Hindawi
Education Research International
Volume 2018, Article ID 7425924, 7 pages
https://doi.org/10.1155/2018/7425924

Research Article

Effects of Using a Blended Learning Method on Students' Achievement and Motivation to Learn English in Jordan: A Pilot Case Study

Thelal Iqab Oweis

School of Basic Sciences and Humanities, German Jordanian University, Amman 11180, Jordan

Correspondence should be addressed to Thelal Iqab Oweis; thelal.owies@gju.edu.jo

Received 1 August 2018; Accepted 10 October 2018; Published 4 November 2018

Academic Editor: Yi-Shun Wang

This research aims at investigating the effect of blended learning on the achievement and motivation to learn English of German Jordanian University students. A pilot case study research strategy was used. Pilot case studies are effective research strategies for investigating educational issues in real life situations. They are used to refine research problems, variables, and also to refine the case study design before doing it in a larger-scale investigation. The study sample comprised 34 students who were selected purposefully and distributed into experimental and control groups. The experimental group studied English through a computerized program melded with the traditional method, whereas the control group was taught solely by the latter. The analysis of covariance (ANCOVA) revealed statistically significant differences in achievement between the two groups, indicating that the experimental group performed better than the control group. Significant differences were also found in the respective groups' motivation to learn English.

1. Introduction

The current era is characterized by rapid changes resulting from scientific and technological advances, including information technology. Keeping up with these changes is necessary in the education system to cope with problems that may arise from them, such as the large volume of information and increase in the number of learners, coupled with teacher shortages. These changes in science and technology ushered in many new teaching and learning methods, such as e-learning and blended learning (BL) particularly in research and self-development areas [1], and a revolution in information technology, which has virtually turned the world into a global village. The former led to a greater need for learners to engage in multivendor environments, and the latter, for people to share experiences with others.

e-Learning is defined as learning that is provided electronically through the internet, an internal network (intranet, or multimedia, such as CDs or DVDs) [2]. It is considered among the most modern learning methods and has been associated with many advantages. Among these advantages are its ability to resolve the problem of knowledge explosion and growing demand for education [3]; address the problem of overcrowded lecture halls, if used as a means for distance learning; and provide opportunities for acceptance of diversity in education. For example, e-learning allows workers to be trained, educated, and rehabilitated without leaving their businesses while also teaching their housewives, thus contributing to increasing the literacy rate [4]. e-Learning enables job interviews to be conducted and live debates to be available online and provides quickly updated information, simulation and animation programs, interactive exercises, and practical applications, which are consistent with a learner's needs [5] and follow his/her pace while reducing training costs (accommodation, travel, and books). Moreover, it improves the retention of and access to information in a timely manner and unifies content and information for all users. Finally, it improves collaboration and interactivity between students and reduces their feelings of embarrassment in front of colleagues when making errors

[6]. However, e-learning can have negative aspects such as technology dependence, lack of motivation, and lack of human touch. Finally e-learning assessments are confined to questions that are mostly objective in nature not to mention the issue of the degree of security with regards to online learning programs.

Meanwhile, BL is a modern educational strategy that has replaced e-learning gradually in most educational institutions. According to Salama [7], BL is a logical and scientifically acceptable alternative to e-learning, has higher yields, is less expensive, and incorporates more sophisticated types of learning. Similarly, Garrison and Kanuka [8] argued that BL is a term that explains the various attempts made by teachers to incorporate the element of technology into the traditional classroom setting, because of the efficiency this arrangement brings. BL aims at interactive learning, resulting in the blending or mixing of a teacher's role in a traditional classroom with that in the virtual one. The technology applied in BL is often intended to generate optimal performances by students. According to Graham [9], BL systems are intended to promote learning by facilitating the integration of visual cues and educational concepts. The use of virtual environments acts to capture the attention of the audience involved while augmenting interactions between subject parties.

BL combines forms of direct and indirect online learning and usually involves the internet and intranet, while indirect learning occurs simultaneously within traditional classes.

Valiathan [10] suggested that other components applied in BL are, among others, email, simulations, web-based tests, and FAQ. Three main models, namely, skill-driven, attitude-driven, and competency-driven models, can be applied in BL. All models entail the overview of the topics to be covered. They also involve the announcement of the initiatives that will be engaged in the delivery of learning concepts during class sessions. An example of this type of blending would be an education program that provides study materials and research resources directly on the internet, whereas teacher and classroom training sessions provide intermediate basic education [11].

