

THE IMPACT OF BLENDED LEARNING IN ENHANCING THE SKILL PERFORMANCE OF PRODUCING DIGITAL CONTENT AMONG STUDENTS OF OPTIMAL INVESTMENT

Marwa Yasien Helmy Elbyaly¹ and Abdellah Ibrahim Mohammed Elfeky²

¹Centre for Sharia, Educational and Humanities Research, Najran University, Najran, Saudi Arabia

²Department of Curriculum and Instruction, College of Education, Najran University, Najran, Saudi Arabia

Marwa.mohamed1@spe.kfs.edu.eg¹ and abdalah.elfeqi@spe.kfs.edu.eg²

ABSTRACT

This research aims to identify the effect of blended learning in enhancing the skill performance of producing digital content among students of optimal investment. The research sample consisted of two random groups, a control group that studied the digital content production course using the traditional method, and an experimental group that studied the course using the blended learning method. Each group consisted of 27 students. A note card for skillful performance was used as a tool to achieve the aim of this research. The research concluded that there is a statistically significant difference at the level (0.05) between the adjusted earnings ratio for the scores of students of the two groups in the skill performance level of digital content production skills in favor of the experimental group.

Keywords: e-learning; face-to-face learning; blended learning; digital content; Skillful performance

INTRODUCTION

In light of the information revolution and the accompanying steady doubling in the techniques of generating, processing and storing information, as well as the emergence of the Internet available to all countries and individuals, which enabled learners too easily and quickly access that information at any time. In addition to the emergence of Multimedia and the consequent employment of its elements in the transfer and presentation of that information in various learning programs (Ahmed, Alharbi, & Elfeky, 2022). In addition, the related need for new educational methods and methods such as Blended Learning to enable learners to benefit from computer capabilities that depend on its enormous speed, and human ability that depends on intelligence and innovation (Elbyaly & Elfeky, 2023a, 2023b; Li & Wang, 2022; Masada, 2017). Blended learning is an integrated system that integrates the traditional method of face-to-face learning with e-learning via the Internet, to guide and assist the learner through each stage of learning as one of the modern approaches based on the use of educational technology in designing new educational situations (Elfeky & Elbyaly, 2019; Megahed & Hassan, 2022).

Although blended learning has become a rather catchy word in academic circles, there is still a great deal of ambiguity as to what is meant when the term is used (Bizami, Tasir, & Kew, 2022;

Elfeky & Elbyaly, 2023). Blended learning is different from other terms such as distributed learning, e-learning, open learning, flexible learning, and hybrid courses. In addition, the introduction of new technology to the teaching and learning process has brought blended learning to the limelight (M. Y. H. Elbyaly & Elfeky, 2022; Widjaja & Aslan, 2022). The term blended learning has been used as a response to the sometimes-inappropriate overuse of technology. Blended learning was the reason that forced traditional learning to disappear, and blended learning is the safe haven for e-learning vendors (Finlay, Tinnion, & Simpson, 2022). Merger is a form of art that the teacher uses to combine different resources and activities within the scope of learning environments that enable the learner to interact and build ideas (Elfeky & Elbyaly, 2021b; Setiawan, Muhtadi, & Hukom, 2022).

The term blended learning is used to describe a solution that combines several different delivery methods such as collaboration software, Web-based courses, EPSS, and knowledge management practices. Blended learning is used to blend different event-based activities, including face-to-face classrooms, live e-learning, and self-paced learning. That is, blended learning is a combination of instructor-led training, synchronous online conferencing, and asynchronous self-paced study. Under this definition, blended learning involves a combination of the following elements (Batubara, Riyanda, Rahmawati, Ambiyar, & Samala, 2022; Elfeky, Alharbi, & Ahmed, 2022):

- Various presentation media (traditional and internet-based).
- Various learning events (self-paced, individual & collaborative, and group-based).
- Electronic Performance Support and Knowledge Management.

