

IMPACT OF BLACKBOARD LEARNING SYSTEM ON COGNITIVE-COMMUNICATION AND CULTURE IN SAUDI ARABIA

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Abstract

This study aimed to explore the potential of the blackboard learning system in enhancing cognitive communication between male lecturers and female students. The study used a triangulation method to justify the credibility of the research through the researcher as a primary instrument and interviews. Major findings indicated that there was a lack of training on the use of blackboarding from the student's and lecturers' perspectives. The study has notably contributed to the educational technology field by exploring the blackboard learning system with cognitive communication in a culture-dependent community. There were suggestions from respondents on enhancing the roles of cognitive communication such as creating awareness, developing problem-solving skills, attentiveness, and encouraging executive functions while learning with the blackboard system. The findings enhanced the concept that learning platforms should contain gadgets and programs to become independent with the ability to enhance cognitive communication. The study concluded that enabling effective use of the blackboard learning system influenced effective communication between male lecturers and female students. It was concluded that applying learning platforms such as organizing training, conducting student-teacher meetings, and seminars, and including the positive roles of blackboarding promotes cognitive-communication and bridges culture gaps among lecturers and students. It is recommended for future studies conduct similar studies with other types of learning platforms which will subsequently provide additional insights into the phenomenon of cognitive communication in the field of educational technology.

Keywords: Blackboarding, Cognitive Communication, Culture.

Introduction

There is a substantial body of research indicating that an e-learning strategy can be successfully implemented in higher education (Cenejac, 2017; Muawiyah et al., 2018). However, there has been little study on e-learning acceptance using Venkatesh et al. (2003)'s Unified Theory of Acceptance and Use of Technology (UTAUT) framework (Dakduk et al., 2018; Khechine et al., 2014). For example, very few researchers in the Kingdom of Saudi Arabia have used the UTAUT model as the foundation for graduate students' behavioral intentions to accept and use online learning, according to the available literature. The current study aims to strengthen the theoretical foundation of blended learning by applying the UTAUT framework to better explore how female students' adoption of e-learning improves their communication with male lecturers.

The Venkatesh et al. (2003) UTAUT model uses four essential factors to define behavioral intention to use or adopt technology: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions, which are based on a synthesis of diverse models/theories (FC). Effort Expectancy (EE), Facilitating Condition (FC), Performance Expectancy (PE), and Social Influence (SI), respectively were found as the primary predictors of students' intention to use e-training (Alghamdi et al., 2021). Gender, age, willingness, and experience are the four secondary variables found by Venkatesh et al. (2003). The UTAUT model has been used to implement a variety of technologies, including mobile learning (Alshahrani & Walker, 2017), information kiosks (Wang & Shih, 2009), mobile banking (Raza et al., 2020), Massive Open Online Courses (MOOCs) (Fianu et al., 2018), e-learning (Adam, et al., 2017), electronic placement tests (Tan, 2013), e-government services (Khechine et al., 2014).

Only a few studies have looked at the secondary factors of the intention to adopt E-learning. Banks et al (2006) sought to identify concerns about the personal aspects of internet communication. He discovered that students were often lonely, overwhelmed by other members, or hesitant to openly share their ideas. Boling et al., (2012) conducted a qualitative study to learn more about both the teacher's and the student's perspectives on online communication. Make use of interviews. Most research participants, according to Pauling, regard online courses as one-on-one education and restrict their interaction with others. Students stated that they felt alienated from their professors, course content, and colleagues. Participants in these courses described their online interactions as text-based lectures with a variety of reading and writing assignments. Students' ability to develop higher levels of cognitive and creative thinking abilities was limited by many of these tasks (Alshehri, Rutter & Smith, 2020).

Learning Management System (LMS) is an e-learning system that helps students to learn and communicate effectively in virtual learning environments to improve and develop their overall learning. LMS includes Blackboard, and Web CT (Delen et al., 2014). E-learning platforms are called Learning management systems (LMSs), and they are also known as learning content management systems, course management systems (CMS), virtual learning environments, virtual learning systems, or learning portals (Hodges & Grant, 2015; Wright et al., 2014). For the qualitative study, some of these terms will be used interchangeably. In this study, LMS refers to a learning system that takes place over the internet through one of its platforms such as the Blackboard system, and enables faculty members and students in the Saudi Arabian Universities in Arar to teach and learn outside the traditional learning environment.

