(5) T-test Results to compare between the Average Levels of the Knowledge and Skill Aspects of Students (as a whole)**

The Application	Average	Standard Deviation	Degree of Freedom	T-value	Significance Level	Blake’s Gain Ratio	Significance
Pre	75.48	8.16	20	34.46	Significant at level (0.01)	1.29	Acceptable
Post	160.52	6.75					

Table 6 illustrates that 100% of respondents had an average level (61-120) of skills and knowledge before the two treatments, increasing to a good level (121-180) after the treatments.

**Table(6).Number and Percentage of Knowledge and Skill Aspect Levels of the Research Participants**

The Application	Levels of Knowledge and Skill Aspects					
	Low Level (1-60)		Average Level (61-120)		Good Level (121-180)	
	No.	%	No.	%	No.	%
Pre	0	0	21	100	0	0.00
Post	0	0.00	0	0	21	100

A paired participants’ t-test was conducted to compare the average levels of students before and after the traditional learning programme.

Table 7 illustrates that the t-value was significant at .01, in favour of the post-application, indicating a statistically significant difference between the average levels of students in the pre- and post-applications of the skilled performance observation cards of the traditional learning programme. The value of the gain ratio (as a whole) was 0.80, which is an unacceptable value as it is less than the identity element. This may have been due to the indispensable importance of its activities, teaching strategies, and assessment methods, which affected the learning outputs. As discussed, this can be problematic because the student is dependent on receiving information from the teacher.

**Table (7) T-test Results to Compare between Pre and Post Average Levels of Students using the Skilled Performance Observation Card of the Program Based on Traditional Learning in the Field of Hand-knitting**

The Application	No. of Students	Average	Standard Deviation	Degree of Freedom	T-value	Significance Level	Blake’s Gain Ratio	Significance
Pre	21	7.57	1.24	20	10.60	Significant	0.80	Not acceptable
Post		12.85	1.79					



Table 8 illustrates that approximately 57.14% of participants had a good level (13-18) after the application of the traditional learning programme.

**Table (8) Number and Percentage of the Skilled Performance Observation Card of the Program Based on Traditional Learning of the Research Participants**

Skilled Performance Levels of the Program Based on the Traditional Learning						
The Application	Low Skill Level (1-6)		Average Skill Level (7-12)		Good Skill Level (13-18)	
	No.	%	No.	%	No.	%
	Pre	4	19.04	17	80.95	0
Post	0	0.00	9	42.85	12	57.14

A paired participants' t-test was conducted to compare the average levels of the experimental student group before and after the application of the BL programme.

Table 9 illustrates that the t-value was significant at a .01 level, in favour of the post-application, indicating a statistically significant difference between the average levels of students in the pre- and post-applications on the skilled performance observation cards for the BL programme. The value of the gain ratio for skilled performance (as a whole) was 1.25, which is an acceptable value achieving a modified gain ratio (Blake's constant) because it is larger than the identity element. Thus, the results are consistent with studies reporting the importance of BL in increasing the effectiveness of the learning process and students' satisfaction with this process. It is also consistent with studies demonstrating that BL contributes to improving learning outputs (Steve, 2001; Schweizer et al., 2003).

**Table (9) T-test Results to Compare between Pre and Post Average Levels of Students using the Skilled Performance Observation Card of the Program Based on Blended Learning in the Field of Hand-knitting**

The Application	No. of Students	Average	Standard Deviation	Degree of Freedom	T-value	Significance Level	Blake's Gain Ratio	Significance
Pre	21	7.57	1.24	20	18.22	Significant	1.25	Acceptable
Post		15.81	1.69					

The results in Table 10 indicate that BL increased the skilled performance levels of students by 100% with a good level (13-18) in the post-application of BL, indicating that BL had a remarkable influence on the development of students' skilled performance in hand-knitting. This is consistent with studies that have proved the effectiveness of BL, and studies indicating that students prefer the BL method (Schweizer et al., 2003; Hedaya, 2008; Muianga, 2005).

