

Learning-Teaching Aspects of Blended Learning among Nursing Students at Faculty of Nursing

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Abstract

Background. Learning-teaching process is the core of education at any field. It has many aspects that interfering with it such as students' effort in learning, motivation to learn, and learning engagement. As learning nature changes from face to face learning to be a blended learning that is growing to be a consistent educational strategy in many educational institutions worldwide, it is expected that learning-teaching aspects could be changed as well. **Aim.** It was to assess the relationship between learning-teaching aspects and blended learning satisfaction among students at faculty of nursing. **Subjects & Methods.** Predictive correlational design was conducted on (285) nursing students using 4 tools. They were Students' Effort Scale, Science Motivation Questionnaire, Engagement Scale and Blended Learning Satisfaction Questionnaire. **Results.** Learning engagement had statistically significant positive correlation with student' effort and motivation to learn (P value<0.001). Whereas, blended learning satisfaction had only significant positive correlation with motivation to learn (P value=0.007). Blended learning satisfaction was increased by 0.576 with each one unit increase in students' motivation to learn. Learning engagement was increased by 1.571 and 0.488 with each one unit increase in students' effort and motivation to learn respectively. **Conclusion.** Blended learning satisfaction is varied and affected positively by overall learning-teaching aspects variations. Learning engagement is varied and affected positively by student' effort and motivation to learn variations. **Recommendations.** Energizing blended learning satisfaction and hence revitalizing learning-teaching process itself require sustaining motivation especially the role of educators in external motivation which is reflected on students' effort and learning engagement improvement too. This could be through training program on students' internal & external motivation, and regular triggering of it by nursing educators.

Keywords. Blended Learning Satisfaction, Learning Engagement, Motivation to Learn, Students' Effort.

1-Introduction

Learning-teaching process is the core of education at any field. Students and their teaching staff constitute its aspects (Billings & Halstead, 2020; Bastable, 2021). It has many

aspects that interfering with it such as students' effort in learning, motivation to learn, and learning engagement. They are ones of the issues that are related to the student and contributing to learning-teaching process

effectiveness (Togia et al., 2012; Carmona-Halty et al., 2019; Geier, 2022). As learning changes from face to face learning to be blended gathering between face to face and online learning in almost of the world especially within COVID-19 pandemic and later on, blended learning is going to be a consistent educational strategy in many educational institutions (Finlay et al., 2022; Jamil et al., 2022).

According to Vasileva-Stojanovska (2015), blended learning is a student-centered teaching approach that blends synchronous learning activities from traditional in-person classrooms with asynchronous learning activities from online resources (Attard & Holmes, 2020). E-learning resources are employed in lessons, training sessions, presentations, progress learning, online discussion groups, and training sessions (Adiguzel et al., 2020). (Alammary, 2019; Tong et al., 2022). Through social networking, blended learning promotes communication and collaboration between students and lecturers. It also makes course materials easier to use (Wai & Seng 2015), creates a supportive learning environment, allows for flexible scheduling of learning hours and locations, fosters the development of individual course solutions, and promotes independent learning skills (Rahman et al., 2015; Siew-Eng & Muuk 2015).

Additionally, it is crucial to students' learning proficiencies since it gives them the information and abilities needed to find work after graduation (Wong et al., 2018). As a result, it encourages students to start their own learning process, makes it easier for them to study whenever it suits them, and helps them get ready for the future (Owston et al., 2019).

According to the Collins Cobuild English Dictionary (1999), satisfaction is "the pleasure or contentment that one person feels when she/he does something or gets something that she/he wanted or needed to do or get." It is the opinion on the worth or caliber of the education or learning process (Geier, 2021). While there isn't always a direct correlation between student satisfaction and academic success, it is widely acknowledged that student satisfaction plays a critical role in the successful completion of the course. According to Chang & Fisher (2003), Bollinger & Martindale (2004), Moore & Kearsley (2005), and others, it also helps students become more motivated, which is crucial for their success. The level of student satisfaction in the complex and dynamic environment of blended learning has been investigated in a number of research. The findings demonstrated how happiness in a blended learning environment is influenced by social, technological, and cognitive factors.

