Effect of Blended Learning and Social Media Learning on the Academic Success and Motivation among Undergraduate Nursing Students

Shadia Abd Elmoniem Syan [(1)], Fatma Mohamed El swerky [(2)], Wafaa Hamed Kamal Elshafie [(3)], Nagat Salah Shalaby Salama [(4)], Manal Mohamed Ahmed Ayed [(5)], Boshra Mostafa Younes Abdelfatah [(6)], Fathia El-Sayed El-Ghadban [(7)]

(1) Pediatric Nursing Department, Faculty of Nursing, Sohag University
(2) Family & Community Health Nursing Department, Faculty of Nursing, Port Said University
(3) Community Health Nursing Department, Faculty of Nursing, Mansoura University
(4) Maternity, Gynecology and Obstetrics Nursing, Faculty of Nursing, Port Said University
(5) Pediatric Nursing Department, Faculty of Nursing, Sohag University, Egypt
(6) Lecturer of Nursing administration, Faculty of Nursing, Aswan University
(7) Pediatric Nursing Department, Faculty of Nursing, Fayoum University, Egypt

Abstract

Blended learning is a teaching style that combines two or more complementary approaches to teach the same subject, by using a combination of lecture, activity, discussion, and/or web-based modules in the classroom. **Aim:** To investigate the effect of blended learning and social media learning on academic success and motivation among undergraduate nursing students. **Design:** A quasi-experimental study design was used to achieve the aim of this study. **Setting:** The study was conducted at the Faculty of Nursing, Sohag University, Egypt. **Sample:** A convenient sample of all available third-year undergraduate nursing students (330) from the previously mentioned study setting in the 2020/2021 academic year. Students were included in this study were from bothgender and willing to participate in the study. The study sample of the research was divided into three groups; the control group taught by using the face to face learning (110 students), study group-1 exposed to social media learning, and study group-2 exposed to a blended learning model. **Tools for data collection:** A self-administered structured questionnaire to assess demographic characteristics and learning needs, and Academic success test (AST), and a motivation scale for learning science (MSFLS). **Results:** A highly significant difference between the student's blended learning, social media-supported learning, and face-to-face learning regarding their students' academic success and motivation mean scores post-test. **Conclusions:** Blended learning highly significantly improved undergraduate nursing students' both academic success and motivation than face-to-face or social media learning. **Recommendations:** Blended learning can be used to facilitate education among undergraduate nursing students; more research is done to determine the effectiveness and durability rate of the information of these methods.

Keywords*:* Academic success, Blended learning and Motivation, Social media learning, Nursing students

Introduction:

Nursing educators are constantly looking for new ways to improve their students' learning and problem-solving abilities (**Billings & Halstead, 2019**). Internet technologies are one of the world's fastest-growing and most widely adopted technologies (**Li et al., 2020**). Nursing education has advanced dramatically in recent years, thanks to the utilization of technology such as e-learning in both clinical simulation and theoretical courses (**Thornock, 2019).**

Technology has a favorable impact on learning and teaching approaches, resulting in the creation of new learning models. Blended learning and social media-supported learning are two of these learning approaches. In addition, rather than employing a single learning model, adopting multi-learning models in a blended manner in the twenty-first century has become a need, requiring effective use of the internet, portals providing education-related content, and social media. Science education is one of the fields that has been most affected by these changes (**Akgündüz & Aknolu, 2016**).

Raising 21st-century students in classrooms that still use traditional face-to-face instruction is getting increasingly difficult. The reason for this is that traditional face-to-face methods do not provide activities that

encourage students to think and research, as well as opportunities to apply knowledge and solve problems, in short, to restructure knowledge; as a result, students graduate with only the surface information they memorize. As a result, these shortcomings in face-to-face learning have a negative impact on education (**Aknolu, 2019).**

With the advancement of technology and the introduction of the internet, the increased accessibility of knowledge has increased the likelihood that face-to-face learning would drop due to various flaws. Some universities, institutions, and academics have created web-based learning environments and developed program that only train with web-based learning and study the environment's effectiveness (**Graham et al., 2018; Picciano et al., 2019).**

With the rapid advancement of technology and the Internet, new and more effective learning models such as blended learning and social media-supported learning have emerged. After the development of Web 2.0 (**Reilly, 2017**), which allows users to interact and communicate with one another while also sharing movies and photographs, social media sites such as Facebook, Youtube, and others arose. Many social networking sites have undergone significant changes, and their popularity has grown. Furthermore, the number of time users spend on social networks, to which many people of various ages belong, has increased dramatically between the time of their inception and the present day (**Katz & Kim, 2016**).