A Blackboard system is defined as an LMS that depends on the e-learning management system which includes a set of characters that enable students to communicate with other participants synchronously and asynchronously (Washington et al., 2020). In the context of this study, Blackboard is understood as a learning platform that lecturers and students use at Arar University College in Saudi Arabia as the sole medium of learning. The blackboard learning system is adopted by 90% of Saudi Arabian Universities as the main application for learning and teaching. The market of e-learning in Saudi Arabia is projected to be around \$273 billion by 2023, which represents the largest market in the Middle East (Research & Markets, 2017). However, men usually have more chances to enroll in many more available educational areas than women (Ahmed & Hyndman-Rizk, 2020). When we consider Saudi (female) students who are interested in using technology, we find that they prefer distance learning because it helps them to learn at their speed (Binyamin et al., 2020; Thabet et al., 2021). The absence of female lecturers and their replacement with men increased the distance between female students and male lecturers (Elareshi et al., 2020). Many scholars see this as a step backward in time, and some claim they lack the requisite core competencies or institutional resources to implement technology for educational purposes (Alshaikhi, 2019).

Many of the barriers faced by female lecturers in female colleges that prevent the adoption of blackboard resources in their classrooms are related to local culture and perceptions about their ability to adopt technologies, as well as customs and traditions that do not allow the mixing of male and female (Watty et al., 2016). Saudi female students, on the other hand, do not communicate as much with their male professors and fellow students in online courses. In the context of TDT, the amount of transactional distance (potential misunderstanding) in the course increases or decreases depending on the level of communication. According to Moore's transactional distance theory (TDT), the physical separations between the lecturers and the students create a

'transactional distance (TD), which Moore referred to as a communication gap. Moore stated that “distance is a psychological space between the lecturers and the students, which should be bridged by special teaching techniques (Moore & Kearsley, 2012, p. 224).

Cognitive communication is defined, as the mental processes involved in acquiring knowledge through the exchange of knowledge and ideas between two or more entities (Agyepong & Liang, 2022). In this context, cognitive communication is referred to as a method of communicating ideas, knowledge, views, and feelings as information from male lecturers to female students, either through speech (verbally) or through writing or gestures (non-verbally) via the blackboard learning system. Thus, the present study aimed at exploring the potential of the blackboard learning system in enhancing cognitive communication between male lecturers and female students in Saudi Arabia.

Purpose of the Study

The following are the specific purposes of the study:

- i. To investigate the potential of the blackboard learning system on cognitive communication between female students and male lecturers in Saudi Arabian Universities.
- ii. To identify the effect of cognitive communication on the blackboard learning system in sociocultural settings in Saudi Arabian Universities.

Research Questions

The following questions need to be investigated:

1. How does the use of the blackboard learning system influence cognitive communication between female students and male lecturers in Saudi Arabian Universities?
2. How does cognitive communication on the blackboard learning system affect sociocultural settings in Saudi Arabian Universities?

The primary goal of this qualitative study is to examine the role of the blackboarding system in the development of teacher-student communication, as well as contemporary Saudi blackboarding trends, from the perspectives of lecturers and students. This study's method of connecting learning methodologies and cultural influences on theories is significant since it demonstrates practical applications of these ideas, as well as some of their limits in a real-world setting.

The information acquired from this research will assist advance academic disciplines of technology and communication studies by developing an e-learning system that improves the communication

abilities of higher education students. Because no e-learning system has been built to improve communication in higher education, the research will serve as an example of the integration of education and education technology. Using the example of e-learning, e-business experts may create effective online models for products that can be used in Saudi Arabia and other countries with similar cultures. The current study has its limitations as it is only conducted on 5 male lecturers and 5 female students from the same University with more regard to investigating the factors that influence communication between male lecturers and female students through blackboarding system learning. Besides, the study aims to look at the perspectives of individual male lecturers and female students who have used blackboard as the sole medium for communication in an e-learning virtual classroom environment at the Community College of Arar University during the 2021-2022 academic session.

Methodology

Research Design

This study used a case study approach within an exploratory qualitative research design. Case studies were used to investigate students' and lecturers' usage and learning in their communication phase, which occurred via blackboard. The purpose of this study is to explore accounts of individual lecturers' experiences using blackboard as a potential platform for cognitive communication at the Community College of Arar.