BL also aims at using modern technology in teaching without abandoning the usual educational situation and classroom attendance. It focuses on direct interaction in the classroom through the use of modern communication mechanisms, such as computers, networks, and internet portals. In the assessment of the influence of BL on interactions between students and teachers, So and Brush [12] established that the social presence offered in the environment encourages questions and hence provides a medium through which clarifications can be made in a timely and efficient manner. Such learning can be described as a way to organize information, attitudes, and educational experiences that are provided for the learners through multimedia offered by modern or information technologies. This type of learning is characterized by its ability to reduce time, effort, and cost, through the delivery of information to learners as quickly as possible and in a way that enables management and control of the educational process, the measurement and evaluation of learners' performance, and the improvement of the overall level of educational attainment while providing an attractive learning environment [13]. Blended learning is defined as learning using different means connected together to teach a particular substance. These methods may include a combination of direct lecturing in the auditorium, online communication, and self-learning [14]. Julie believes that blended learning is a newly used term, but it was prevalent before; it blends various educational patterns of computer and adds e-learning through the internet; it includes e-mail service, in addition to traditional education where the teacher has the biggest role [15]. BL however has a number of disadvantages such as the inadequate technical accessibility which may result in wasting resources. Technical problems including poor internet connectivity and high maintenance cost is yet another concern. BL can also be challenging for instructors as it demands time for both preparation and evaluation. Finally, plagiarism and credibility may also pose major problem especially for young.

BL has many benefits, including the following: making computers and local and global networks of information available for learners; developing teachers' roles as leaders and mentors to their students in terms of their expertise in computers and networks of local and international information, in addition to being producers rather than importers of knowledge; enabling learning groups to use multimedia, e-mail, virtual libraries, and all internet data collaborative software; having the ability to combine different possibilities for different schools and universities in productive ways; and overcoming the problem of lasting change in the content of educational materials [11].

The problem addressed in this study stems from the need to diversify the teaching methods used in the field of learning and education, particularly in the English language, where the results of achievement tests indicate a low level of academic achievement in English language for students in English courses in Jordanian universities in general and at the German Jordanian University (GJU) in Madaba City in particular. This is reflected in students' low-level communication skills in English, which led instructors to find various teaching methods to improve students' learning.

Therefore, this study aims at investigating the effect of the use of BL on the achievement and motivation to learn English of GJU students. To achieve this objective, the study sought to answer the following questions:

RQ1. Can any significant differences ($\alpha = 0.05$) be found between the means of GJU students' scores in English language based on learning style (BL, traditional method)?

RQ2. Are there significant differences ($\alpha = 0.05$) in the means of students' scores on the English language learner motivation scale based on learning style (BL, traditional method)?

2. Previous Studies

Several studies have focused on measuring the impact of teaching using computers on various variables, the most important of which is achievement. Nuno [16] answered the question "Is computer-aided teaching an effective tool in the teaching of reading and writing in the classroom," by preparing and testing a software program comprising 42 English audio

clips that taught English phonetics to 60 kindergarteners. The results of the study supported the value and effectiveness of teaching assisted by a computer in a modern classroom.

Lal and Jundi's study [17] aimed at detecting the trend toward e-learning among 462 male and female secondary school teachers in Jeddah, focusing on gender, specialization, and work experience, among others. The results showed a trend where teachers of scientific specialization with less than five years of work experience who had attended educational seminars in the field of e-learning were more engaging.

Khalafullah's study [18] aimed at detecting the effectiveness of e-learning and BL in the development of the skills required to produce educational models. The study sample comprised students of Educational Technology in the Faculty of Education, Al-Azhar University. The researcher selected a random sample of 35 students and applied an achievement test and note card to the two groups to attain the skills necessary to produce educational models. The researcher then applied the two educational programs he had prepared, and the results showed the effectiveness of using e-learning in direct lectures in terms of increasing students' cognitive achievement. This method was also effective in developing practical performance of skills. The results also revealed the effectiveness of integrated learning in increasing the achievement of students' skills and developing the practical performance of skills. The study also showed the superiority of the integrated teaching group over the e-learning group in terms of achievement of skills and of the e-learning group in terms of performing production skills of models.