There are many different kinds of social media. Facebook as a social network, Vikipedi as a Wiki, Twitter as a microblog, Youtube for video sharing, Flickr for photograph sharing, Google as a collaborative tool, Linkedin as a job network, Slide share for slide sharing, and Mashable as a blog might be used to illustrate these sorts. Friends can speak with each other and even their friends' friends on social networking sites like Twitter and Facebook, and they can obtain the information or learning they want through the relevant network. On the other side, by supporting teaching and assessment procedures, social media can enhance teaching, increase student success, and benefit educational institutions. It can also have a good impact. It can also positively influence students' motivation and attitude toward the lesson. Besides the face-to-face teaching in the classroom, social media-supported learning can be implemented through the interaction and collaboration of teachers and students over the social media sites outside class by sharing knowledge and visuals **(Ajjan & Hartshorne, 2018**).

Blended learning, according to **Bodie et al. (2020),** is a style of instruction that combines classroom lectures, activities, conversations, and/or web-based modules to teach the same topic using two or more complementary methodologies. Learners would gain more from a blended learning model, which integrates traditional style classroom lectures with e-learning aspects, than from a quick move to e-learning, according to (**Ruiz et al., 2019**).

Blended learning is becoming a more common type of e-learning, and it's especially useful for making the transition from traditional learning and teaching to e-learning. The usage of blended learning methodologies could be the direct cause of an increase in exam pass rates among a set of students (**Soilen, 2019**).

Increased accessibility to educational materials (at a time and place selected by learners), individualized training (to tailor education to individual learners' needs), and content uniformity are only a few of the benefits of e-learning. However, one of the most common complaints about e-learning is that students must have access to the internet and e-mail. Accessing course materials may be difficult due to slow internet connections or older machines, causing learners to become irritated and give up. Another issue leveled against e-learning is that students may feel cut off from the instructor. It is possible to misread what was meant when teachers and other learners do not meet face to face (**Abdelaziz et al., 2019).**

Blended learning has numerous benefits. These include providing flexibility and convenience in the learning environment, increasing learning levels and success, increasing knowledge retention, increasing

interest in learning, and increasing motivation to learn. Students can participate in the learning environment from their homes, and they can share recorded knowledge content without regard to time or location (**Aknolu, & Tandoan, 2017).**

Educators also provide curricula in hybrid settings. This method of learning is known as blended learning, and it combines cyber and traditional classrooms. Blended learning was thought to promote student learning by allowing more interaction between teachers, students, and technology, and it quickly became a popular course delivery strategy (**Allen et al., 2018).**

Students' acceptance of new technology can be aided by interacting in a blended environment (**Johnson et al., 2020**). Students' application of information, communication, and technology can also be aided by being in this atmosphere. Students must use these technology platforms. Supporting students in this endeavor is considered as assisting them in gaining lifelong skills that may be applied in the job (**Ward & Moule, 2019).**

Significance of the Study:

Blended learning has the ability to improve student learning outcomes, but online learning has the potential to reduce attrition and raise dropout rates in distance learning. Students' retention in an online learning environment can be low at times. Furthermore, online learning has a higher rate of non-completion than traditional face-to-face learning. This problem may result in dissatisfied faculty and students. Higher education institutions will have to go back to the drawing board to figure out how to embrace online learning environments as a useful teaching tool (**Murray, 2021**).

Curriculum designers, teachers, students, and patients can all participate in interesting and unique learning experiences thanks to new and evolving technologies. As with any educational intervention, caution must be exercised to ensure that technology is used to facilitate learning. Is there an effect of blended learning on student outcomes? Evidence suggests that technology-enhanced teaching in the domains of health and science has a favorable impact on students' learning outcomes (**Gopal et al., 2020**). Various learning environments and approaches can influence academic achievement and motivation. Blended learning and social media-supported learning, which have evolved as a result of technological advancements, are expected to become increasingly essential in science education. As a result, research on the impact of blended learning and social media learning on academic success and motivation among undergraduate nursing students is necessary.

The Aim of this study:

To investigate the effect of blended learning and social media learning on the academic success and motivation among undergraduate nursing students.

Hypothesis

Undergraduate nursing students who exposed to blended learning would have improved both academic success and student motivation compared to the students exposed to social media learning and face-to-face learning.

Subjects and Methods

Research Design:

A quasi-experimental study design was used to achieve theaim of this study.

Setting:

The study was conducted at the Faculty of Nursing, Sohag University, Egypt.

Sample:

A convenient sample of all available third-year undergraduate nursing students (330) in the 2020/2021 academic year was included. Students were included in this study were from both gender and willing to participate in the study. The study sample of the research was divided into three groups; the control group taught by using the face to face learning (110 students), study group-1 exposed to social media learning, and study group-2 exposed to a blended learning model.

Tools for Data Collection:

Three different tools were used to collect data pertinent to this study. They included the following:

Tool (1): A self-administered structured questionnaire to assess demographic characteristics and learning needs, it was developed by the researcher (Katz & Kim, 2016, Soilen, 2019; Bodie et al., 2020) and contained three parts:

Part (1) included items related to characteristics of the students such as age, gender, residence place, and studying this course before.