Blended learning combines the benefits of traditional instructor led training with the advantages brought by a variety of technologies to create the optimal program (Heo, Bonk, & Doo, 2022). Blended Learning is the use of modern technology in teaching without abandoning the usual educational reality and attendance in the classroom (Almalki & Elfeky, 2022; Puspitasari, Hayati, & Purwaningsih, 2022). Emphasis is placed on direct interaction within the classroom with modern communication mechanisms, such as computers, networks and learning management platforms (Islam, Sarker, & Islam, 2022). This education can be described as how the information, attitudes and educational experiences that are provided to the learner are organized through multimedia provided by modern technology or information technology (Anthony Jnr, 2022; Elbyaly & Elfeky, 2021). This type of education is characterized by shortening the time, effort and cost, by delivering information to the learners as quickly as possible, in a way that enables the management and control of the educational process, measuring and evaluating the performance of learners, in addition to improving the general level of academic achievement, and providing an attractive learning environment. Blended learning is also displacing e-learning as the next big thing, because different problems require different solutions (different mixes of media and presentation) (Colreavy-Donnelly et al., 2022). Some believe that the way to do this is to apply the right mix to the given work problem, and then blended learning effectively replaces e-learning (Alharbi, Elfeky, & Ahmed, 2022; Martin, Wu, Wan, & Xie, 2022). He asserts that every successful e-

learning program will become a blended learning programmer (Amalia & Julia, 2022). Educational programs that support blended learning solutions and learning management systems can help ensure the success of intellectual capital management initiatives (Masadeh & Elfeky, 2016).

Blended Learning is also the integration of several methods of educational processes that involve the dissemination of a variety of methods, sources, and learning experiences obtained from more than one type of information source (Chen, 2022). In addition, the options for blended learning go beyond the traditional classroom (Amalia & Julia, 2022; Elfeky, 2017). Blended learning refers to the use of learning activities of different types and locations, and is concerned with supporting the strengths of different types of learning activities and places to achieve comprehensive educational goals (Islam et al., 2022). It can be described as a learning program that uses more than one mode of delivery with the aim of improving learning outcomes and reducing the cost of program delivery (Elfeky & Elbyaly, 2017). However, it is not important to mix different learning delivery modes, but to focus on work and learning outcomes (Islam et al., 2022). Therefore, it can be said that blended learning focuses on improving the achievement of learning goals by applying appropriate educational technology that goes along with the appropriate learning style to transfer the appropriate skills to the right person at the right time (Megahed & Ghoneim, 2022). Blended learning is defined as an optimal combination of face-to-face and online learning that improves learning and satisfies teachers and students (Elfeky & Elbyaly, 2016). That is, it refers to the deliberate integration of face-to-face classroom learning experiences with online learning experiences. It aims to combine the best features of classroom learning with the best features of online learning to encourage active independent learning and reduce class time (Megahed & Ghoneim, 2022).

Face-to-face sessions allow for the development of personal relationships and a sense of community, which encourages participants to exchange ideas and experiences among themselves (Elbyaly, 2016). The online component of blended learning creates an opportunity to support and sustain the exchange of those ideas and experiences (Elbyaly & El-Fawakhry, 2016). Because of these complementary advantages, interest is growing on how to apply blended learning. Also, the study Alhalafawy, Najmi, Zaki, and Alharthi (2021), which aimed to study how the sense of belonging to the community differs across fully traditional learning, blended learning, and fully online learning, showed that Blended Learning causes a strong sense of belonging to the community greater than Traditional study and online study. The idea behind blended learning is that instructional designers review learning programs, break them down into modules, and determine the best medium for delivering those modules to the learner. Content and skills are also becoming more complex and changing rapidly, making the blended learning method more required to accomplish complex and ever-changing learning objectives (Elfeky & Elbyaly, 2021a; Najmi, Alhalafawy, & Zaki, 2023). Others find that Blended Learning helps provide that balance between flexible presentation options and live interaction. Moreover, the blended learning environment aims to help students take more responsibility for their learning by focusing on what the student is doing (Alshammary & Alhalafawy, 2023). It should also be noted that the pedagogical aspect of

the blended learning environment is based on the assumption that there are inherent benefits in face-to-face interaction as well as the realization that there are advantages to using online learning methods (Megahed & Ghoneim, 2022).

The skill is also a type of learning, and it requires cognitive aspects and mental processes (Elfeky, 2018). The first level of skill learning is the preparation that falls within the mental processes (Elfeky, Masadeh, & Elbyaly, 2020). Thus, the skill is not only considered a motor activity, but it has another aspect, which is the cognitive mental aspect. That is, the ability to use knowledge effectively and easily in a performance situation. Skill as a type of learning does not appear except through performance, performance is what comes out of observable behavioral actions, and performance has performance standards (Alzahrani, Alshammary, & Alhalafawy, 2022).

