



## A Mixed Methods Study of Graduate Students' Achievement Motivation and Perceptions of Implementing Asynchronous Online Discussions

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### ABSTRACT

This study used sequential explanatory mixed methods to examine higher education female students' achievement motivation, and explored their perceptions towards the implementation of asynchronous online discussions in the Learning Management course for masters' students at a Western district university of Saudi Arabia. Quantitative data were collected using a one-group pretest-posttest design, and an achievement motivation's scale was administered before and after the treatment. The sample for this phase were a purposeful sample consisted of ( $n=10$ ). Qualitative data were collected by a focus group discussion for ( $n=8$ ) who completed the quantitative phase and volunteered to participate in this phase. Due to the small size of the study sample at the quantitative phase, the Wilcoxon Signed Ranks test was used to identify statistically significant differences between the scores of the experimental group in the pre and post applications of the scale, and Cohen's equation ( $r$ ) to measure the effect size of asynchronous online discussions on the development of students' achievement motivation. This result indicates that there is a positive effect of using asynchronous online discussions on graduated students' achievement motivation with a high effect size, at three dimensions (Perseverance, Level of Ambition, and Perceived Efficiency) and total scale, while there was no positive effect of using asynchronous online discussions on graduated students' achievement motivation at the (Goal Setting) dimension. The qualitative results revealed that students had positive perceptions towards asynchronous online discussions. Benefits and strategies that instructors could try to improve the online discussions' implementation arose. Finally, implications and recommendations for future studies regarding the usage of asynchronous online discussions are discussed.

**Keywords:** Mixed Methods Research, Asynchronous Online Discussions, Perceptions, Achievement Motivation, Higher Education.



## Introduction

Millenials are described as a tech-savvy generation exposed to technology since a very young age and has different needs, personalities, and backgrounds to engage in learning environments. Instructors are encouraged to consider changing the learning model from classroom-centered instruction to web-based instruction (Lei & Gupta, 2010). In addition, higher education levels demand instructors to use new strategies to increase learning efficiently by giving students more responsibility for their learning, while encouraging their independent learning (Alfares, 2021). Consequently, web-based instruction has grown quickly in the learning fields over the past decade. Web-based instruction was defined in 1997 by Khan as " a hyper media-based instructional program which utilize the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported" (p.6). Web-based learning requires students to be independent and make a greater effort in taking responsibility for their learning (Hodges, 2005).

The Internet has provided instructors with many web-based applications that can serve as an educational platform to be used in online learning. One of the most famous web-based platforms used in universities is Blackboard. It is a learning management system, that is used as an educational tool in distance and web-based instruction, offering instructors the option to create their online content easily (Palmer, 2012). Moreover, instructors can post course materials, resources, assignments, grades, announcements, and create virtual classes and discussion threads (Subramanian, Zainuddin, Alatawi, Javabdeh & Hussin, 2014). Blackboard also allows instructors to interact with their students on an individual basis or group basis (Coates, 2007).

Previous studies discussed how students in both traditional and online learning have benefited from the usage of web-based tools in their learning process (Chen et al., 2010). One of Blackboard's tools that enables student interaction is the discussions board which provides "a mechanism for students to increase their knowledge through student-driven content, peer review and exchange" to create a motivator environment in online classes (Revere & Kovach, 2011, p. 115). Asynchronous online discussions do not require all the participants to be present at the same time. Discussion boards enables instructors and students to post articles and discuss them, which might help in increasing the level of understanding of specific topics (Hoskins, 2012). Pittman (2013) stated that asynchronous discussions helped in increasing students' learning, self-motivation, and responsibility as a collaborative learning tool. Some researchers emphasized the imperative role of instructors' interaction and participation in the discussion board threads to encourage students to participate more and be able to feel the instructor's presence (Cho and Tobias, 2016).