Part (2) included items related to the learning needs assessment of the students such as language skills difficulties, computer skills difficulties internet skills difficulties, and methods of teaching that preferred by students. Validation by a group of five experts at the Faculty of Nursing, Sohag University was done. Testing reliability was done.

Part (3) included items related to student's opinions regarding the method of teaching such as encouraging effective participation, enabling a deep understanding of difficult concepts, contributing to keeping time, developing the ability to acquire knowledge, increasing focus and interpretation of observation, increased ability to self-learning, and increased ability to understand of the courses**.** It contained five categories; strongly agree, agree, don't know, disagree, and strongly disagree. Its score ranged from 0-to 4.

Tool (1I): Academic success test (AST):

Academic Success Test (AST): A multiple-choice AST comprising 30 questions used to assess the success of the students in the unit "Nursing Care to Children with Pediatric Oncology". The AST was prepared by researchers in line with the aims and student learning outcomes of the unit. The questions in the AST were prepared by researchers through examining the previous research (World Health Organization, 2021), the screening tests used in various educational sites and the examinations carried out by the researchers. The total score was 100 marks, score less than 50% was considered poor and very poor, a score from 50% to 80% was considered satisfactory, and a score from 80% to 100% was considered excellent to good.

Scoring system:

On the academic success test, the wrong answers were evaluated as 0 points and correct answers as 1 point.

Tool (1II): Motivation scale for learning science (MSFLS):

This scale was developed by **Martin (2001**) and comprised 23 items. It is a Likert scale type of 5 and its options were between "I agree" and "I do not agree1". The lowest point to be obtained from the scale was 23 which indicated low motivation and the highest was 115 which indicated high motivation.

Tools validity:

The tools' content validity was evaluated by a panel of five professors' experts, two professors' experts in Pediatric Nursing, two professors' experts in community Nursing, and one professor expert in nursing education who all had more than ten years of experience in the field. According to the panel's decision on sentence clarity, appropriateness of the content, item sequencing, and accuracy of scoring and recording of the items, no modifications to the tools was done.

Tools Reliability:

Tools reliability was tested using internal consistency methods (Alpha Cronbach's test first tool, its result was (0.92, 0,) which indicates good reliability of the tool, the reliability coefficients' α between items of AST was 0.86. The reliability coefficient (Cronbach Alfa) of the MSFLS was found to be 0, 91.

Ethical considerations:

Official permission was obtained through an issued letter from the Dean of Faculty of Nursing, Sohag University to conduct this study. Before beginning the questionnaire, the researcher informed the students that the study was optional, that they might refuse to participate at any moment, and that they could withdraw from the study at any time without giving a reason. They were also told that their information would be kept private and only utilized for research purposes.

Administrative Design:

Official permission was obtained from the Dean of Faculty of Nursing, Sohag University to conduct this study in the previously selected setting, after explaining the aim of the study to gain their approval and cooperation.

Pilot study:

It was carried out on 10 % of students (33 students) to test the clarity and applicability of the tools and estimate the time needed for data collection. Based on the result of the pilot study no modification was done to the tools, the students in the pilot were included in the total sample.

Procedures of the study:

The current study was carried out in four phases, the preparatory, the assessment, the implementation, and the evaluation phase.

I: Preparatory phase:

The Head of the Pediatric Nursing Department was permitted to perform the study. Confidentiality and Voluntary nature of participation from students were insured and the purpose of the study was explained. The websites were determined.

II: Assessment Phase

Assessment of demographic characteristics, learning needs, and student's opinions regarding this method of teaching for the third-year students in the 2020/2021 academic year (control group) then assessment of demographic characteristics, learning needs, and student's opinions for the third-year students in the 2020/2021 academic year (study group) before implementation of social media learning and blended learning. The AST and MSFLS were applied to all groups as a pre-test in two class periods in the first week and as a post-test in two class periods in the last week.

III: Implementation phase:

The application designed by the investigators, included 3 sessions, 30-40 minutes each. The questionnaire took between 30-and 35 minutes to complete. The sample was classified into three subgroups; face-to-face learning, social media learning, and blended learning group. The application was provided parallel to three groups.

Implementation of face-to-face learning included activities that were actualized according to the outcomes in the unit "Nursing Care to Children with Pediatric Oncology" and were applied face-to-face in line with the constructivist learning approach. The previous knowledge testing and curiosity arousing stages, the discovery stage, explanation, extension, and evaluation stages were applied in weekly 4 periods. Methods of question-answer, discussion, group work, problem-solving, etc. were used in classes and the course book, student workbook, posters, and laboratory materials were used as resources. The appropriate unit activities in the course book and student workbook were selected and applied. At the end of each class' homework from the course book and student, the workbook was given for the students to come well prepared for the next class. The homework was checked and evaluated in the next lesson.