Furthermore, the findings show that

students are most content with the interactions between teachers and students in blended learning, and that this interaction has the biggest impact on both teaching quality and student satisfaction (Wu et al., 2010; Taghizadeh and Hajhosseini, 2021; Cheng et al., 2023). Students' effort is the amount or degree to which students exert time and effort in pedagogically purposeful activities that could be in and/or out-of-class. It involves time outlay on task achievement or the number of hours students consumed in studying and amount of individual effort devoted to learning (Lin, 2016; Frederickson, 2018). Students' effort contributes to individuals' intellectual skills and competence improvement. It is joined to overall academic development and the same for manual/psychomotor skills development. The learners who spending more efforts in their learning activities, they have better academic achievements (Miele et al., 2019; Geier, 2022). Students' effort is greatly influenced by role of teacher (Geier, 2022). However, students learning favorites, the degree of their self-awareness, being knowledgeable, and the sense of responsibility and accountability are other factors that could contribute to students' effort too (Salsman et al., 2013; Geier, 2022).

Motivation to learn is closely allied to students' effort. In this regards, Singh et al. (2021) define motivation to learn as the willingness to exert high levels of effort

towards goals, conditioning by the ability to satisfy some individual needs. Also, motivation to learn is defined as the way the learners think about themselves regarding their learning process and activities (Togia et al 2012). It is the triggering factor of learning and its engine too. It contributes to internal and external readiness to learn (Bastable, 2021). Furthermore, it is due to the interaction of an individual and the situation rather than being a personal trait (Singh et al., 2021). Factors which could facilitate or hinder motivation to learn can be categorized into three main classifications. They are personal attributes which include physical, developmental, and psychological components of the learner; environmental influences which encompass the physical and attitudinal climate; learner relationship systems which involve those of important people in the learning-teaching process such as family, community, and teacher-learner interaction (Bastable, 2021).

Student engagement is interrelated with students' effort and motivation to learn. They are affected each other's (Froiland and Worrell, 2016; Lup and Mitrea, 2021). According to Reschly and Christenson (2012), student engagement is the level of focus, effort, participation, curiosity, enthusiasm, and passion that students exhibit while they are studying or receiving instruction. It has to do with how dedicated

and invested students are in reaching their learning objectives (Marks, 2000), as well as how persistent and content they are with their learning (Fredricks et al., 2004). It provides teachers with the chance to obtain regular feedback for creating more effective instruction, and it predicts how well children will learn in terms of academic accomplishment and well-being (Christenson et al., 2012 ; Reeve, 2013). It is commonly accepted that there are behavioral, emotional, cognitive, and agentic components to the multifaceted idea of student involvement (Fredricks, 2011; Reeve, 2013; Chiu, 2021). A number of variables, including instructor and technological support, affect students' involvement in blended learning (Bombaerts & Nickel, 2017; Chiu, 2021a). In this regards, Jaggars and Xu (2016) beside to Mandernach et al. (2011) depicted that learning engagement is influenced by a number of determinants, including their mindset, personality, what drives them, how hard they work, and how confident they feel in themselves.

Learning-teaching process and its regular improvement to equip with the worldwide change is the target for the educational institutions. As learning nature changes from face to face learning to be a blended learning, it is expected that learning-teaching process aspects could be changed as well (Capone, 2022). Hence, efforts should be

geared towards continuous enhancement of learning-teaching aspects for making students expenditure more efforts for/in their learning, bracing their motivation to learn and improving their learning engagement. That requires assessing those aspects when they are associated with blended learning.

Aim of the study

Research aim was to assess the relationship between learning-teaching aspects and blended learning satisfaction among students at faculty of nursing.

Research Objectives were to.

- Assess students' effort and motivation to learn among nursing students.
- Assess learning engagement among nursing students.
- Evaluate blended learning satisfaction among nursing students.
- Determine the relationship between students' effort, their motivation to learn, learning engagement and blended learning satisfaction among nursing students.

Research Questions.

- Did blended learning satisfaction vary according to learning-teaching aspects (students' effort, motivation to learn, and learning engagement) among nursing students at faculty of nursing?
- Did learning engagement vary according to students' effort, motivation to learn

among nursing students at faculty of nursing?

2-Subjects and Methods

Research design.

Correlational predictive design was used in the current study after describing all studied variables.

Setting.