Kinsara's [19] study aimed at investigating the impact of a computer-based education strategy on the direct and deferred achievement of students on a Teaching Techniques course, compared with individual and traditional methods. This study was implemented on a sample of 90 students from the Teachers College at Umm Al-Qura, who were distributed into three study groups according to the treatment type. To achieve the study objectives, the researcher used a number of tools, such as a computer education program, testing the previous requirements that had been built to measure the students' basic experiences in the course and classifying the students into three levels: low, medium, and high pre- and postachievement test. The results showed no statistically significant differences in the direct achievement of students of the Educational Techniques course, which was attributed to the method of teaching, the level of students' achievement, or the interaction between these two. The results also showed statistically significant differences in favor of the cooperative computer group compared with both the individual and traditional computer groups. A statistically significant difference was found between the average performances of the individual computer group on the direct and deferred tests, whereas no statistically significant differences were found between the average performances of students of the cooperative computer group on the direct and deferred tests.

Klimova [20] analyzed and evaluated the BL approach and its learning materials in a course of Business English and discuss its efficacy as far as the learning outcomes are concerned within a wider international setting. The results of the study revealed that the use of BL approach in teaching Business English did not show much effectiveness; nevertheless, the students were satisfied with the BL strategy and prefer it to the traditional based learning.

Pajtek [21] compared computer-aided teaching with paper-based instruction in terms of efficiency and motivation, determining the effects of internal motivation in a computer program that used graphic forms and other programs that did not use these forms on the achievement, trends, and deep participation of 65 underachieving students. The study was conducted at the site of a normal school over the course of one semester. Data related to three groups were collected: the control group (33 students); the alternative treatment group in which the students received computer-aided teaching without graphics formats; and the experimental group where the students received computer-aided instruction with a graphic shapes extension for 20 minutes three times a week. The results did not show any statistically significant difference in academic achievement, trends, or attendance among the three groups. However, the increase in academic achievement reached the level of statistical significance.

The measurements of the time of job reached the level of statistical significance, indicating the emergence of a wider participation for those who used graphics formats. The study concluded that the use of computer-aided teaching accompanied by or without graphics formats does not lead to a statistically significant improvement in the achievement, trends, or attendance of underachieving students compared with the improvement achieved by other therapeutic teaching materials.

Barahmeh's [22] study aimed at investigating the impact of teaching a computerized seventh-grade mathematics course on the development of the mathematical thinking and attitudes of students toward a direct line in schools at Irbid 1st Directorate of Education in Jordan. The sample included 117 male and female students in the experimental group and 116 male and female students in the control group in 2006. The results showed statistically significant differences in the academic year 2005-2006 in the performances of students on the test of mathematical thinking, owing to the method of teaching used, in favor of the experimental group (direct line). Moreover, the seventh-grade students' trends toward direct line were found to be positive.

3. Materials and Methods

3.1. Study Sample. The study sample comprised 34 third and fourth year students majoring in German-English for Business and Communication (GEBC) from the GJU in the first semester of the 2016/2017 academic year. The participants were selected purposefully from two classes and then divided into experimental (16 students) and control (18 students) groups, which studied English via BL and traditional methods, respectively. The course they were taking was an elective course and the subject was, Special Focus: Language and Communication. Ethics approval was obtained before conducting the study from the Dean of the School of Applied Humanities and Languages and the head of Languages department. A written informed consent was also sought from each participant.

3.2. Study Tools. This study used a computerized education program for English, an achievement test in English, and a scale for measuring motivation to learn English.

3.3. Achievement Test. To measure participants' learned knowledge of the English language, the researcher developed an achievement test consisting of nine questions derived from the goals of the educational content of the lessons. The maximum possible score was 40 points, with difficulty transactions ranging from 0.30 to 0.85 and the discrimination coefficients for the questions from 0.36 to 0.95.