One of the conditions for acquiring the skill is conjugation: it means timing, synergy, and the correct arrangement. The process of translating the sensory stimulus into a mental movement takes some time, and this time differs from the time it takes to perform the movement itself, which is called retrograde time, and this means that the skill needs a measure of temporal sequence immediately (Alanzi & Alhalafawy, 2022). Knowing the results and feedback: Motor skills are not acquired except by knowing the results or what is called Informative Feedback, and increasing the delay in feeding leads to a decrease in the learning rate, and the slight delay has no effect on learning (Elfeky & Masadeh, 2016). Directing the learner and guiding him to the nature of good performance: Educational guidance and counseling plays an important role in the process of acquiring skills, if the teacher has sufficient knowledge of the nature of good performance, which requires an analysis of the skill using different job analysis methods. Negative practice: practicing mistakes while learning the skill helps the learner to delete these mistakes, if the learner is fully aware that he is practicing the wrong answer. The current research studies the effect of blended learning in enhancing the skill performance of producing digital content among students of the Optimum Investment Diploma.

RESEARCH PROBLEM

In light of the emphasis on the importance of preparing optimal investment students to carry out their new tasks this search came. This is to develop their preparation courses, in line with the new roles and functions assigned to them in light of the great technical progress in the field of education. In addition, through a researcher teaching the digital content production course for second-level students with the Optimum Investment Diploma. By following up the students' projects, and through a survey of experts and students, the researchers noted the low level of students in producing digital content because of a lack of related skills, which they studied in the traditional way. In light of the results of applying the blended learning strategy in previous studies, the researchers believed that the use of this strategy might be useful in enhancing the skill performance of producing digital content among students of optimal investment.

RESEARCH AIMS

The main objective of the current research is to try to identify the impact of blended learning in enhancing the skill performance of producing digital content among students of optimal investment.

RESEARCH IMPORTANCE

The results of the current study are expected to contribute to the following:

- Qualifying employees of the Optimum Investment Diploma in the Department of Curricula and Teaching Methods to meet the requirements of their new work.
- Directing the interest of faculty members towards the application of blended learning by providing a model that can be followed when preparing other programs with the aim of developing many skills included in the academic courses.
- Directing the interests of course preparers in optimal investment programs to the need to take advantage of educational technologies to enhance the skills associated with those courses.

Research Limits

This research experience is limited to:

- Students of the Optimal Investment Diploma, in the second year 2022.
- Enhancing the skillful performance of digital content production for optimal investment students in the Department of Curricula and Teaching Methods, College of Education.

Research Terms

Blended Learning

Blended learning is defined as a targeted combination of learning media (face-to-face learning and various forms of new technologies) as solutions to improve learning and performance, derived from structured goals and needs (Bizami et al., 2022).

Skill

The acquired ability enables the learner to accomplish the tasks entrusted to him efficiently and proficiently in the shortest time, the least effort, and an ample return (Elfeky & Masadeh, 2016).

METHODOLOGY

The researchers used the semi-experimental approach, and this required the use of an experimental design known as the pre-post design, using two equal groups, one experimental and the other a control group.

Table 1: Research design

	Pre-test	Treatment	Post-test
Experimental group	Observation card	Blended learning	Observation card
Control group		traditional learning	

Research Tool (Observation Card)

This card aimed at measuring the level of performance of Optimum Investment Diploma students in digital content production skills. In its final form, the card consisted of (24) main skills and (261) sub-skills. It has been taken into account that the skills are arranged in a logical order. The researchers also used quantitative assessment in grades so that students' levels in each skill can be identified. Given that, the sub-skills within each main skill are interrelated and sequential, forgetting any sub-skill leads to the student not continuing to perform the following sub-skills. This prompted the researchers to search for a mechanism to ensure the students' continuity in performing the skill. This was done using Rating Scales, consisting of five levels, according to Likert, as follows:

- Correct performance from the first time (the student gets the full score).
- Making a mistake, with the student discovering the mistake himself (after alerting the teacher) and correcting it himself (the student gets $\frac{3}{4}$ of the mark).
- Performing a mistake, with the student discovering the mistake himself and correcting it with the help of the teacher (the student gets $\frac{1}{2}$ mark).
- Performing a mistake, with the student discovering the mistake with the help of the teacher and correcting it himself (the student gets $\frac{1}{4}$ of the mark).
- Performing an error, with the student discovering the error with the help of the teacher and correcting it with the help of the teacher (the student's score is zero).