The study was implemented at Faculty of Nursing-Suez Canal University. The faculty has six academic departments; Pediatric Nursing, Maternity, Obstetrics and Gynecological Nursing, Adult Health Nursing, Psychiatric and Mental Health Nursing, Nursing Administration, and Community and Family Health Nursing). It had been recognized at 2006 and adopted innovative educational approaches such as Problem Based Learning, Community Oriented, and Community Based Education beside to Competency Based Education later on. It offers one undergraduate program (Bachelor's Degree in Nursing), and thirteen postgraduate programs (master and doctorate degrees one for each academic departments beside to one diploma program).

Participants.

All senior students of the faculty of nursing (N=285) representing the third and the fourth academic years who agree to participate in the study were included in the study. Students at third academic year who were one

hundred and seventy one (60%) and fourth academic year students who were one hundred and fourteen (40%) participated in the study. Their mean age was 21.34 ± 0.94 , and about two third of them were females. Besides, three fifth of them had urban residency, and the basic device they used in blended learning process was mobile rather than computer.

Tools of data collection.

There are four instruments used for collecting data regarding learning and teaching aspects as following.

1- Students Effort Scale.

It is valid and reliable international instrument adopted from the Multifactor leadership questionnaire (MLQ-5X) to assess students' effort based on Avolio and Bass (2004) conceptualization of extra effort within the MLQ-5X. It was used for the same purpose in previous studies as **Geier (2022)**. It was consisted of three items utilizing a five point Likert Scale ranging from (0) strongly disagree to (4) strongly agree. A back-translated Arabic copy was used for data collection after making modifications to be suitable for measuring learning effort of students. The Cronbach's α was 0.824 in the current study.

2- Science motivation questionnaire (SMQ).

It is valid and reliable international instrument developed by **Glynn and Koballa (2006)**. Three subscales of SMQ targeting learning-teaching process will be used to

assess motivation to learn of students. They are self-determination of learning science, self-efficacy of learning science and anxiety about science assessment. Each one of them has 5 statements measuring them using five-point scale ranging from rarely (1) to never (5). It had been translated into Arabic by **Hussien (2014)**. This Arabic copy was used for data collection in current study. The Cronbach's α was 0.955 in the current study.

3-Engagement scale.

It is a valid and reliable international instrument adopted from The Utrecht Work Engagement Scale (UWES-9S) that was developed by **Schaufeli et al. (2006)**. It was used to determine the level of engagement in learning by nursing students. It was used for the same purpose in previous studies as **Carmona-Halty et al. (2019)**. It is divided into 3 subscales (vigor, dedication, and absorption) that has 3 items for each one of them, using seven-point rating scale ranging from 0 (never) to 6 (always). A back-translated Arabic copy was used for data collection after making modifications to be suitable for learning engagement. The Cronbach's α was 0.895 in the current study.

3- Blended Learning Satisfaction Questionnaire.

It is a valid and reliable international instrument settled by **Mirabolghasemi et al. (2021)** to determine student satisfaction with blended learning. It is divided into six

categories with forty seven items covering. Social presence (9 items); cognitive presence (12 items); teaching presence (13 items), system quality (5 items); information quality (5 items); satisfaction (3 items). It used a five-point Likert scale ranged from strongly disagree (1) to strongly agree (5). The Cronbach's α was 0.974 in the current study.

The scoring system of the three tools.

The triple cut off point of the composite percentage scoring system was used to determine the levels of students' effort, motivation to learn, learning engagement and blended learning satisfaction as low (0%-33.33%), moderate (33.34%-66.66%) and high (66.67%-100%).

Procedure.

The data were collected applying self-instruction for tools' online fulfillment using a Google form, after students' reading the informed consent (as a first part in the Google form) and agreeing to participate in the study, after equipping with the needed information about the purpose of the current study and its procedures. The data were collected using students' effort scale part for assessing students' effort in their learning stimulating by the nurse educators; Science Motivation Questionnaire part for assessing students' motivation to learn; Engagement Scale for assessing students' engagement in their learning; Blended Learning Satisfaction Questionnaire. The data collection was

conducted during June – July 2022, and the tools' fulfillment took 20-30 m.

Pilot study.