Today, the adoption of online learning, due to its evolution, has increased the accessibility to education (Robinson & Hullinger, 2008). Researchers wondering whether the same learning objectives of increasing students' interaction, motivation and achievement that happen within face-to-face learning can also be met in web-based instruction (Roby, Ashe, Singh & Clark, 2013). Since motivation is one of the main components of learning, it is frequently found in literature and research as relevant to achievement. Through previous research studies of Rafiola, Setyosari, Radjah & Ramli (2020) and Fitriwati (2018), student's motivation has a significant effect on students' success. Motivation also plays an imperative role in education since it has potential for improving students' cognitive engagement and academic performance (National Research Council, 1999). Moreover, it helps students to be more self-regulated and having a deeper interest in learning (Pintrich & Schrauben, 1992). Schunk et al. (2008) defined motivation as "the process whereby goal-directed activity is instigated and sustained" (p. 4). They also illustrated how motivation can affect what, when, and how we learn. Motivated students will be able to overcome barriers of learning with a little scaffolding from instructors (Simpson, 2008). In distance and web-based instruction motivation plays a vital role in students' success. Motivation will encourage students to interact with their peers, instructors, and other learners as a group or individually, which could positively increase their content's understanding (Moore & Kearsley, 1996).

Perception is another main component of the learning process that also relates to students' achievement. Fraser and Killen (2005) stated that there is a strong correlation among perceptions and students' academic success. Cinkara and Bagceci's (2013) research study found that there was a significant positive correlation between learners' learning attitudes and their success in the learning course. Popovici and Mironov (2015) explained that the main factor that affects students' learning and acceptance for new instructional models are needs and demands, which are constructs of perceptions. Moreover, positive perceptions work as an incentive for students' interaction and learning. Yeh and Lahman (2007) stated that an important basis for improving the effectiveness of using asynchronous online discussions is users' perceptions.

The social cognitive theory reveals that a part of a human's knowledge acquisition can be directly related to the observance and watching of others' interaction with others and experiences (Bandura, 1986). Bandura (1986) stated that "human functioning is explained in terms of a model of triadic reciprocity in which behavior, cognitive and other personal factors, and environmental events all operate as interesting determinants of each other" (p. 18). One of the constructs of this theory is the relationship between learning and motivation (Zimmerman & Schunk, 2003). It notes that people can learn from their surroundings. Synchronous and asynchronous discussions would be instructional strategy that instructors can implement relation to the social cognitive theory's constructs. They help students to gain conceptual knowledge through discussions and interaction between peers, to improve the two-



way communications among students and instructors; and to create a sense of community (Kirkwood & Price, 2005).

Some studies showed a positive effect of using web-based programs on students' learning, such as Gamon's (2001) study, which revealed that students enjoyed the convenience and self-controlled learning pace and were motivated in web-based learning. Yu, She, & Lee's (2010) findings suggested that web-based instruction has a positive potential to improve the learner's problem-solving skills. Moreover, Lee & Rha's (2009) study revealed that students showed improvement in critical thinking, learning, and satisfaction. Also, some studies showed positive effects of using asynchronous online discussions on student' motivation and attitudes.

Ransdell's (2018) study discussed increased motivation as an advantage when using online discussions. Xie, Durrington, & Yen's (2011) study showed asynchronous online discussions have a good effect on students' motivation and participation in the learning course. Yeh and Lahman (2007) study revealed students had positive attitudes towards asynchronous online discussion as a learning tool. Chang's (2007) study results showed students had positive perceptions of online discussion when it was used as a complement to a traditional classroom. Sook-Hi (2012) conducted a study to explore students' perceptions of online discussion along with the traditional model, and the findings showed that the majority of the students had positive perceptions towards the online discussion. Yilmaz and Halil's (2016) study also examined the discussion environment for e-learning, which illustrated that integrating discussion boards with learning content increased the students' perceptions towards learning.

These results are promising to improve the quality of learning in public education and in higher education. However, there are few studies that have examined the effect of using online discussions for web-based instruction on student's achievement motivation and perceptions. Most of the previous studies were conducted using online discussion as a complement to a traditional classroom, not as an independent model for instruction. Also, most of the studies were qualitative or anecdotal. More studies are needed to address this gap (Revere & Kovach, 2011). In addition, more studies are needed to investigate the effect of online discussion participation on learners' motivation and performance (Palmer, Holt, & Bray, 2008). Regarding the Saudi context, Aljaser (2017) illustrated that students are passive and are not used to taking responsibility towards their learning, while depending fully on the instructors. Aljaser (2017) encouraged the transformation from traditional instruction to more attractive models to enhance students' ability to take responsibilities towards their learning. Based on a systematic review of the literature, there have been international studies and practices to use asynchronous online discussions in attempting to improve students' achievement motivation and perceptions to learn, but not in the Saudi context.