3.4. Test Validity. The content of the English language material was analyzed, and the educational goals were identified from the content. The Specifications table was entitled Table 1. The achievement test was presented to four university professors majoring in English language curriculum and methods of teaching and educational psychology; two of them are internal professors teaching at the GJU and the other two are externals teaching at Al-Balqa Applied University. The professors were requested to comment on the following aspects: wording of the questions, degree of appropriateness to the level of the students at GJU, coverage of the lesson objectives, and content of the study. The questions were then modified, including rewording, deletion, or modification, in accordance with the professors' comments.

3.5. Test Reliability. To ensure the reliability of the test, the researcher administered the amended version to a group of 10 third and fourth year students who were not a part of the study sample but studied the same major GEBC. The students took 45 minutes to complete the test. After 10 days, the test was again administered to the same group of students. Reliability was calculated using the Pearson equation, and the percentage of reliability was 0.83. The homogeneity coefficient, which was calculated using Cronbach's alpha equation, was 0.91. Thus, this test was shown to possess acceptable reliability and validity.

3.6. English Language Learner Motivation Scale. The researcher developed a scale for measuring the students' motivation to learn English. The scale comprised 13 paragraphs, including 8 positive and 5 negative content paragraphs. As for the correction key, a grading with three categories was applied. For positive paragraphs, the three categories were agree = 2, disagree = 0, and neutral = 1; the figures were reversed for negative paragraphs. The highest and lowest possible scores were 26 and 0, respectively.

3.7. Scale Validity. The validity of the scale was verified in terms of the language, clarity, and affiliation of the paragraphs to the motivation to be measured, and the appropriateness of the paragraphs to the English proficiency level of the GJU students, by submitting it to a number of four arbitrators in educational psychology, working as researchers at Queen Rania Teacher Academy, for measurement and evaluation. After considering their feedback, two paragraphs were deleted because of their nonsuitability to the scale, and certain paragraphs were modified. The final scale used comprised 13 paragraphs.

3.8. Scale Reliability. To check for reliability, the scale was administered and readministered after 10 days to 10 students (4 males, 6 females) who were not a part of the study sample. The Pearson correlation coefficient was 0.88. The homogeneity coefficient, which was calculated using the KR-20, was 0.95.

3.9. Study Procedures. The study was applied according to the following procedures:

(1) Application of the achievement test and motivation to learn English scale before starting to teach the experimental group via a computer.
(2) In the experimental group, students were taught the English language using computerized educational materials and traditional methods during the first semester (fourteen weeks) of 2016/2017.
(3) In the control group, students were taught the English language using the regular educational materials (i.e., textbook) and traditional methods.
(4) After the completion of the teaching process in both groups, the achievement test was administered. The scale measuring motivation to learn English was also administered to students in the experimental group.

3.10. Study Variables. The study included the following variables:

(a) Independent variable, two types of teaching methods:
    (1) Blended learning
    (2) Traditional method
(b) Independent variables:
    (1) Achievement
    (2) Motivation to learn English.

3.11. Statistical Analysis. To answer the research questions and determine the level of significance of the effect of using BL on students' achievement and motivation to learn English, the means, standard deviations, and analysis of covariance (ANCOVA) were employed.

3.12. Study Design. Because of the inability of the researcher to appoint members randomly to the study sample, as would be consistent with the fully randomized, experimental method, distributing the students randomly to experimental and control groups, was not feasible because of the reality of the practitioner field in universities. Therefore, the study

Table 1: Specifications of the English achievement test.

Goal levels/content	Knowledge (22.5%)	Comprehension (35.5%)	Application (45%)	Total
Authentic text analysis (42%)	Fifth question	First question fourth question	Eighth question	4
Contrastive discourse analysis (45%)	Second question	Third question	Sixth question seventh question	4
Systemic functional linguistics (13%)			Ninth question	1
Total	2	3	4	9

design was a quasi-experimental, with two nonequivalent groups. This design was expressed as follows:

$$\begin{aligned} \text{Experimental Group}: \text{G1} : \text{O1 X O2}, \\ \text{Control Group}: \text{G2} : \text{O1\_\_O2}, \end{aligned} \quad (1)$$

where O1 is the pretest, O2 is the posttest, and X is the treatment to experimental group.

4. Results and Discussion

4.1. RQ 1. To answer RQ 1, we calculated the arithmetic means of the pre and posttests, modified arithmetic means of the posttest, and standard deviations of both tests, depending on the difference between control and experimental groups (Table 2).