**Table (10) Number and Percentage of the Skilled Performance Observation Card of the Program Based on Blended Learning of the Research Participants**

Skilled Performance Levels of the Program Based on the Blended Learning						
The Application	Low Skill Level (1-6)		Average Skill Level (7-12)		Good Skill Level (13-18)	
	No.	%	No.	%	No.	%
Pre	4	19.04	17	80.95	0	0.00
Post	0	0.00	0	0.00	21	100

A paired participants’ t-test was conducted to compare the average levels of students after the application of the traditional and BL programmes. Table 11 illustrates that the t-value was significant at a .01 level, in favour of BL, indicating a statistically significant difference between the average levels of students in the post-application of the skilled performance observation cards for the traditional and BL programmes respectively. The value of the gain ratio (as a whole) was 0.74, which is unacceptable as it is less than the identity element.

The curriculum reports indicated that the number of stitches implemented by students in this semester was greater than the number implemented in the previous semesters of this curriculum (based on previous curriculum reports). These results are consistent with those of Alrantisy (2015), in which the researcher recommended using BL and hypermedia in teaching practical courses.

**Table (11).T-test Results to Compare between Post Average Levels of Students using the Skilled Performance Observation Card of the Program Based on Traditional and Blended Learning in the Field of Hand-knitting**

Learning	No. of Students	Average	Standard Deviation	Degree of Freedom	T- value	Significance Level	Blake’s Gain Ratio	Significance
Blended	21	15.81	1.69	20	10.54	Significant	0.74	Not acceptable
Traditional		12.85	1.79					

Table 12 illustrates that 57.14% of students received a good level after the application of the traditional learning method, while 100% received a good level after the application of the BL method. This clearly indicates the importance of adopting a BL method to enhance students’ skill levels.

**Table (12). Number and Percentage of the Skilled Performance Observation card of the Program Based on the Blended and Traditional Learning of the Research Participants**

Skilled Performance Levels of the Program Based on the Blended and Traditional Learning						
Learning	Low Skill Level (1-6)		Average Skill Level (7-12)		Good Skill Level (13-18)	
	No.	%	No.	%	No.	%
Traditional	0	0.00	9	42.85	12	57.14
Blended	0	0.00	0	0.00	21	100

The Pearson correlation coefficient between the levels of students on the previous research variants were calculated, and the results (Table 13) indicate a significant positive correlation, at a .01 level, between the following:

1. Knowledge list (skill list, skilled performance of BL, and traditional learning); The R values were 0.891, 0.852, and 0.867, respectively ( $p \leq .01$ ).
2. Skill list (skilled performance of BL and traditional learning); The R values were 0.875 and 0.881, respectively ( $p \leq .01$ ).
3. List of skilled performances of BL and traditional learning; The R value was 0.952 ( $p \leq .01$ ).

This result was consistent with previous studies that showed that, besides traditional learning, BL, including e-learning, increases the effectiveness of the educational process (Larson and Hsien, n.d.; Rovai, 2004).

**Table (13) R Value and its Statistical Significance for the Correlation between Cognitive and Skill Aspect**

	Knowledge	Skills	Skilled Performance of Blended Learning	Skilled Performance of Traditional Learning
Knowledge	1	*0.891	*0.852	*0.867
Skills		1	*0.875	*0.881
Skilled Performance of Blended Learning			1	0.952
Skilled Performance of Traditional Learning				1

\* Significant at level 0.01

### Recommendations

1. Take advantage of the BL method and its applications by integrating it into the hand-knitting curriculum and other curriculums that rely heavily on skilled performance in the textiles and clothing field, in order to develop the educational process in university classes.
2. Pay attention to BL as one of the most important modern methods of learning due to its effectiveness in achieving educational objectives.