The aim of this study was identified from gaps from the previous literature and call for more studies to examine the effect of using asynchronous online discussions as a web-based instructional tool on students' achievement motivation and perceptions in Saudi Arabia.

### **Purpose of the Study**

The intent of this mixed methods study is to examine graduate female students' achievement motivation and explore their perceptions towards the usage of asynchronous online discussions in relation to the social cognitive theory at a Western district university of Saudi Arabia.

### **Research Question**

The following research questions are raised in this study:

#### **Quantitative:**

1. What is the effect of using asynchronous online discussions as an instructional tool on graduate female students' achievement motivation in the Learning Management Systems course?

#### **Qualitative:**

2. What are graduate female students' perceptions toward using asynchronous online discussions as an instructional tool in the Learning Management Systems course?

#### **Mixed Methods:**

3. How does the qualitative data help in explaining the quantitative results?

### **Significance of the Study**

This study is one of the few studies which have implemented asynchronous online discussions as a main tool for web-based learning, not as a complementary tool for the traditional model of instruction, to find out its effect for students' achievement motivation and for exploring their perceptions towards this usage in Saudi Arabia.

This study will add to the literature of web-based instruction and use of asynchronous online discussions as a tool for instruction. It will contribute also to the practices that attempt to transfer the role of the students from passive to active, and the role of instructors from lecturers to facilitators, and guidance in the educational context. Additionally, it hopes to address the gap in the literature and responds to the need for more studies to make an informative decision regarding the use of asynchronous online discussions in instructional environments. Moreover, the study might inspire educational administrators and faculty members in the different educational institutions, to use new teaching tools to fulfill the new needs for this tech-savvy generation in the learning environment, and to increase their perceptions and motivation to learn, for deeper understanding and for increasing their learning outcomes.





## Methodology

### Population

The population of this study refers to graduate students studying in the Educational Technology Department at a Western district university of Saudi Arabia. This population includes only students who are studying during semester 2 in the academic year of 2022-2023.

### Sample

The sample of this study includes female graduate students who are studying in level 5 toward a Master's in Educational Technology. They are enrolled in the course named "Learning Management System" at the Educational College at a Western district university of Saudi Arabia. These students were chosen because of their specialization, and that they can teach in the future using the same instructional approach, possibly benefitting from this research. For the quantitative phase, the sample was a purposeful sample ( $n=10$ ), who participated in the pre-post administration of the achievement motivation's scale before and after the intervention application. For the qualitative phase, the participants ( $n=8$ ) who completed the quantitative phase and volunteered to participate in the focus group discussion.

### Instrument

For the quantitative phase, this study incorporated an achievement motivation's scale towards the use of asynchronous online discussions and specifically the Blackboard discussions board to study the entire course. This scale was constructed by AL-Sehaem (2022). The researcher contacted AL-Sehaem (2022) and gained her permission and approval to use the same scale for this study. Likert's five-scale of extremity was used in this scale to indicate the degree of agreement. It consists of 24 items that take approximately 10 minutes to complete. It is divided into four main categories as stated by AL-Sehaem (2022) "Perseverance, Goal Setting, Level of Ambition, Perceived Efficiency" (p. 10). Students should choose one choice among five choices "strongly agree," "agree," "neutral," "disagree," and "strongly disagree." Each answer is worth a point, where the maximum point is 5 for the response "strongly agree" and the minimum point is 1 for the response "strongly disagree". As the validity and reliability are imperative for constructing and using any research's instrument, they were examined by AL-Sehaem (2022). She examined the content validity, and internal consistency validity. Then, she edited the scale depending on the results. Moreover, she measured the reliability of the scale using Cronbach's alpha, which indicated an accepted reliability of  $\alpha = 0.743$ .

For the qualitative phase to explore students' perceptions towards the use of asynchronous online discussions, the researcher conducted a focus group discussion. This technique is commonly used in a qualitative study to collect data from several people at the same time, and to learn their different opinions and attitudes. The questions were developed by the researcher ( $n=15$ ). They were also reviewed by 3 qualitative research experts.