It was executed on 10% of research participants' students that were proportionally chosen from the third and fourth academic year. They were excluded from data collection of the study. During this study, the appropriateness of the Arabic copy of tools was checked, determining the time needed for filling tools and any reformulation of tools' items.

Ethical considerations.

The official permission for conducting the study was obtained from Dean of Faculty of Nursing after approving the study proposal by the Research Ethics Committee of Faculty of Nursing(151:6/2022). In addition, after clarification the purpose and procedures of the study to the participants, the informed consents were fulfilled online by the students. The anonymity and confidentiality of participant students were protected guaranteeing their right to withdraw from the study at any time.

Data analysis.

Data were collected, tabulated and analyzed applying the Statistical Package of the Social Science (SPSS) program, version (25) for data analysis. Mean and standard deviation, and composite percentage were used for descriptive statistics. Pearson correlation (r) test with P value that is significant on two

tailed with p value < 0.05 was used to assess the relationships among the studied variables. Stepwise model fitted regression analysis was used to test the effect of learning-teaching aspects on blended learning satisfaction. Hierarchical multiple regression analysis was used to test the effect of students' effort and motivation to learn on learning engagement.

3-Results.

Table (1) reveals that the motivation to learn got the highest mean score with mean 3.67 and SD 0.54, and composite percentage 74.71, followed by blended learning satisfaction which had composite percentage 70.66 with mean 3.32 and SD 0.60, and students' effort which had composite percentage 61.35 with mean score 2.45 and SD 0.83, ended with students' engagement which had composite percentage 60.73 with mean score 3.64 and SD 1.18.

Table (2) shows that learning engagement had statistically significant strong positive correlation with student' effort and motivation to learn, with r (0.501 & 0.505 respectively) and P value ($< 0.001^*$). In addition, student' effort had a statistically significant moderate positive correlation with motivation to learn ($r=0.345$ and P value $< 0.001^*$). Moreover, motivation to learn had statistically significant weak positive correlation with blended learning satisfaction ($r = 0.161$ and P value = 0.007^*).

Table (3) illustrates that there was linear

regression between nursing students' learning-teaching aspects score (especially students' motivation to learn) and their blended learning satisfaction. Each increase one unit in students' motivation to learn, blended learning satisfaction will be increased by 0.576. Besides, 2.5% of variation in total blended learning satisfaction score is associated with total nursing students' learning-teaching aspects score with P value 0.007. Excluded variables were students' effort and learning engagement. They were included if their P values are below 0.05 and removed if their P values exceed 0.1 (Table 4).

Table (5) reveals that there was linear regression between nursing students' effort, motivation to learn and their learning engagement score. Each increase one unit in students' effort, motivation to learn and learning engagement score will be increased by 1.571 and 0.488 respectively. Besides, 37.7% of variation in learning engagement score is associated with total students' effort and motivation to learn with P value < 0.001 .

4-Discussion.

Blended learning approach has recently received a lot of attention because of its potential to improve student learning experiences. This article focused on the learning-teaching process aspects specifically students' effort, motivation to learn and learning engagement in connection to their

satisfaction with this approach.

Concerning the nursing students' learning-teaching aspects and blended learning satisfaction, the study results revealed that the motivation to learn had the highest mean score followed by blended learning satisfaction, students' effort and engagement. The results of higher level of blended learning satisfaction may be because it makes students learning in a comfortable way easier by the fact that they can use a wider range of learning environments. Also, it save students to study on their own by choosing concepts that are challenging for their level, and use methods that serve more than one purpose (**Purnomo et al., 2019**). The higher level of blended learning satisfaction reflects that it's important to give students more ways to learn as the only places to learn must not be in the classroom or lab only. It gives the chance to the students to be pulled into everyday live learning more than classroom learning; their everyday lives can help them for continuous learning and energize self-learning for more self and career development (**Kintu et al., 2017; Su et al., 2023**). Whereas, the lower score of students' effort and learning engagement which lay in moderate level require energizing strategies for both. That could be achieved through practicing external motivation by the nursing educators with students, and taking measures for learning engagement improvement. In addition, teaching role could be helpful with

more students' effort expenditure in learning activities. In this regards, **Geier (2022)** assured on teacher behaviors that are perceived by the student as creative and interesting, enthusiastic about teaching, and promotes critical thinking as a predictor of more students' effort.