The student's performance is recorded by putting a tick (\checkmark) in front of the level of performance appropriate to his performance. The total score for the student is obtained by collecting those scores, through which the level of his performance in the skills included in the card is judged. Accordingly, the total marks in the observation card is (522) marks. The researchers made sure that the notes card instructions were clear and specific. The purpose of the card is also specified so that any observer can use it accurately. After defining the objective of the observation card, and identifying the main and sub-skills included in the card, the observation card was formulated in its initial form. Then the validity and reliability of the card were verified, in order to ensure its suitability for use as a tool for evaluating the skills to be performed. This has been verified by presenting the note card to a group of arbitrators and experts in the field of educational technology, curricula and teaching methods. This is in order to verify the validity of the card by making sure that the procedural wording of the card is correct, clear, and that the performance can be observed. In addition, the calculation of the stability of the observation card was based on the multiplicity of observers on the performance of one student, and then calculating the coefficient of agreement between their estimates using the Cooper equation. This is done through the assistance of three specialized faculty members, after presenting the observation card to them to learn about its content and instructions for its use. Then, observing the performance of three of the students, then calculating the coefficient of agreement of the three observers for each student separately, as the average coefficient of agreement of the observers for the three students was 92%, which means

that the observation card is stable to a degree that qualifies it to be applicable as a measurement tool. Thus, the observation card became in its final form, after ensuring its validity and stability, and became valid to achieve its goal, which is to measure the level of students' performance in digital content production skills.

Research Sample

The sample of the current study consisted of (54) students of the optimal investment diploma in the Department of Curricula and Teaching Methods, the standard deviation was 5.28, and the average age was 25.3 years. The study sample was divided into two groups using the random method. The control group (27 students) studied digital content production using the traditional method. The experimental group (27 students) studied the same course through the blended learning strategy.

Ensure the Homogeneity of the Two Groups in Skill Performance

The homogeneity between the two groups (experimental and control) in the observation card of the practical performance of digital content production skills was verified through the pre-measurement of the observation card, as shown in the following:

Table 2: Significance of differences between the two groups in the pre-measurement of the observation card

	Sum of Squares	DF	Mean of Square	F. ratio	Sig.
Between Groups	6.109	1	6.109	0.194	0.214
Within Groups	6824.825	52	112.986		
Total	6830.934	53			

As shown in the previous table, it is clear that the value of F reached (0.194), which is not statistically significant, and this means that there are no significant differences in the tribal measurement between the two groups. That is, the two research groups are homogeneous with regard to the skill performance of producing digital content before exposure to the research experience.

Experimental Processing Material

As for the experimental group, it studies the course of producing digital content based on blended learning according to a number of steps:

- Holding an initial meeting with the students of the experimental group to explain how to specify the Pass ward and Username for each student to enter the MOOLE platform. As well as defining the weekly study plan, clarifying the objectives of the course, its importance, the dates of face-to-face meetings with the lecturer, the mechanism of communication, evaluation, and organizing students in subgroups.
- As for the electronic aspect of the digital content production course, students study it individually through the MOOLE platform.

- Introducing the traditional component of blended learning through six scheduled sessions (an initial meeting, four sessions of an hour and a half each, and the final session for the final exam).
- A simultaneous meeting between the students of the experimental group via a chat room for two hours per week, in coordination with the lecturer.
- Asynchronous communication between students of the experimental group with each other, and between them and the lecturer through a forum for the course.
- Students of each subgroup send the weekly activity to the lecturer via the MOODLE platform, after collaboratively completing it.
- Each unit of the course ends with a building test that each student in the group answers individually through the platform.
- Students bring a group to the classroom to perform the final face-to-face exam.

Students of the control group study the digital content production course in a traditional manner according to the traditional study schedule in the hall designated for that, where a four-hour lecture is given per week.