## Design

This study used two research methods: 1) the descriptive analytical to review and analyze the literature in the usage of using web-based instruction, Blackboard as a learning management system, asynchronous online discussions; the social cognitive theory that was employed as the theoretical foundation of this study, the achievement motivation and perceptions for learners in different educational contexts; 2) the sequential explanatory mixed methods, which consisted of two phases: the quantitative and the qualitative. Quantitative data were collected using a one-group pretest-posttest design for ( $n=10$ ), with an achievement motivation's scale being administered before and after the treatment. Qualitative data were collected by a focus group discussion ( $n=8$ ).

## Data Collection

Before starting the two phases, the researcher obtained the necessary permissions. Consent forms were given to, and signed by participants regarding their voluntary participation and information giving them the ability to withdraw at any time. Confidentiality was a priority in this study.

After that, to collect the quantitative data, a pre-achievement motivation's scale was distributed by hand. The instructor explained the intervention and how this study will be conducted. She posted discussion topics related to the Learning Management course content in Blackboard. Then, she explained how the discussions board in Blackboard will be the only tool for instruction and learning.

The content of the Learning Management Systems course that was used in this study included topics focused primarily on definitions, types, advantages, disadvantages, applications, tools, and research in learning management systems. The instructor divided the students into four groups. Each group was responsible for finding 3- 5 articles that cover all the learning objectives for a specific topic. Those objectives were then posted by the instructor in Blackboard.

After that the instructor revised the articles to make sure they are suitable, covering all the objectives and that they are from trusted resources. After giving the approval for the students, students were asked to post them as a new thread in the discussions board with some discussion inquiries. The instructor provided instructions on how to use the discussions board and how students' answers for inquiries and responses should be.

The rest of the students must answer those questions after reading the attached articles. Then, they start to respond constructively to their peers. They were asked to post opinions, comments, previous experiences, or recommendations. All the groups should participate respectively in the same way throughout the semester, which consisted of four asynchronous online discussions activities. Grades were given depending on a rubric. A calendar was used to remind the students to participate in the discussions board. At the end of the semester, the post-achievement motivation's scale was administered.

To collect the qualitative data, the researcher selected eight students who completed the previous mentioned phase and accepted to participate voluntarily in the



focus group discussion. This discussion took place at the university for about one hour. Students had 15 questions to discuss, which included questions about their perceptions and attitudes toward the use of asynchronous online discussions as the main tool for learning, not as a complement for the traditional model of instruction, its advantages, challenges, and suggestions for improving the implementation of this model in the learning environments. The discussion was recorded and saved in a safe place to be used in this study.

## Results

### Quantitative:

To answer the quantitative research question, the researcher examined the following hypothesis: there are no statistically significant differences at the level ( $\alpha \leq 0.05$ ) between the scores of the experimental group in the pre and post applications of the achievement motivation scale, at all dimensions represented by the scale (perseverance, goal setting, level of ambition, unawareness) and the total scale.

To verify this hypothesis, the following was used:

1. Due to the small size of the study sample ( $n=10$ ) the Wilcoxon Signed Ranks test was used, which is one of the non-parametric tests that are used with small groups, to identify statistically significant differences between the scores of the experimental group in the pre and post applications of the scale.
2. Cohen's equation ( $r$ ) to measure the effect of asynchronous online discussions on the development of achievement motivation for graduate students in the Department of Educational Technology at Western district university of Saudi Arabia.

### *Wilcoxon Signed Ranks Test*

The results of the Wilcoxon test as shown in Table (1) revealed that: there are differences between the responses of the experimental group in the pre and post administration of achievement motivation scale, at three dimensions (Perseverance, Level of Ambition, and Perceived Efficiency) and the scale overall, as the values of the Wilcoxon test for these three dimensions and the total scale are statistically significant, as the significance level is less than (0.05), and all these differences were in the direction of the post-measurement, where the positive ranks more than the negative ranks. However, there were no differences between the responses of the experimental group in the pre and post administration of the achievement motivation scale at (Goal Setting) dimension, as the values of the Wilcoxon test for this dimension is not statistically significant, as the significance level is more than (0.05).