In addition, these results may be pertinent to that motivation encompasses a wealth of insights on the pursuit of knowledge and personal growth. In the context of pedagogy, the student cultivates a personal disposition that is pertinent to their own learning behavior inside the educational setting, and afterwards makes a determination regarding their engagement in the learning process. In this regards, **Purnomo et al., (2016)** denoted that motivation is widely recognized as a driving factor that empowers individuals to enhance their energy levels and sustain an engaged state of learning. That could indicate to the importance of motivation to learn to be the key of learning satisfaction, effort expenditure for studying and hence learning engagement (**Gray & DiLoreto, 2016; Su et al., 2023**).

Furthermore, the study results showed that there was statistically strong positive correlation between learning engagement, student' effort and motivation to learn. Also, that there was statistically positive correlation between motivation to learn, and blended

learning satisfaction. These results concur with **Su et al., (2023)** who revealed that motivation had a good and significant relationship with learning strategies that use student effort, adding that students who were more motivated were more involved in their learning and more likely to be in charge of their work. Moreover, these results are in agreement with a study done by **Gray & DiLoreto (2016)** who showed that student engagement and communication, student effort to spent amount of time on tasks, active and engaged learning, and cooperation among classmates are the four criteria that are associated to student satisfaction with blended learning. Additionally, **Lup and Mitrea, (2021)** pointed out that students' levels of engagement are likely to be affected even more by their lack of self-motivation, effort, and access to reliable internet, as well as their living and studying situations. There are number of factors that affect how engaged students are, like how motivated they are and whether or not they have a good place to learn.

In addition, the identified significant relationships among the studied variables reflect that instructors should enhance student engagement in blended learning by presenting a course structure that is transparent, continuous, and consistent; designing interactive teaching and learning activities; and clarifying the course's organization, aims, and expectations. This point of view is

supported by **Heilporn et al. (2021)** in addition to **Tan and Hew, (2016)** who revealed that student engagement can be improved through the incorporation of coherent and consistent course structure, using of a variety of instructional methods, and adding game-like aspects into blended learning, such as point systems, leaderboards, and badges.

With regard regression analysis between nursing students' learning-teaching aspects and blended learning satisfaction the study results showed that there was linear regression between nursing students' learning-teaching aspects (especially students' motivation to learn) score and their blended learning satisfaction. This result provides valuable insights into the relationship between nursing students' motivation to learn and their blended learning satisfaction and how large could the improvement in students' motivation to learn improve blended learning satisfaction of them compared to little effect of overall learning-teaching aspects together that could be referred to low score of both students' effort and their learning engagement. That emphasizes the importance of fostering a supportive and motivating learning environment to enhance blended learning satisfaction.

This result is on the same line with **Kintu et al., (2017)**, who showed that the

degree to which students are self-motivated is a significant factor in both the success of blended learning and the degree to which students are satisfied with this mode of instruction. These findings contribute to understanding of the factors that influence student satisfaction in blended learning contexts, offering valuable implications for instructional design and approaches to teaching. Also, **Raime et al. (2020)** denoted that student's self-motivation is deemed necessary for effective learning, and students who are self-motivated must take on the position of mastering learning, rather than a passive participant in the learning process. Moreover, these findings emphasizes that students self-motivated exerted more effort and engaged deeply in learning process to be satisfied with their learning rather than motivation and effort provided by their instructors.

In the same vein, there was linear regression between nursing students' effort, motivation to learn and their learning engagement score, these results were consistent with the foundational concepts and ideas in theory of motivation and engagement in education. According to self-determination theory, students who are intrinsically motivated and put in greater effort are more likely to engage deeply with their learning materials and activities. The positive relationship observed in this study aligns with

this theory, suggesting that as students' motivation and effort increase, their engagement with the learning content also improves. These results were consistent with a study carried out by **Froiland and Worrell (2016)**, who revealed that intrinsic motivation was able to accurately predict student engagement.

Finally, the results of the linear regression analysis showed that there were a strong and good links between nursing students' effort, motivation to learn, and their learning engagement score. These results showed how important it was to create a supportive learning environment that reinforces both intrinsic motivation and hard work and sustains the role of educator in motivating students in their learning. This will lead to more learning engagement and satisfaction and hence better learning outputs and career practice in the long run. All those results gathered to support that an overall findings that Motivation to learn is the key of each other aspects of learning teaching process and blended learning satisfaction. That it was reinforced by the other current study results regarding variables correlation or effect of each other. So, its enhancement could reflect on other enhancements and more satisfaction with learning whether face to face or blended learning.