RESULTS

After completing the basic experiment and monitoring the degrees of pre-application and post-application with regard to the practical performance observation card of digital content production skills, we discuss the following statistical methods used. The researchers used the T-test to determine the significance of the differences between the adjusted earning percentage for the scores of the students of the two experimental groups, and the control group, in the level of skill performance of digital content production skills, as shown in the following table:

Table 3. Significance T of the difference between the modified earning percentage for the scores of the students of the two experimental groups, and the control group in the performance note card

Group	M	SD	Mean Difference	T. Ratio	Sig.
Experimental group	423.7	12.117	31.3	5.22	0.048
Control group	392.3	10.869			

From the previous table, it is clear that the T value of the difference between the modified earning percentage for the scores of the students of the two experimental and control groups in the performance observation card was (5.22). The average score of the control group students was (392.4). While the average score of the experimental group students was (423.7), and we conclude that the T value is statistically significant. In addition, the level of statistical significance is directed to the highest group on average, which is the experimental group (which was taught by blended learning). In other words, it can be said that there is a statistically significant difference at the level of (0.05) between the adjusted earnings ratio for the scores of the students of the experimental

group. That studied with blended learning and the control group that studied in the traditional way in the level of skill performance of digital content production skills in favor of the experimental group.

DISCUSSION

The results shown in Table (3) indicated that there was a statistically significant difference at the level of (0.05) between the adjusted earning percentages for the scores of students of the two groups in the skill performance level of digital content production skills in favor of the experimental group. This is a good indicator illustrating the importance of using Blended Learning, which would lead to the development of the skillful performance of digital content production skills for the benefit of the experimental group among the Optimum Investment Diploma students. The researchers believe that this result can be explained in the light of the following:

- The survival of the effect of learning because of the student's interaction with the content provided using multimedia elements such as sound, image and movement, which was reflected in the development of skillful performance.
- The possibility of viewing the steps of the practical skill more than once through the online educational website without being restricted by the limits of time and place, which helped the student to understand and analyze the skill.
- The nature of the blended learning environment that allows the student to meet the lecturer face to face, which allowed the student to practice the skill in the laboratory by way of trial and error, in addition to watching it on the MOODLE platform, which facilitated the process of acquiring the skill.
- Students interacted with each other, and students with the lecturer, through a chat room and discussion forum, which led to solving the problems that students encountered during practical training on the skill.
- Supervision, guidance and counseling by the lecturer on students during practical training in a face-to-face learning environment, which led to correcting the mistakes they made.
- Taking into account the individual differences between students, each student can watch the steps of the skill more than once according to his own speed of learning so that he can perform it to the fullest.

This result is consistent with the findings of previous studies and research that dealt with the effect of blended learning, including: the study of the Thomson Foundation (2002), the study of Anne Abraham (2007), and the study of Rasha Muhammad Hedaya (2008), where these studies proved the effect of blended learning In acquiring the skill aspect of the beneficiaries.

RECOMMENDATIONS

In the light of the research results, discussion and interpretation, the researchers recommend the following:

- Follow the system of merging between e-learning via the Internet and traditional face-to-face learning in similar educational situations.
- Adopting the blended learning system when training optimal investment diploma students on digital content production skills.
- The importance of providing students with practical skills through practical training in the laboratory to obtain the greatest effectiveness of the educational process.
- Training faculty members on how to prepare their courses to be compatible with blended learning programs, through capacity development courses for faculty members in universities.

SUGGESTED RESEARCH

In light of the results of the current research, and by reviewing previous studies related to the research topic, the researchers suggest the following research topics:

- A training program to develop the skills of faculty members to build educational courses based on blended learning.
- The effect of using blended learning in exchange for e-learning via the Internet in the development of practical skills.
- A proposed training program to provide students of the College of Education with the skills of dealing with educational applications of the Internet.
- A proposed training program to develop the skills of optimal investment diploma students in employing chat rooms and discussion forums in the online educational process.
- The impact of an educational environment based on virtual reality technology on the development of skillful performance of optimal investment diploma students.

ACKNOWLEDGMENT

The authors are thankful to the Deanship of Scientific Research at Najran University for funding this work, under the General Research Funding program grant code (NU/NRP/SEHRC/12/19).

REFERENCES

- Ahmed, E. S. A. H., Alharbi, S. M., & Elfeky, A. I. (2022). Effectiveness Of A Proposed Training Program In Developing Twenty-First Century Skills And Creative Teaching Skills Among Female Student Teachers, Specializing In Early Childhood. *Journal of Positive School Psychology*, 4316-4330.
- Alanzi, N. S. A., & Alhalafawy, W. S. (2022). A Proposed Model for Employing Digital Platforms in Developing the Motivation for Achievement Among Students of Higher Education During Emergencies. *Journal of Positive School Psychology*, 6(9), 4921-4933.
- Alhalafawy, W. S., Najmi, A. H., Zaki, M. Z. T., & Alharthi, M. A. (2021). Design an Adaptive Mobile Scaffolding System According to Students' Cognitive Style Simplicity vs Complexity for Enhancing Digital Well-Being. *International Journal of Interactive Mobile Technologies*, 15(13).