This result indicates that there is a positive effect of using asynchronous online discussions on graduated students' achievement motivation, at three dimensions (Perseverance, Level of Ambition, and Perceived Efficiency) and total scale. While there was no positive effect of using asynchronous online discussions on graduated students' achievement motivation at the (Goal Setting) dimension, Fig (1) shows: The Positive Ranks are the highest frequency in all dimensions.

**Table (1)**

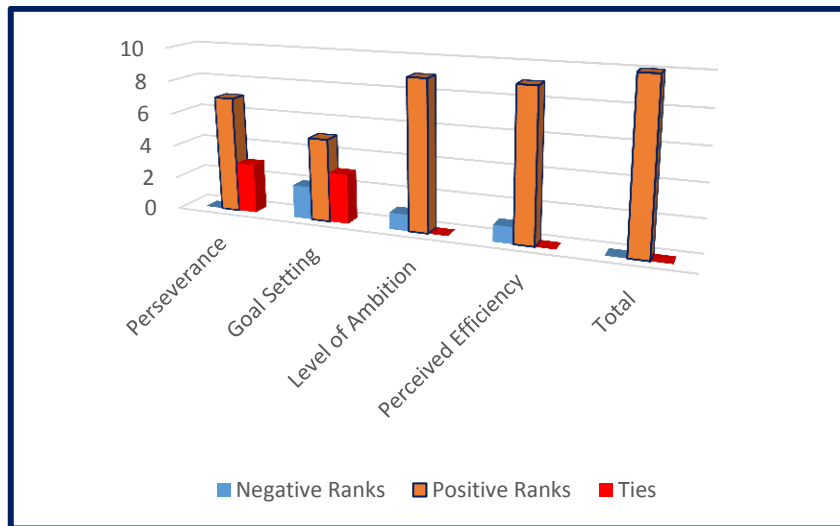
**Results of Wilcoxon test to identify the differences between the responses in the pre and post administration of the achievement motivation scale.**

Dimension	Ranks	N	Mean Rank	Sum of Ranks	Z	Sig
Perseverance	Negative Ranks	0	.00	.00	2.410	.016
	Positive Ranks	7	4.00	28.00		
	Ties	3				
	Total	10				
Goal Setting	Negative Ranks	2	2.50	5.00	1.529	.126
	Positive Ranks	5	4.60	23.00		
	Ties	3				
	Total	10				
Level of Ambition	Negative Ranks	1	1.50	1.50	2.662	.008
	Positive Ranks	9	5.94	53.50		
	Ties	0				
	Total	10				
Perceived Efficiency	Negative Ranks	1	1.50	1.50	2.666	.008
	Positive Ranks	9	5.94	53.50		
	Ties	0				
	Total	10				
Total	Negative Ranks	0	.00	.00	2.807	.005
	Positive Ranks	10	5.50	55.00		
	Ties	0				
	Total	10				



Fig (1)

Negative Ranks, Positive Ranks, and Ties for the pre and post administration of the achievement motivation scale



### Cohen's equation (r)

The results of this test are shown in table (2).

Table (2)

The effect size of asynchronous online discussions on the development of achievement motivation

No	Dimension	Z	N	SQRT for Sample	r	Effect Size
1	Perseverance	2.410	10	3.162	1.31	High
2	Level of Ambition	2.662	10	3.162	1.19	High
3	Perceived Efficiency	2.666	10	3.162	1.19	High
4	Total	2.807	10	3.162	1.13	High

Table (2) shows that the effect size of asynchronous online discussions on the development of achievement motivation for graduate students is high, as all values of (r) are greater than the value (0.50), according to Cohen's (1988) classification, as follows:

Effect Size	(r) Values
Low	From 0.10 to less than 0.30
Middle	From 0.30 to less than 0.50
High	Greater than 0.50



### Qualitative:

To answer the qualitative research question, data resulting from the focus group discussions were analyzed by transcribing the discussion, dividing it into categories that revealed the same meaning, coding the data, grouping the codes, extracting the most influential themes from those codes, and then constructing narratives (Creswell, 2014). To strengthen the credibility and the accuracy of the collected data, the researcher used member checking by reviewing the final report with the participants; and included an external reviewer to provide constructive feedback for this phase (Creswell, 2014).