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## **References**

- 1- Abdelbaset, H.M. (2007), "Multi entrances blended learning: A new strategy for the use of information technology in pre-university education", in *The First International Conference on the Use of Communications Technology for the Development of Pre-university Education*, Mubarak City for Education, Egypt, pp. 1-12.
- 2- Afefy, H.I. (2006), Curriculum proposal to develop a manual and automatic knitting course, Unpublished master's thesis, Department of Home Economics, Faculty of Education, Ain Shams University.
- 3- Alaam, M.S. (2014), The impact of the program depends on the blended learning English language teaching to develop critical reading skills among high school students, Unpublished master's thesis, Curriculum and Teaching Methods Department, College of Education, Ain Shams University.
- 4- Curtis, B.J. and Graham, C.R. (2005), *The Handbook of Blended Learning Systems: Definition, Current Trends, and Future Directions*, Pfeiffer, San Francisco.
- 5- Elgamdy, K. (2007), "Blended learning [Abstract]", *Journal of Human Sciences*, King Saud University, Riyadh, Vol. 35 No. 2, pp. 1-37.
- 6- Elsyed, M.M. (2008), "The interactive relationship between traditional education and e-learning as an introduction to the teaching of the design principle for primary year students", *Journal of Research in Art Education and the Arts*, Faculty of Specific Education, Vol. 24 No. 24, pp. 19-26.
- 7- Gorab, H.A., Elkaldy, G.K. and Gorab, A.S. (2013), "Evaluation of the blended learning programme in the Applied Sciences University faculty from the perspective of teachers and students", in *The First International Conference on Applied Sciences*, University College of Applied Sciences, Gaza, pp. 1-23.
- 8- Gray, C. (2006). Blended learning: Why everything old is new again—but better. American Society for Training & Development. Learning Circuits. ASTD's Source for E-Learning. [Çevrim-içi: [http://www.astd.org/LC/2006/0306\\_gray.htm](http://www.astd.org/LC/2006/0306_gray.htm)], Erişim tarihi, Vol. 10.
- 9- Halabya, S.M. (2013), "Design and production study units are programmed according to the model of Abdullatif Aljazzar to teach the principles of crochet to preparatory school students", *Journal of the Faculty of Specific Education in Port Said*, Vol. 2 No. 14, pp. 519-539.
- 10- Hedaya, R.A. (2008), Designing a program based on blended learning for helping students of the College of Education acquire the skills of instructional equipment maintenance, Master's thesis, Faculty of Education, Mansoura University, available at <https://www.td.org/Publications/Newsletters/Links/2006/02/Blended-Learning-Why-Everything-Old-Is-New-Again-but-Better> (accessed 4 March 2016).
- 11- Ibrahim, O.A. (2014), "The effectiveness of the design of a training program using a form of Osama Abdel-Salam for the design of blended learning to develop students' skills: Division of Special

- Education for the use of electronic games”, *Journal of the Faculty of Education, Mansoura University*, Vol. 86 No. 1, pp. 169-246.
- 12- Kalaf, S.G. (2010), *The effectiveness of an educational program in the development of hand knitting skills*, Master’s thesis, Department of Home Economics, Faculty of Education, Ain Shams University.
- 13- Kalafallah, M.G. (2010, April), “The effectiveness of use of both e-learning and blended learning in skills development of the production of models of education among students of the Educational Technology Division”, *Journal of College Education*, Vol. 21 No. 82, pp. 90-168.
- 14- Larson, D.K. and Hsien Sung, C. (n.d.). “Comparing student performance”, *Journal of Asynchronous Learning Networks*, Vol. 13 No. 1, pp. 31-42.
- 15- Mohamed, H.A. (2009), “The impact of the use of blended learning on the performance of some of the fencing sports skills and cognitive achievement for students of the Faculty of Physical Education, Minia University”, *Journal of Sports Sciences*, Vol. 22 No. 1, pp. 177-226.
- 16- Mostafa, G. (2008). “Formats of modern university education in blended learning”, paper presented at The Second Conference of the College of Education, 18-19 May, Al-Azhar University, Egypt.
- 17- Muianga, X. (2005), “Blended online and face-to-face learning: A pilot project in the faculty of education Eduardo Mondale University”, *International Journal of Education and Development Using ICT*, Vol. 1 No. 2, pp. 658-675.
- 18- Reeves, T.C. (2002, January). “Keys to successful e-learning: Outcomes, assessment, and evaluation,” *Educational Technology Journal*, Vol. 24 No. 6, pp. 23-29.
- 19- Rovai, A.P. (2004, August), “Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses,” *The International Review of Research in Open and Distance Learning*, Vol. 5 No. 2, available at: <http://www.irrodl.org/index.php/irrodl/article/view/192/274> (accessed 19 May 2016).
- 20- Sayer, K., Wilson, J. and Challis, S. (2006, May). “Problem based learning in constructed textile design”, *International Journal of Art & Design Education*, Vol. 25 No. 2, pp. 156-163.
- 21- Schweizer, K., Paechter, M. and Weidenmann, B. (2003), “Blended learning as a strategy to improve collaborative task performance”, *Journal of Educational Media*, Vol. 28 No. 2, pp. 211-224.
- 22- Shinan, A.S. (2010), *The impact of the integration of e-learning in the teaching of biology to the development of scientific thinking and the trend towards a knowledge society for high school students*, Unpublished Ph.D. thesis, Faculty of Education, King Saud University.
- 23- Steve, S. (2001, April), *Use Blended Learning to Increase Learner Engagement and Reduce Training Costs*, available at: [http://www.learningsim.com/content/1s\\_news/blendedlearning1.htm](http://www.learningsim.com/content/1s_news/blendedlearning1.htm) (accessed 17 May 2016).
- 24- Valiathan, P. (2002), *Blended Learning Models*, available at: <http://purnima-valiathan.com/wp-content/uploads/2015/09/Blended-Learning-Models-2002-ASTD.pdf> (accessed 11 August 2016).