Table 2 shows the existence of a virtual difference between the means of the experimental and control groups in the postEnglish language test. To check for significance of the differences, depending on the teaching methods, a one-way ANCOVA was conducted for the posttest to neutralize the effect of the pretest, according to the study variable, teaching method (Table 3).

As shown in Table 3, the statistically significant effect (α = 0.05) on the English language achievement posttest was attributable to teaching methods, in which the students in the experimental group (modified arithmetic mean = 32.269), who were taught using BL and the traditional method, performed better than their counterpart in the control group (modified mean = 29.456), who were taught using the traditional method only.

The results demonstrated that the high performance of the experimental group could be attributed to the advantages of the computer in providing information. The advantages of the computerized program may have contributed to the better performance of the students in the experimental group who were taught using a computerized material designed to be attractive, interesting, and enjoyable for students and contains sight and sound features that far outweigh the rigid drawings in the book, thus making learning more fun.

In the learner-computer interaction, the program allowed the solution to be found via the computer, which also conducted the correction process, so that the students would know whether the solution they had provided was correct or incorrect. If the answer was correct, the computer provided feedback and encouragement; otherwise, the students were asked to try again.

This can also be attributed to the novelty in style of introducing English language lessons via a computer. The results of this study are consistent with those of Nuno's [16] study, which proved the effectiveness of teaching via computer.

4.2. RQ 2. To answer RQ 2, the means for each of the pre and postmotivation scales were calculated (Table 4). The findings showed a virtual difference between the modified means of the post-English language learner motivation scale. To check for the difference depending on the different teaching methods among the control and experimental groups, an associated one-way ANCOVA was conducted for the postmotivation scale, after neutralizing the impact of the premotivation scale, according to the study variable, teaching method.

A statistically significant impact ($\alpha = 0.05$) on the English language learner motivation scale was found that could be attributable to the teaching method variable (Table 5), in which the students in the experimental group, who were taught using BL (modified mean = 1.938), performed better than their counterparts in the control group, who were taught using traditional methods (arithmetic mean = 1.835).

The results showing increasing motivation to learn English can be attributed to the teaching method, which enhanced students' focus on the lessons. Akkoyunlu and Yilmaz-Soylu [23] argued that a student's perception of the learning concepts is shaped by their interpretation of the teacher's style. Displaying the learning concepts in a manner that is readily understandable by the student encourages their willingness to join in the conversations that relate to the concepts that are being highlighted in the given study process.

The increased motivation can also be attributed to the unfamiliar novelty element in providing English language lessons via a computer, where the new is always interesting and thrilling. The element of motivation was captured by Keller [24], who suggested that the use of the internet and other visual elements is intended to encourage student participation in the various initiatives that are involved in a classroom setting. Enabling a visual connection to the concepts highlighted in the classroom setting promotes the quality of responses that are generated by students [25]. Likewise, computer programs work to increase students' internal motivation through factors in the task they perform as such teaching methods are pleasing to students. Internal motivation is stronger and more lasting than external motivation; students who are enhanced internally perform their duties and have a keen desire to learn classroom material [26]. Primarily, learning outcomes are inspired by students' willingness to involve themselves in the learning dialogue. BL is committed to the promotion of a student's internal drive to excel in the learning initiative. The

Table 2: Arithmetic observed and modified means of pre- and post-English language tests.

Teaching method	N	Pretest achievement		Posttest achievement			Error
		Observed mean	Standard deviation	Observed mean	Standard deviation	Modified mean	
Traditional	18	24.61	7.904	29.36	5.995	29.456	0.815
Blended learning	16	24.92	8.083	32.37	6.609	32.269	0.777

Table 3: Results of the one-way analysis of variance (ANCOVA).

Source of variance	Sum of squares	Df	Mean of squares	Value of calculated F	Value of error	Practical significance
Pretest achievement (ANCOVA)	1,082.871	1	1,082.871	81.724	0.000	67.8%
Teaching method	82.840	1	82.840	6.253	0.017	13.9%
Error	516.772	39	13.252			
Overall	1,694.787	41				

Note. The one-way ANCOVA was performed to examine the differences between the means of the experimental and control groups in the post-English language test.