- Alharbi, S. M., Elfeky, A. I., & Ahmed, E. S. (2022). The effect of e-collaborative learning environment on development of critical thinking and higher order thinking skills. *Journal of Positive School Psychology*, 6848-6854.
- Almalki, A. D. A., & Elfeky, A. I. M. (2022). The Effect of Immediate and Delayed Feedback in Virtual Classes on Mathematics Students' Higher Order Thinking Skills. *Journal of Positive School Psychology*, 432-440-432-440.
- Alshammary, F. M., & Alhalafawy, W. S. (2023). Digital Platforms and the Improvement of Learning Outcomes: Evidence Extracted from Meta-Analysis. *Sustainability*, 15(2), 1305.
- Alzahrani, F. K. J., Alshammary, F., & Alhalafawy, W. (2022). Gamified Platforms: The Impact of Digital Incentives on Engagement in Learning During Covide-19 Pandemic. *Cult. Manag. Sci. Educ*, 7, 75-87.
- Amalia, D. Y., & Julia, J. (2022). Transisi Pendidikan Era New Normal: Analisis Penerapan Blended Learning di Sekolah Dasar. *Jurnal Basicedu*, 6(2), 1618-1628.
- Anthony Jnr, B. (2022). An exploratory study on academic staff perception towards blended learning in higher education. *Education and Information Technologies*, 27(3), 3107-3133.
- Batubara, H. S., Riyanda, A. R., Rahmawati, R., Ambiyar, A., & Samala, A. D. (2022). Implementasi Model Pembelajaran Blended Learning di Masa Pandemi Covid-19: Meta-Analisis. *Jurnal Basicedu*, 6(3), 4629-4637.
- Bizami, N. A., Tasir, Z., & Kew, S. N. (2022). Innovative pedagogical principles and technological tools capabilities for immersive blended learning: a systematic literature review. *Education and Information Technologies*, 1-53.
- Chen, R. H. (2022). Effects of deliberate practice on blended learning sustainability: A community of inquiry perspective. *Sustainability*, 14(3), 1785.
- Colreavy-Donnelly, S., Ryan, A., O'Connor, S., Caraffini, F., Kuhn, S., & Hasshu, S. (2022). A Proposed VR Platform for Supporting Blended Learning Post COVID-19. *Education Sciences*, 12(7), 435.
- Elbyaly. (2016). Heritage Revival by the Use of Saudi Bedouin Textiles in the Gulf Mantle. *Journal of Home Economics*, 26(4).
- Elbyaly, & El-Fawakhry. (2016). Online teaching course to develop STUDENTS'CREATIVITY in handmade embroidery. *British Journal of Education*, 4(13), 30-51.
- Elbyaly, & Elfeky. (2021). Investigating the effect of vodcast to enhance the skills of the Canadian smocking and complex problem solving. *Current Psychology*, 1-11.
- Elbyaly, & Elfeky. (2023a). The effectiveness of a program based on augmented reality on enhancing the skills of solving complex problems among students of the Optimal Investment Diploma. *Annals of Forest Research*, 66(1), 1595-1606.

Elbyaly, & Elfeky. (2023b). The effectiveness of project-based learning on enhancing the critical thinking skills of optimal investment students. *Annals of Forest Research*, 66(1), 1569-1583.

Elbyaly, M. Y. H., & Elfeky, A. I. M. (2022). The role of metacognition in promoting deep learning in MOOCs during COVID-19 pandemic. *PeerJ Computer Science*, 8, e945.

Elfeky. (2017). Social Networks Impact factor on Students' Achievements and Attitudes towards the " Computer in Teaching" Course at the College of Education. *International journal on E-learning*, 16(3), 231-244.

Elfeky. (2018). The effect of personal learning environments on participants' higher order thinking skills and satisfaction. *Innovations in Education and Teaching International*.

Elfeky, Alharbi, & Ahmed. (2022). The Effect Of Project-Based Learning In Enhancing Creativity And Skills Of Arts Among Kindergarten Student Teachers. *Journal of Positive School Psychology*, 6(8), 2182-2191.

Elfeky, & Elbyaly. (2016). The impact of learning object repository (lor) in the development of pattern making skills of home economics students. *British Journal of Education*, 4(2), 87-99.