The qualitative data revealed that it was the students first time studying an entire course using the asynchronous online discussions. The findings provided on asynchronous online discussions benefits, challenges, strategies for instructors to enhance its implementation in the learning environment, and students perceptions towards its usage in their learning.

Students discussed the benefits of this tool and how it encouraged them to learn. It changed their role from passive to active learners, and increased their excitement, enthusiasm, and activity. Faitmah stated that " This model pushed me to be enthusiastic to know each student's point of view and because I did not get the Bachelors' in Educational Technology, I benefited from their constructive responses and information". Sumiah agreed with her and added " I get bored from using presentations and being passive in classes. I don't want this. I am attending my regular classes just for commitment. Here the situation is different, I am active and enthusiastic to find the information myself from different resources". Reem said that "I studied about a student-centered learning but I haven't experienced it. With this course, I am really active and I learned the actual meaning of this term". Students also agreed together that this model increased their motivation for taking more responsibility for their learning. Anwar said "I get motivated, and you can say I am responsible to read to be able to answer, and to find extra resources for the discussion to persuade my friends about my point of view"

Moreover, they believe this model has improved different learning skills like critical thinking, academic writing, reading and summarizing. Sherin stated " I felt utilizing asynchronous online discussions helped in polishing our skills in research, critics, summarizing and writing". Fatimah added " In the beginning, it was difficult for me to read the thread and respond to my friends. I wrote short answers. Now, if you notice my progress, I am able to include more details. I learned from my friends answers".

Moreover, discussions helped them with retention, reduced learning effort, and saved their time. Fatimah expressed " I can discuss with my friends, and they correct me when I am wrong. In this way, the idea I could, hmm, say stuck in my mind". Huda agreed with her and said "I like reading the same answer for the question in different ways. When I started to study for my exam I found myself familiar with most of the topics and I didn't pay much effort like in the traditional classes to understand and memorize the content. It saved me time".



Students also like how they are focused since they can read the materials and posts multiple times at their own pace and chosen time. Mariam said "I trained myself on fast reading and writing. This is a deficiency in my personality. I am a slow reader and I used to get embarrassed and frustrated in class because of this. Now, I started to learn how to skim and answer. I think if this model continues for let's say one year for example, I will overcome my deficiency". They appreciated how they improved their ability in discussions. Reem expressed "in the beginning of the discussion, I was worried to write a comment that makes my friends angry with me. Then I discovered that's ok, and I can write my opinion freely. I can say we activated the proverb difference in opinion doesn't invalidate the intimacy".

However, a student mentioned a challenge she encountered during her learning. When she started her discussion late she felt isolated and no one has replied to her. Anwar said " When I had a health issue and I was late for the discussion, I felt my answer and discussion are meaningless. I feel lonely and bored".

In addition, the qualitative findings provided some strategies that instructors could try to improve asynchronous online discussions implementation to increase learning effectiveness and students' satisfaction and motivation. Students like instructors to use feedback often and direct it to every student to motivate them to work harder. That feedback should be positive and encouraging. Asma said " Your feedback makes a difference; we need more encouragement". Aisha said, "I like to have positive feedback from my teacher whether in the regular classes or online classes, this let me think oh, the teacher is seeing me, and I will work harder to prove how a good a student I am". Adding more, they suggested enrolling students in courses to learn discussion and persuasion skills. Another strategy that was recommended is that the discussion activity could be divided into two stages, while allocating enough time for each stage; first, answering the discussion questions, and second to start discussion with their peers. Sherin suggested "If I were the instructor, I would specify some days for answering the discussion inquiries, and other days for responses and comments. This will help us in being active the whole week".

The data also illustrated that students had positive perceptions towards the implementation of asynchronous online discussions. According to Fatimah " I would recommend my friends to enroll in a course that use asynchronous online discussions. I would say to them, you will have fun and try to live the experience. It is something out of the ordinary". Anwar said, "I really enjoyed this journey of learning". Moreover, they agreed that they felt more confident. Huda said, " I like how I researched about the same idea from different resources, not only the posted ones, so I can feel confident when I discuss". Reem added "it was amazing how we worked as one group collaboratively discussing and replying to each other, I was waiting for anyone to reply to me, this makes me feel how my post is constructive".