Implementation of social media learning included activities were actualized according to the outcomes in the unit "Nursing Care to Children with Pediatric Oncology" and a Facebook page was opened and the students subscribed to the page from their own Facebook accounts. They entered the page at times outside class that they specified to follow up on what the researchers shared and took notes according to teacher directions. The notes were checked and evaluated in the next class. On the Facebook page, it was provided that students also shared videos, visuals, questions, documents, and presentations and had interactions with each other. They asked other students about topics they did not understand and also answered questions.

Besides the Facebook page, other social media tools such as YouTube, Slide share, Daily motion, and Flickr were used. Videos over YouTube, presentations and Pdf files with notes over Slide share, photographs, and pictures related to the lesson over Flickr were shared. The resources on these sites were announced to the students on the Facebook page and shared with them. The students interpreted what they learned in the resources they shared and a discussion platform was formed. The academic professor checked what the students shared and interpreted constantly and gave them feedback.

Implementation of blended learning was done through two main parts lecture and e-learning; (Blended Learning) included activities were actualized according to the outcomes in the unit "Nursing Care to Children with Pediatric Oncology" and applied weekly for 4 hours as 2 hours of face-to-face and 2 hours of internet support and technology program and the constructivist learning approach with face-to-face and internet supported learning methodologies in a blended way.

The lecture covered the knowledge level of the same content that was taught to the control group:

1- Define Childhood cancers
2- Identify Epidemiology of Childhood cancers
3- Recognize Signs and symptoms of childhood cancer
4- Enumerate Types of Childhood Cancer
5- Define Leukemia
6- List Types of Leukemia
7- Write Clinical manifestations of Leukemia
8- Identify Treatment of Leukemia
9- List Nursing care for Leukemia
10- Discuss Cancers of the Central Nervous System
11- Define Sarcomas
12- Identify Cancers of the Kidney:
13- Discuss the National effort against childhood cancer in Egypt.

E- Learning focused on analysis, synthesis, and evaluation level of knowledge for the same content, and students were informed with websites

The face-to-face learning activities were carried out in the same way as the other groups and some face-to-face activities were carried out at the same time as web-based activities. Some web-based activities were carried out in the technology class individually or in groups. Besides the course book, student workbook, posters, and laboratory materials as sources, a virtual classroom application (education portal) was used. The unit activities in the course book and student workbook, the animations, videos, interactive activities, and screening tests in the portal, and suitable presentations, videos, and pictures on other sites were selected and used.

In this group, a virtual classroom was formed on the educational portal before the study, and students were provided to register for this virtual classroom. The researchers selected the interactive animations and videos in this portal outside class and prepared homework for the students to come prepared for the topics in the next class and this homework was sent to the virtual classroom. Also, homework comprising screening tests and solved questions was prepared in the virtual classroom to evaluate the student outcomes in the previous lesson and sent back to the students. It was followed up daily on whether the students received the homework and worked on it. The percentage for completion of the homework was also followed up and relevant outcomes were emphasized. The students' scores, answers, and correct answers in the screening tests were followed up outcomes-based on the unit that was not understood well was repeated briefly in the next class, and homework on it was given.

Evaluation Phase

The evaluation phase was emphasized on investigate the effect of blended learning and social media learning on the academic success and motivation among undergraduate nursing students in pediatric nursing subject at Sohag University by comparing the results pre and post-intervention to determine the level of improvement, academic success, and motivation among undergraduate nursing students

Statistical design:

Data entry, verification, and validation were carried out using standard computer software. Data were analyzed using the software, Statistical Package for Social Science (SPSS Inc. Released 2009, PASW Statistics for Windows, version 20.0: SPSS), then processed and tabulated. Frequency distribution with its percentage and descriptive statistics with mean and standard deviation were calculated. Chi-square, t-test, and correlations were done whenever needed. Regarding P-value, it was considered that: non-significant (NS) if $P > 0.05$, Significant (S) if $P < 0.05$, Highly Significant (HS) if $P < 0.01$.

Results:

Table 1 shows that the mean age of the studied undergraduate nursing students in face to face, social media learning, and blended learning groups was 20±0.68, 20.55±0.45, and 20.78±0.79 respectively, 61%, 63%, and 64% of them were females, 66%, 65%, and 66% of them were living in urban areas. This table also shows that there were no statistically significant differences between the three groups regarding demographic characteristics P >0.05.

Regarding undergraduate nursing students' opinions, **table 2** portrays that 49%, 52%, and 60% of the studied undergraduate nursing students in the three studied groups reported that teaching methods encouraged effective participation respectively. This table also shows that there were highly statistically significant differences between the three groups regarding opinions on teaching methods P< 0.001**.**

Table 3 reveals students' opinions on the teaching method, 22%, 59%, and 65% of them were satisfied, with a mean score of 10.54±2.53 and 12.67±2.20, and 12.89±3.34 respectively. Also, it shows that highly statistically significant difference in all items between the two groups p <0.000.