Elfeky, & Elbyaly. (2017). The use of CSCL environment to promote students' achievement and skills in handmade embroidery. *European Journal of Training and Development Studies*, 4(2), 19-32.

Elfeky, & Elbyaly. (2019). Multimedia: Different Processes. *Interactive Multimedia-Multimedia Production and Digital Storytelling*.

Elfeky, & Elbyaly. (2021a). Developing skills of fashion design by augmented reality technology in higher education. *Interactive Learning Environments*, 29(1), 17-32.

Elfeky, & Elbyaly. (2021b). The use of data analytics technique in learning management system to develop fashion design skills and technology acceptance. *Interactive Learning Environments*, 1-18.

Elfeky, & Elbyaly. (2023). The impact of augmented reality technology on developing hand embroidery skills among students of the College of Education. *Annals of Forest Research*, 66(1), 1584-1594.

Elfeky, & Masadeh. (2016). The Effect of Mobile Learning on Students' Achievement and Conversational Skills. *International Journal of higher education*, 5(3), 20-31.

Elfeky, Masadeh, T. S. Y., & Elbyaly, M. Y. H. (2020). Advance organizers in flipped classroom via e-learning management system and the promotion of integrated science process skills. *Thinking Skills and Creativity*, 35, 100622.

Finlay, M. J., Tinnion, D. J., & Simpson, T. (2022). A virtual versus blended learning approach to higher education during the COVID-19 pandemic: The experiences of a sport and exercise science student cohort. *Journal of hospitality, leisure, sport & tourism education*, 30, 100363.

- Heo, H., Bonk, C. J., & Doo, M. Y. (2022). Influences of depression, self-efficacy, and resource management on learning engagement in blended learning during COVID-19. *The Internet and higher education*, 54, 100856.
- Islam, M. K., Sarker, M. F. H., & Islam, M. S. (2022). Promoting student-centred blended learning in higher education: A model. *E-Learning and Digital Media*, 19(1), 36-54.
- Li, S., & Wang, W. (2022). Effect of blended learning on student performance in K-12 settings: A meta-analysis. *Journal of Computer Assisted Learning*, 38(5), 1254-1272.
- Martin, F., Wu, T., Wan, L., & Xie, K. (2022). A Meta-Analysis on the Community of Inquiry Presences and Learning Outcomes in Online and Blended Learning Environments. *Online Learning*, 26(1), 325-359.
- Masada, T. S. Y. (2017). Immediate versus delayed feedback in promoting student teachers skills for lesson plan implementation. *Thouqan Saleem Yakoub Masadeh and Abdellah Ibrahim Mohammed Elfeky (2017) Immediate Versus Delayed Feedback in Promoting Student Teachers Skills for Lesson Plan Implementation, British Journal of Education*, 5(8), 43-58.
- Masadeh, T. S. Y., & Elfeky, A. I. M. (2016). Efficacy of open-source learning management systems in developing the teaching skills of English language student teachers. *American Journal of Educational Research*, 4(4), 329-337.
- Megahed, N., & Ghoneim, E. (2022). Blended learning: the new normal for post-Covid-19 pedagogy. *International Journal of Mobile and Blended Learning (IJMBL)*, 14(1), 1-15.
- Megahed, N., & Hassan, A. (2022). A blended learning strategy: reimagining the post-Covid-19 architectural education. *Archnet-IJAR: International Journal of Architectural Research*, 16(1), 184-202.
- Najmi, A. H., Alhalafawy, W. S., & Zaki, M. Z. T. (2023). Developing a Sustainable Environment Based on Augmented Reality to Educate Adolescents about the Dangers of Electronic Gaming Addiction. *Sustainability*, 15(4), 3185.
- Puspitasari, S., Hayati, K. N., & Purwaningsih, A. (2022). Efektivitas Penggunaan Model Blended Learning Terhadap Motivasi Belajar dan Hasil Belajar IPS. *Jurnal Basicedu*, 6(1), 1252-1262.
- Setiawan, A. A., Muhtadi, A., & Hukom, J. (2022). Blended Learning and Student Mathematics Ability in Indonesia: A Meta-Analysis Study. *International Journal of Instruction*, 15(2), 905-916.
- Widjaja, G., & Aslan, A. (2022). Blended learning method in the view of learning and teaching strategy in geography study programs in higher education. *Nazhruna: Jurnal Pendidikan Islam*, 5(1), 22-36.