## برنامج قائم على التعلم المدمج لمشغولات التريكو اليدوي

الملخص: هدفت الدراسة بصفة رئيسية إلى الكشف عن فاعلية برنامج للتعلم المدمج لتنمية معارف ومهارات الطالبات المرتبطة بتنفيذ مشغولات التريكو اليدوي، وانبثق من هذا الهدف عدة أهداف فرعية وهي: تحديد مستوى معارف ومهارات الطالبات في مجال التريكو اليدوي، ودراسة فاعلية برنامج قائم على التعلم التقليدي وآخر قائم على التعلم المدمج في تنمية المعارف والمهارات المرتبطة بمجال التريكو اليدوي قبل وبعد البرنامج، ودراسة الفروق في مستوى الأداء المهاري للطالبات لإنتاج منتجات تريكو يدوي بكل الأسلوبين (التقليدي، والمدمج) كل على حدة. واتبع البحث المنهج الوصفي والتجريبي لمناسبته لتحقيق أهداف البحث، حيث طبقت الدراسة بمعامل قسم تصميم الأزياء بكلية التصاميم والفنون بجامعة الملك عبد العزيز بجدة بالمملكة العربية السعودية، وذلك على عينة قوامها (21) طالبة وتم تطبيق كلا الأسلوبين من التعلم على (12) أسبوع ووزعت الدراسة على مرحلتين، المرحلة الأولى مدتها (6) أسابيع وطبق فيها أسلوب التعلم التقليدي والمرحلة الثانية ومدتها (6) أسابيع وطبق فيها أسلوب التعلم المدمج وذلك على نفس العينة من الطالبات. وتمثلت أدوات البحث في استخدام استمارة استبيان اشتملت على (30) عبارة لقياس المستوى المعرفي و(30) عبارة لقياس المستوى المهاري في مجال التريكو اليدوي لقياس فاعلية الأسلوبين قبل وبعد تطبيقهما، كما اشتملت أدوات البحث على بطاقة ملاحظة الأداء المهاري لتقييم أداء الطالبات في مجال تنفيذ مشغولات التريكو اليدوي وذلك قبل وبعد تطبيق كلا الأسلوبين من التعلم في كل من المرحلة الأولى؛ والتي طبقت أسلوب التعلم التقليدي والمرحلة الثانية والتي طبق فيها أسلوب التعلم المدمج. وأظهرت النتائج البحثية وجود فروق معنوية بين متوسطي مستويات الطالبات المعرفية والمهارية في التطبيقين القبلي والبعدي لصالح التطبيق البعدي، بالإضافة إلى وجود فروق دالة إحصائية بين متوسطي مستويات الطالبات في التطبيق القبلي والبعدي لبطاقة ملاحظة الأداء المهاري في مجال التريكو اليدوي للتعلم التقليدي والتعلم المدمج لصالح التطبيق البعدي، كما أشارت النتائج إلى وجود فروق معنوية بين متوسطي تقييم الأداء المهاري للطالبات في تنفيذ مشغولات التريكو اليدوي لكلا الأسلوبين ( التعلم التقليدي، والتعلم المدمج) لصالح التعلم المدمج وذلك عند مستوى معنوية  $(0.01=\alpha)$ .

الكلمات المفتاحية: التريكو اليدوي، التعلم المدمج، التعلم التقليدي، برنامج.