From **table (4),** it is observed that the academic success mean scores of students in the face-to-face group pre-test were 11,712, this value changed to 14,783 post-test. The academic success pre-test for the social media learning group was 11,485 and the post-test increased to 18,082. The academic success mean score in the pre-test in the blended learning group was 12,284 and this value reached 20,453 in the post-test.

Regarding academic success, **table 5** illustrates that 50%, 52%, and 53% of students in face to face, social media, and blended learning groups had excellent to good respectively, 31%, 30, and 30% of them had satisfactory achievement respectively, also it shows that 19%, 18%, and 17% of them had poor and very poor respectively, with no statistical difference between three groups P > 0.05.

From table (6), it is observed that the motivation mean score of students in the face-to-face group pre-test was 89,713, this value changed to 90,523 post-test. Among students in the social media, the learning group was 89,495 and the post-test increased to 96,233. While motivation means scores in students' blended learning was 90,110and this value reached 99,083 in the post-test.

Table (1): Frequency and percentage distribution of the studied undergraduate nursing students in the groups under the study regarding their demographic characteristics

Parameters	Face to face group N=(110)		Social media learning group n=(110)		blended learning group n=(110)		t-test & X^2	P-value
	No	%	No	%	No	%		
Mean and standard deviation of the age	20±0.68		20.55±0.45		20.78±0.79		T -0.33-	0.740
Gender								
Male	43	39	41	37	40	36.0	X^2-0.74	0.22
Female	67	61	69	63	70	64.0		
Residence place								
Urban	73	66	71	65	75	68	X^2-0.041	0.46
Rural	37	34	39	35	35	32		

Table (2): Frequency and percentage distribution of the studied undergraduate nursing students in the three groups under study regarding their opinion about the method of teaching

Opinion on teaching methods	Face to face group N=(110)		Social media learning group n=(110)		blended learning group n=(110)		Test X2	P-value
	No	%	No	%	No	%		
Encouraged effective participation.	54	49	57	52.0	66	60.0	5.42	0.013
Enabled deep understanding of difficult concepts	49	45	55	50.0	72	65.0	16.49	0.000
Contributed to keeping time	51	46	59	54.0	67	61.0	7.99	0.003
Develop the ability to acquire knowledge	37	34.0	65	59.0	82	75.0	69.01	0.000
Increased interpretation of knowledge	53	48.0	64	58.0	73	66.0	12.92	0.000
Increased ability to self-learning	52	47.0	66	60.0	78	71.0	24.57	0.000
Increased ability to understand the courses	51	46.0	61	55.0	75	68.0	19.47	0.000

** Highly statistically significant difference (p<0.0001)

Table (3): Frequency and percentage distribution of the studied undergraduate nursing students in the three groups regarding their opinion difference about the method of teaching

Student opinion	Face to face group N=(110)		Social media learning group n=(110)		blended learning group n=(110)		Test X2	P-value
	No	%	No	%	No	%		
Satisfied	24	22.0	65	59.0	71	65.0	53.42	0.000
Unsatisfied	86	78.0	45	41.0	39	35.0		
Mean and SD	10.54±2.53		12.67±3.20		12.89±3.34			

** Highly statistically significant difference (p<0.0001)

Table (4): Differences in the mean and standard deviation of the studied undergraduate nursing students in the three groups under study regarding their academic success pre-and post-test points

Group	Pre-Test		Post-Test		t-test	P-value
	Mean	Standard deviation	Mean	Standard deviation		
Face to face	11,712	4,706	14,783	6,290	54.34	<0.001*
Social media learning	11,485	3,956	18,082	6,211		
Blended learning	12,284	5,653	20,453	5,874		

** Highly statistically significant difference (p<0.001)

Table (5): Frequency and percentage distribution of the studied undergraduate nursing students in the three groups regarding under study their academic success assessment

Parameters of Academic success	Face to face group N=(110)		Social media learning group n=(110)		Blended learning group n=(110)		X2	P-value
	No	%	No	%	No	%		
Excellent to good	55	50.0	57	52.0	58	53.0	2.95	0.23
Satisfactory	34	31.0	33	30.0	33	30.0	2.93	0.22
Poor and Very poor	21	19.0	20	18.0	19	17.0	2.94	0.24

** Highly statistically significant difference (p<0.001)

Table (6): Differences in the mean and standard deviation of the studied undergraduate nursing students in the three groups under study regarding their motivation pre-and post-test points

Group	Pre-Test		Post-Test		t-test	P-value
	Mean	Standard deviation	Mean	Standard deviation		
Face to face	89,713	16,596	90,523	6,112	34.56	<0.001*
Social media learning	89,495	9,748	96,233	6,132		
Blended learning	90,110	17,462	99,083	11,975		

** Highly statistically significant difference (p<0.001)

Discussion:

The findings of this study demonstrate that there were no statistically significant variations in demographic features across the three groups; this could be due to the same age of the university students. This finding was consistent with **Sherman et al., (2018**), who found that the male/female ratio was comparable in blended and lecture learning groups in their study "Blended Versus Lecture Learning: Outcomes for Staff Development." **Sheen et al., (2018**) also discovered that participants' age, gender, education, nursing experience, and computer learning experience did not differ significantly.