Table 4: Arithmetic observed and modified means of pre- and post-English language learner motivation scale.

Teaching method	n	Premotivation scale		Postmotivation scale			Error
		Observed mean	Standard deviation	Observed mean	Standard deviation	Modified mean	
Traditional	18	1.88	0.095	1.85	0.135	1.835	0.024
Blended learning	16	1.84	0.101	1.94	0.061	1.938	0.023

Table 5: Results of the one-way ANCOVA analysis of variance.

Source of variance	Sum of squares	Df	Mean of squares	Value of calculated F	Value of error	Practical significance
Premotivation (ANCOVA)	0.017	1	0.017	1.570	0.219	4%
Teaching method	0.108	1	0.108	10.383	0.004	21.1%
Error	0.401	39	0.011			
Overall	0.512	41				

Note. The one-way ANCOVA was performed to examine the differences between the means of the experimental and control groups in the English language learner motivation scale.

framework is predicated on the belief that motivation accounts for the differences in performances that are manifested by students.

O'Shea and his predecessor [27] showed that animated visual images provided by a computer hold an attraction that is related to students' internal motivation. This is in addition to other factors related to the computerized, such as color, image, sound, and movement, all of which increase motivation to learn English. The influence of image in the promotion of learning was also highlighted by Lai [28], who determined that the degree of visual presentation, augmented with sounds, enhanced students' attention to the details of the materials being examined. From the initiative, student performance would be improved.

Computers enhance students' ability to infer a correlation between abstract concepts and their immediate environment. Students became more encouraged to oversee their learning initiatives when they are exposed to visual cues and controlled visual settings. In assessing the implications of computer on student motivation, Mouza [29] argued that enhanced interactions in the classroom setting, as a result of integrated computers, provided students with the resources to facilitate successful engagement. Other than facilitating succinct correlation between abstract concepts and the environment, BL promotes personalization. Students' motivation is augmented when they are exposed to tools that reinforce their strength while improving their shortcomings. Horn [30] argued that blending models could reinvent themselves to address the personalized needs of students who are involved in the program. Ideally, student interest is piqued when he/she is able to identify with the materials that are used in the learning process. Students' productivity is augmented when they are exposed to tools that promote their understanding based on various capabilities. BL facilitates the identification of students' strengths and weakness. Such an intervention is critical because it provides teachers with information needed to streamline the productivity of each student in learning institutions.

5. Recommendations

This study recommends the following based on the results:

(1) As the study results showed that students performed better when BL was employed, computerized teaching, in addition to traditional methods, must be employed in teaching English.

(2) Future similar studies must measure the effect of types of BL on other variables, such as font, spelling, and pronunciation, and examine other subjects and classes.

(4) Future studies must examine self-learning only through computer sans a teacher.

Data Availability

The Quantitative data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

[1] A. Mousa and A. Mubarak, *E-learning, Foundations and Applications*, Data Network Corporation, Riyadh, Saudi Arabia, 2005.

[2] K. Bosman, *Simulation-based e-learning*, Syracuse University, ASTD Presentation, Syracuse, NY, USA, 2002, http://home.stny.rr.com/bosman/ide600presentation.html.

[3] M. Abadi, "E-learning and traditional education: what is the difference?," *Al Maerefah*, vol. 36, no. 91, pp. 18–23, 2002.

[4] H. Almberek, "E-learning: to develop the lecture method in university education using e-learning with a proposed model," A working paper submitted to the School of the Future Symposium, King Saud University, 2002.

[5] A. M. Al-Karam and N. M. Al-Ali, "E-learning: the new breed of education," in *Education development through utilization of technology: UNESCO Regional Office for Education in the Arab States*, V. Billeh and A. Ezzat, Eds., pp. 49–63, 2001.

[6] S. Codone, *An E-Learning Primer*, Mercer University, Macon, GA, USA, 2001, http://faculty.mercer.edu/codone_s/elearningprimer.PDF.

[7] H. Salama, *Blended learning: Natural Evolution for E-learning, E-learning Forum*, 2005, http://www.elearning.edu.sa/forum/attachment.php.attachmentid=635&d=118206521.