#### **Mixed Methods:**

To answer the mixed methods question, the quantitative and the qualitative data were mixed. It showed students had a positive perception towards the use of discussion boards as an instructional model, which is related to the quantitative data that revealed students' positive achievement motivation.



## Discussion

This mixed methods study examined female graduate students' achievement motivation and explored their perceptions towards the use of asynchronous online discussions in the Learning Management System course. One group with pre-post achievement motivation's scale and focus group discussion was used to collect data. The results offered an affirmative response to the research's first and second questions. It revealed students' achievement motivation positively improved at three dimensions of the scale: Perseverance, Level of Ambition, and Perceived Efficiency. However, there was no effect on the Goal Setting dimension. The researcher believed this result was predictable since this dimension related to students' habits and personalities, which need prolonged time and effort to affect them which included sentences like "I don't postpone today's work for tomorrow". Moreover, students had positive perceptions towards the use of asynchronous online discussions. These results related to the social cognitive theory that states a part of a human's knowledge acquisition is directly related to the observance and interaction with others and experiences.

This result extended previous studies in the literature showing that students have better achievement motivation (Ransdell, 2018; Xie, Durrington & Yen, 2011; Pittman, 2013), and positive perceptions towards the use of asynchronous online discussions (Lahman, 2007; Chang, 2007; Sook-Hi, 2012; Yilmaz & Halil, 2016). Although this study revealed benefits of using asynchronous online discussions on students' achievement motivation and perceptions, instructors and administrators should consider strategies to enhance the effect of online discussions on students' learning, like providing positive feedback regularly.

In addition, this study provided some implications. A major contribution of this study is its existence, since there have been few studies published in the Saudi context at different academic levels for female students examining the usage of asynchronous online discussions in the learning environment. It gives an insight into the effect of using web-based instruction and specifically asynchronous online discussions on students' achievement motivation and perceptions to improve their learning outcomes. It suggests that asynchronous online discussion has its positive effect in motivating students to work, sharing knowledge, and taking responsibility towards their learning. It will positively help them to elevate their achievement due to motivation. These results might inspire educators and educational administrators to administer asynchronous online discussions as a supportive, or as a main approach in the learning process with this tech-savvy generation. Educational institutions should encourage schools and instructors to implement different web-based instructional tools like asynchronous online discussions in their teaching for different academic levels to prepare students to take responsibility towards their learning when they reach a higher educational level.





Since the results suggests asynchronous online discussions provided students with different abilities to work on their pace and suitable place, which might increase their satisfaction and eventually their learning outcomes, researchers are recommended to conduct more studies to provide more investigation regarding the usage of this instructional approach. More accurate results and contribution to the literature of using asynchronous online discussions are needed, especially in the Saudi context. It is recommended to conduct studies with a larger sample size, with other genders to be able to generalize the results, for longer periods of time, and with using different research approaches.

## Conclusion

Over the past decade, Saudi educational institutions have started to encourage instructors to implement web-based tools and new technologies in their instruction as an attempt to meet the requirements of the new country's orientation to aid the digital transformation in every sector, and to meet students' individual differences and needs. Most of the universities employed different LMSs in their system and advised faculty members to benefit from their advantages and use them effectively. Educational institutions and universities are trying to change the role of students from passive watchers to active participants. From a systematic review of the literature, the need for studies implementing new technologies in Saudi Arabia is noticeable. Using asynchronous online discussions as a model of instruction, not as a complement for the traditional model of instruction, is one of the fields needing more studies to be conducted. Since the motivation and perceptions are main factors that influence students' academic success, this mixed methods study examined graduate female students' achievement motivation and explored their perceptions towards the usage of asynchronous online discussions in relation to the social cognitive theory at one of the universities in Saudi Arabia. The results of this study indicates that graduated students' achievement motivation has increased positively and students had positive perceptions towards its usage in their learning. These results are in line with previous studies, that revealed that using asynchronous online discussions can contribute to improving students' achievement motivation and perceptions toward their learning. The findings also discussed benefits of asynchronous online discussions and strategies that instructors could consider to improve the implementation of online or face-to-face discussions in the learning environment. More studies to examine the effect, benefits, and challenges of using web-based tools and new instructional technologies to increase students learning outcomes, satisfaction, motivation and self-esteem in Saudi Arabia are recommended.



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