Regarding undergraduate nursing students' opinions, the current study results portrayed that more than three-fifths of the studied undergraduate nursing students in the blended learning group reported that teaching methods encouraged effective participation respectively with statistically significant differences between the three groups regarding opinion on teaching methods.

This study finding is in the same line as **Ruiz et al., (2019**) who studied "The impact of e-learning in medical education" and argued that learners would benefit more from a blended learning model, which incorporates traditional-style classroom lectures with an e-learning element than from a sudden switch to e-learning. This finding was contradicted by **HSU and HSIEH, (2017**) who stated in their study about " Effects of a blended learning module on self-reported learning performances in baccalaureate nursing students " that nursing students were generally more comfortable with traditional-style teaching where the teacher took control of pretty much everything in the classroom, and they had a hard time making the switch to blended learning where they had to play a more active role in the classroom.

The result of this study revealed students' opinions on the teaching method and more than two-thirds of them were satisfied with blended learning. From the researchers' point of view, it related that blended learning according to student views offers advantages such as augmenting success, better understanding, motivating, and making the lesson fun. These results have supported the research done by **Balaman & Tüysüz, (2019**) who studied " Blending online components into traditional instruction in pre-service teacher education"; **Pearcy, (2019**) who studied " Finding the perfect blend: A comparative study of online, face-to-face and blended instruction"; **Clark & Mayer, (2018**) who studied" E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning" and reported the same results. From the researchers' point of view, it is believed that while implementing blended learning, using a comprehensive learning portal along with face-to-face learning, using all information, visuals, and interactive activities outside class for homework, having the tests and homework done in a particular period, following student performance constantly, and using a great many videos, visuals, etc. in the lesson along with the internet statistically provided the group with blended learning to have higher and more meaningful success.

The result of this study was in agreement with **Sherman et al., (2018)** who found that satisfaction with the method of education was discussed with focus group participants, and blended learning participants responded very positively, indicating that the format was beneficial allowing for self-pacing and flexibility, interaction, and repeated access to information. The discussion sessions were considered valuable for clarification and answering questions. Responses from lecture learners were also positive but less detailed than those of blended learners. Also, **Bates and Sangrà, (2020**) conducted a study about "Recent developments in technology and education" and found that blended learning achieved better learning outcomes and higher levels of satisfaction.

In addition, social media-supported learning had many advantages but it was less detailed than those blended learning. It supported reinforcement for the topics and provided opportunities for the students to interact with each other, ask each other questions, exchange ideas, and do their homework. Due to all these advantages, the students pointed out that they wanted to continue social media-supported learning.

The previous finding was in agreement with **Yukie and Yoichiro, (2019**) who studied

"Development of E-learning for Problem solving Approach of Nursing Students " and found that students who attended the blended e-learning classes thought that they had fundamentally achieved the learning objective.

When the present study results evaluated, it observed that at the end of the study the academic success means score of the face-to-face group was lower compared to social media learning and blended learning, while the highest point increase was in the blended learning group. From the researchers' point of view, it reflected that blended learning is the most effective post-test because it included a combination of e-learning and face-to-face blended learning.

This current study result is similar to a study conducted by **Ceylan & Elitok, (2017**) who studied the "Effect of blended learning on academic achievement" and observed that blended learning increased academic success and motivation for learning science. Similary, **Singh, (2017**) conducted a study entitled " Building effective blended learning programs "and reported that blended learning impacted academic success and motivation for learning science positively.

In addition, **Rovai, & Jordan (2018**) who performed a study about " Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses " and found that blended learning improves academic success and motivation in blended learning

The cause that blended learning had the highest point increase in the blended learning group. This may be related to some disadvantages of other methods such as social media-supported learning have been determined questions on the reliability of the sources, there are problems accessing the internet, and students cannot find the time. These problems caused the students not to be able to carry out the activities shared over social media on time and thus, decreased the impact of social media. It is also believed that the realization of sharing on Facebook used for social media only happened through areas such as timelines or walls and this was an obstacle to an effective learning environment. Social networks do not offer a learning model on their own; however, they can be used as a supporting tool to provide better learning and increase motivation as occurred in blended learning in association with face-to-face learning.

Regarding academic success, there was an improvement i n satisfactory achievement and a decrease in the percentage of poor and very poor among the blended learning group than the other two groups with no statistically significant differences. From the researchers' point of view, it confirmed the positive effects of blended learning on improving academic success

These results are matched with **Colesca et al., (2019**) who studied "Students outcomes and perceptions in a blended learning format " and found that blended learning was have contributed to enhance learners' learning outcomes by facilitating their met cognitive development and self-regulatory development. In a similar study, **Pereira et al., (2017**) found in their study about " Effectiveness of using blended learning strategies for teaching and learning human anatomy "that the introduction of blended learning strategies had resulted in improved learning performance in terms of higher examination turnout, better grades and better exam pass rate among a group of freshmen biology majors taking the course 'human anatomy.'