[8] D. R. Garrison and H. Kanuka, "Blended learning: uncovering its transformative potential in higher," *The Internet and Higher Education*, vol. 7, no. 2, pp. 95–105, 2004.

[9] C. R. Graham, *Blended learning systems, The Handbook of Blended Learning*, Pfeiffer Publisher, San Francisco, CA, USA, 2006.

[10] P. Valiathan, "Blended learning models," *Learning Circuits*, vol. 3, no. 8, 2002.

[11] B. Khan, *E-learning strategies (Translation: Ali Sharaf Musawi, Salem bin Jaber al-Waeli, and Mona Alteja)*, Aleppo, Syria, 2005.

[12] H. J. So and T. A. Brush, "Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: relationships and critical factors," *Computers and Education*, vol. 51, no. 1, 2008.

[13] Q. Shomali, "Blended learning: a seminar to ensure the quality of education and academic accreditation," in *Proceedings of Sixth Conference of the Deans of the Faculties of Arts in the Universities Members in the Association of Arab Universities,* Jinan University, Guangzhou, China, 2007.

[14] E-TQM College, *E-Learning and Blended Learning*, 2006, http://arabic.etam.ae/elearning/blended.html.

[15] A. Hashimi and F. Azzawi, *The Curriculum and Knowledge Economy*, Dar Al Maseera, Amman, Jordan, 2007.

[16] J. A. Nuno, "Is computer-assisted instruction an effective tool in the reading-writing classroom?," *Dissertation Abstract International*, vol. 43, no. 5, 2005.

[17] Z. Lal and A. Jundi, "The trend towards e-learning among male and female teachers of secondary schools in Jeddah, Saudi Arabia," *Journal of Umm Al-Qura University for Educational and Psychological Sciences*, vol. II, no. 2, 2010.

[18] M. Khalafullah, "Effectiveness of the use of e-learning and blended education in the development of the skills of the production of educational models in the students of the Department of Educational Technology, Faculty of Education, Al-Azhar University," *Journal of the Faculty of Education*, 2010.

[19] H. Kinsara, *The Impact of the Preventive Education Strategy Using Computer on the Direct And Deferred Achievement of the Students of the Curriculum of Educational Techniques Compared to the Individual and Traditional Method*, Um Al Qura University of Educational and Psychological Sciences, Umm Al Qura University, Makkah Al Mukarramah, Saudi Arabia, 2009.

[20] B. Klimova, "Evaluation of the blended learning approach in the course of business English–A case study," *Emerging Technologies for Education*, LNCS 10676, pp. 326–335.

[21] A. C. Pajtek, "Computer-based versus paper-based instruction: effectiveness and motivation," *Dissertation Abstract International*, vol. 41, no. 2, 2002.

[22] H. Barahmeh, *The Impact of the Teaching of a Computerized Mathematics Course to the Seventh Grade in Mathematical Thinking and Students' Attitudes Towards Beeline*, Unpublished MA Thesis, Yarmouk University, Irbid, Jordan, 2006.

[23] B. Akkoyunlu and M. Yilmaz-Soylu, "A study of students' perceptions in a blended learning environment based on different learning styles," *Educational Technology and Society*, vol. 11, no. 1, 2008.

[24] J. M. Keller, "First principles of motivation to learn and e-learning," *Distance Education*, vol. 29, no. 2, 2008.

[25] J. Watson, *Blended Learning: The Convergence of Online and Face-To-Face Education: Promising Practices in Online Learning*, North American Council for Online Learning, Vienna, VA, USA, 2008.

[26] J. E. Ormrod, *Educational psychology: Principles and Application*, Prentice-Hall, NJ, USA, 1995.

[27] T. O'Shea and J. Self, *Learning and Teaching with Computers: Artificial Intelligence in Education*, The Harvester Press, UK, 1983.

[28] S. Lai, "Influence of audio-visual presentations on learning abstract concepts," *International Journal of Instructional Media*, vol. 27, no. 2, 2000.

[29] C. Mouza, "Learning with laptops: implementation and outcomes in an urban, under-privileged school," *Journal of Research on Technology in Education*, vol. 40, no. 4, 2008.

[30] M. B. Horn and H. Staker, *The rise of K-12 Blended Learning*, Innosight Institute, Switzerland, 2011.