5-Conclusion.

Nursing students have their high levels in motivation to learn and blended learning satisfaction compared to students' effort and learning engagement that are recognized in moderate levels. There is a significant positive correlation among the studied variables except blended learning satisfaction which had its only significant positive correlation with motivation to learn. Blended learning satisfaction is varied by overall learning-teaching aspects variations. It is affected positively by overall learning-teaching aspects, and more improved by motivation to learn. Learning engagement is varied by student' effort and motivation to learn variations. It is affected positively, and largely improved by the improvement in students' effort more than motivation to learn. However, motivation is the key for students' effort and learning engagement improvement and blended learning satisfaction enhancement.

6-Recommendation.

Energizing blended learning satisfaction and hence revitalizing learning-teaching process itself require more measures for sustaining students' motivation especially giving more interest with the role of educators in external motivation and inspiring internal motivation that is reflected on students' effort and learning engagement improvement too. This could be through training program on students' internal and external motivation, and regular triggering of it by nursing educators.

Other measures could be used for improving students' engagement in their blended learning such as incorporation of articulate and consistent course structure, using of a variety of instructional methods, and adding game-like aspects into blended learning, such as point systems, leaderboards, and badges are recommended. Also, studying effect of

students' external motivation on blended learning, students' effort and learning engagement is suggested for further study. This is in addition to examine factors contributing to improving students' effort and engagement in blended learning is endorsed for further study too.

Table (1). Mean score nursing students' learning aspects, and satisfaction with blended learning (n=285).

Variables	Min-max	Mean ± SD	Composite percentage (%)
Students' Effort	0-4	2.45±0.83	61.35
Motivation to Learn	1-5	3.67±0.54	74.71
Learning Engagement	0-6	3.64±1.18	60.73
Blended Learning Satisfaction	1-5	3.32±.60	70.66

Table (2). Correlation between nursing students' learning-teaching aspects and blended learning satisfaction (n=285).

Variables	1	2	3	4
	r	r	r	r
1- Students' Effort	—			
2-Motivation to Learn	0.345(<0.001*)	—		
3-Learning Engagement	0.501 (<0.001*)	0.505(<0.001*)	—	
4-Blended Learning Satisfaction	0.104(0.078)	0.161(0.007*)	0.112(0.058)	—

Test used was Pearson correlation (r), P value is significant on two tailed with p value<.05

Table (3). Stepwise model fitted regression analysis between nursing students' learning-teaching aspects and blended learning satisfaction (n=285).

Dependent factor	Independent Factor (included variables)	Unstandardized coefficients		Beta	t	P value	95% CI	
		B	Std.Err					
Blended learning satisfaction	Constant	124.302	11.925		10.424	<0.001	100.829	147.775
	Motivation to Learn	0.576	0.211	0.161	2.736	0.007*	0.162	0.991

t is independent t test & P value is significant (two tailed significance) $\leq .05$

R, .161; R2 .025; F 7.48; Std.Err 28.99; Cohen's f .153 and P value .007

Table (4). Excluded Variables

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics	
					Tolerance	
1	Students' Effort	0.056 ^b	0.892	0.373	0.053	0.881
	Learning Engagement	0.042 ^b	0.618	0.537	0.037	0.745

Table (5). Regression analysis between nursing students' effort, motivation to learn and their learning engagement score (n=285).

Dependent factor	Independent Factor (included variables)	Unstandardized coefficients		Beta	t	P value	95% CI	
		B	Std.Err					
Learning Engagement	Constant	-6.122-	3.462		-1.768-	0.078	-12.937-	.693
	Students' Effort	1.571	0.212	0.372	7.421	<0.001	1.155	1.988
	Motivation to Learn	0.488	0.065	0.377	7.523	<0.001	0.360	0.616

t is independent t test & P- value is significant (two tailed significance) $\leq .05$

R, 0.614; R2 0.377; F 85.18; Std.Err 8.39; Cohen's f 0.78; P value <0.001

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