Also, **Schaber et al., (2019**) conducted a study about "Design learning environments to foster affective learning: comparison of the classroom to blended learning "and proved that both classroom and blended learning formats were effective in enhancing learner's perceived understanding of affective content, although blended learning was proved more effective than classroom learning. In addition, **Henderson (2019)** found in the study entitled " The situation of constructing a blended learning approach to meet with student diversity in nursing " that adopting a blended approach to learning and teaching could have an opportunity to construct a meaningful learning experience and engage in a fundamental course to helping produce knowledgeable critical thinkers who capable of implementing evidence into their practice.

Findings of the current study revealed that at the end of the study the motivation mean score of the face-to-face group was lower compared to social media learning and blended learning while the highest point increase was in the blended learning group post-test. This current study result is supported by the motivation for learning science of the blended learning group students increased at a rather high level and it was determined that the students were happy to be in this kind of an environment. A study conducted by **Eng et al., (2017**) who studied "Teaching mathematics using blended learning model" supported this view as well and also pointed out in the literature that student motivation increases with blended learning and the students enjoy the environment more. Similarly to the results of this study by **Ajjan & Hartshorne, (2018**) who studied" Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests" and observed that there had been a considerably higher point increase compared to the face-to-face learning group with an increase in the motivation of the students in this group at the student interviews as well.

Conclusions:

Based on the result of the current study, it was concluded that results supported the hypothesis of this study in which blended learning highly significantly improved the studied undergraduate nursing students' both academic success and motivation than face-to-face.

Recommendations:

In light of the current study results, the following recommendations are proposed:

- Blended learning can be used to facilitate education among undergraduate nursing students; more researches are done to determine the effectiveness and durability rate of the information of these methods.
- Replication of the current study on a larger probability sample is recommended for generalized results.

References:

Abdelaziz, M., Kamel S.S., Karam, O., & Abdelrahman, A. (2019): Evaluation of E-learning program versus traditional lecture instruction for undergraduate nursing students in a faculty of nursing, Teaching and Learning in Nursing, 6 (2), 50-58.

Ajjan, H., & Hartshorne, R. (2018): Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests. The Internet and Higher Education, 11(2), 71-80. doi:10.1016/j.iheduc.2008.05.002

Akgündüz, D., & Akınoğlu, O. (2016): The effect of blended learning and social media-supported learning on the students' attitude and self-directed learning skills in science education. The Turkish Online Journal of Educational Technology, 15(2), 106-115.

Akınoğlu, O. (2019): Effects of concept maps on students' critical thinking skills in science education. The Journal of Environmental Protection and Ecology, 14(3A), 1424-1431.

Akınoğlu, O., & Tandoğan, O. R. (2017): The effects of problem-based active learning in science education on students' academic achievement, attitude, and concept learning. Eurasia Journal of Mathematics, Science & Technology Education, 3(1), 71-81.

Allen, I. E., Seaman, J., & Garrett, R. (2018): What is blended learning. Blending in: The extent and promise of blended education in the United States, 1-29. Retrieved from http://www.sloan-c.org/publications/survey/pdf/Blending_In.pdf

Balaman, F., & Tüysüz, C., Lin, H. (2019): Blending online components into traditional instruction in pre-service teacher education: The good, the bad, and the ugly. International Journal for the Scholarship of Teaching and Learning, 2(1), 1-14.).

Bates, A.W., & Sangrà, A. (2020): Recent developments in technology and education. In A. W. Bates & A. Sangrà (Eds.), *Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning*. (pp. 25-51). San Francisco, CA: Jossey-Bass.

Billings, D.M. & Halstead, J.A. (2019): Teaching in nursing: A guide for faculty, 4thed, St. Louis, MO: Saunders Elsevier.

Bodie, G.D., Fitch-Hauser, M.F. & Powers, W.G. (2020): Chunking, priming, and active learning: toward an innovative and blended approach to teaching communication-related skills. Interactive Learning Environments, 14, 119-135.

Ceylan, V. K., & Elitok K., A. (2017): Effect of blended learning on academic achievement. Journal of Human Sciences, 14(1), 308-320. doi:10.14687/jhs.v14i1.4141

Clark, R. C., & Mayer, R. E. (2018): E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning, John Wiley & Sons.

Colesca, S. E., Dobrica, L., &Alpopi, C. (2019): Students outcomes and perceptions in a blended learning format. *Metalurgia International*; *8*, 222-229.

Dziuban, C. D., Hartman, J. L., &Moskal, P. D. Blended learning. (2004) : Educause Center for Applied Research, (7), 4. Retrieved from http://net.educause.edu/ir/library/pdf/ERB0407.pdf

Eng, L. S., Lim, E. L. A., Hiong, K. G. T. H., & Yong, L. B. (2017): Teaching mathematics using blended learning model: A case study in UITM Sarawak Campus. Institute of Research, Development, and Commercialization, Universiti Teknologi MARA.

Gopal, T., Herron, S.S., Mohn, R.S., Hartsell, T., Jawor, J.M., and Blickenstaff, J.C., (2020): Effect of interactive web-based instruction in the performance of undergraduate anatomy and physiology lab students. Computers & Education; 55, pp. 500-512

Graham, C. R., Henrie, C. R., & Gibbons, A. S. (2018): Developing models and theory for blended learning research. Blended Learning: Research Perspectives, 2, 13-33

Henderson G. (2019): The situation of constructing a blended learning approach to meet with student diversity in nursing; an insight into the literature. Proceedings of INTED 2010 Conference. 8-10 March 2019, Valencia, Spain. 003643-003649.

HSU L.-L. & HSIEH S.-I. (2017): Effects of a blended learning module on self-reported learning performances in baccalaureate nursing students. Journal of Advanced Nursing 67 (11), 2435-2444.

Johnson, N., List-Ivankovic, J., Eboh, W. O., Ireland, J., Adams, D., Mowatt, E., et al. (2020): Research and evidence-based practice: Using a blended approach to teaching and learning in undergraduate nurse education. Nurse Education in Practice;10 (1), 43-47.

Katz, A., & Kim, J. H. Y. (2016): Teaching Strategies and Tactics in K-12 Blended Education: The Flipped Classroom Model. Blended Learning: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications, 222.

Li Z., Tsai M., Tao J., & Lorentz C. (2020): Switching to blended learning: The impact on students' academic performance, Journal of Nursing Education and Practice, Vol. 4, No. 3. 245-251.

Martin, A. J. (2001): The student motivation scale: A tool for measuring and enhancing motivation. Australian

Journal of Guidance and Counselling, 11, 11-20.

Murray, D. (2021): Comparison of academic achievement for arn-BSN program course using online and traditional face-to-face classroom learning environment delivery methods. (Order No. 1551952, Morehead State University), ProQuest Dissertations and Theses. 85.

O'Reilly, T. (2017): What is Web 2.0: Design patterns and business models for the next generation of software. International Journal of Digital Economics, 65, 17-37. Retrieved from http://mpra.ub.unimuenchen.de/4580/1/ MPRA_paper_4580.pdf

Pearcy, A. G. (2019): Finding the perfect blend: A comparative study of online, face-to-face, and blended instruction (Unpublished doctoral dissertation). University of North Texas, USA.

Pereira J. Pleguezuelos E. Meri A. Molina-Ros A. Molina-Tomas M.C. & Masdeu C. (2017): Effectiveness of using blended learning strategies for teaching and learning human anatomy. Medical Education; 41, 189-195.

Picciano, A. G., Dziuban, C. D., & Graham, C. R. (2019): Blended learning: Research perspectives, 2. Routledge, 11, 11-20.

Rovai, A. P., & Jordan, H. M. (2018): 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, 5(2), 1-13

Ruiz J.G., Mintzer M.J. & Leipzig R.M. (2019): The impact of e-learning in medical education. Academic Medicine., 81 (3), 207-212.

Schaber P., Wilcox K.J., Whiteside A., Marsh L. & Brooks C. (2019): Design learning environments to foster affective learning: comparison of the classroom to blended learning. Interactional Journal for the Scholarship of Teaching and Learning; 4 (2), 1-18.

Sheen, S.H., Chang, W., Chen, H. Chao, H. & Tseng, C. (2018): E-learning education program for registered nurses: The experience of a teaching medical center. *Journal of Nursing Research*; *16* (3), 195-200.

Sherman, H, L Comer, L Putnam, and H Freeman. (2018): "Blended Versus Lecture Learning: Outcomes for Staff Development." Journal for Nurses in Staff Development, 28 (4): 186-190.

Singh, H. (2017): Building effective blended learning programs, Issue of Educational Technology, 43(6), 51- 54.

Søilen, K. S. (2019): Increased interactivity to reduce drop-out rate on distance learning programs. Blekinge Institute of Technology. Sweden, from http://www. bth. se/ fou/ Forskinfo. nsf/ Sok/ 2dd7509484a76fd2c1257 2720046d5f7/$ file/EDEN%20conferen ce%20soilen.pdf

Thornock, S. B. (2019): Proactive solutions to academic dishonesty. Open Journal of Nursing, 3, 552-556 OJN.

Ward, R., & Moule, P. (2019): Supporting pre-registration students in practice: A review of current ICT use. Nurse Education Today. 27 (1), 60-67.

World Health Organization. (2021): World cancer report. Geneva, Switzerland: WHO; 2021.

Yukie, M, & Yoichiro, S. (2019): Development of E-learning for Problem solving Approach of Nursing Students. Studies in Health Technology and Informatics; 122: 919.