Participants Selection

The researcher employed purposeful sampling, which is a qualitative research technique for selecting potential participants who can help, gain insight into and explore the topic under investigation (Merriam, 2002; Campbell, et.al., 2020). For this investigation, only capable and willing participants were chosen. A total of five (5) male lecturers were purposively selected for the interview. The choice of 5 male lecturers is based on the suggestion by Scholars like Goldsmith (1997), Hill et al., (2005), Daniel (2019), and Lakens (2022) that recommended that fewer participants were needed when more than one interview is conducted per participant or when the group of participants is particularly homogenous. More recently, Morse (2000) argued that in a phenomenological study fewer participants could be used, perhaps only 6 to 10 participants are adequate for a study, and Creswell (2014) observed that participants numbering 5 to 25 are suitable for a qualitative study.

Data Collection Techniques

To generate the information needed for this study, an interview was conducted with five lecturers. The interviews were conducted and

recorded electronically via Zoom since participants are practicing social distancing (mostly in their homes) during the COVID-19 pandemic when the data collection was taking place. Before the interview begins, each person will be asked for their consent to have audio and visual recordings of the interviews to accurately capture each session's conversation. Additionally, more than the required number of participants will be contacted via personal emails to avoid attrition due to voluntary withdrawal, technical errors such as network disconnection, and other factors. However, after the data collection, only the number of participants chosen will be used to analyze the results.

Interview

This study looks into the blackboard experiences of female students and male lecturers during the communication phase of learning. An interview was used to investigate the male lecturers' perspectives on the BLS's potential in enhancing cognitive communication. This is regarded as the best instrument for acquiring this type of information since the participants will be allowed to provide a detailed description of their experience (Wilson, Onwuegbuzie, & Manning, 2016; Minikel-Lacocque, 2019; Slade et al., 2020). The interviews were conducted with 5 male lecturers who have been using the learning management system in delivering their lectures with more than ten years of shared experiences in teaching with the blackboard learning platform in Arar community college Saudi Arabia. The lecturers will be referred to using pseudonyms while reporting as a respondent to ensure confidentiality for ethical consideration. An interview protocol was developed by the researcher based on the literature reviewed. The interviews were recorded and transcribed by the researcher immediately after the completion of the interviews for the data analysis. All the information obtained from the interviews will be analyzed using ATLAS.ti9 software into themes, sub-themes, and codes.

Data Analysis Procedure

Zoom's electronic or video-based function ensured that focus group participants' responses were automatically saved and archived, making retrieval, transcription, arrangement, and analysis of this data more convenient and efficient (Janghorban et al., 2014; Howlett, 2022). Data obtained was initially categorized, or coded, based on the interview questions. The researcher categorizes the responses to each interview question after evaluating the responses (Lapan et al., 2012; Hudson et al., 2022). Specific words or codes were created to aid in the simplification of organizing these categories. As themes began to emerge from the categories, data were coded and grouped accordingly. During the review of data, the codes were modified to improve their fit with the data (Lapan et al., 2012). Once all information is appropriately coded, it will be grouped again according to similarities and differences in participants' responses. Both similarities and differences will be

noted, and the information was further analyzed to determine the possible implications of the findings. This process was repeated for each set of interview transcripts. The researcher oversees all aspects of data collection, analysis, and dissemination of the findings to participants (Bogdan & Biklen, 2007). After each interview, the researcher emailed the transcripts to participants for individual review. In short, different qualitative analysis methods such as thematic, and discourse analysis were used to transcribe and analyze the data using ATLAS. ti8 software.

Findings of the Study

This section presents the findings of this study. To interpret the findings, excerpts from the interviews conducted with male lecturers are provided. Whenever needed, quotes from the discussions and excerpts from the interviews were presented to further clarify the findings. The findings are presented based on the research questions as follows: How does the use of the blackboard learning system influence cognitive communication between female students and male lecturers in Saudi Arabian universities?. This research question was answered to explore how the use of the Blackboard Learning System influences cognitive communication between male and female students. Because of the lecturers, many services and features were provided by the Blackboard e-learning management system, as the system allows the teaching content to be uploaded on the electronic platform in several forms (text, pictures, and video), and it also provides services that facilitate interaction and communication between lecturers and students, or among students and each other, such as discussion rooms and virtual classes, in addition to the mechanisms for uploading and correcting assignments, and electronically submitting and marking exams (Varnell, 2016). From the analyses of the male lecturers' responses, four themes were identified with many codes and related quotations as follows:

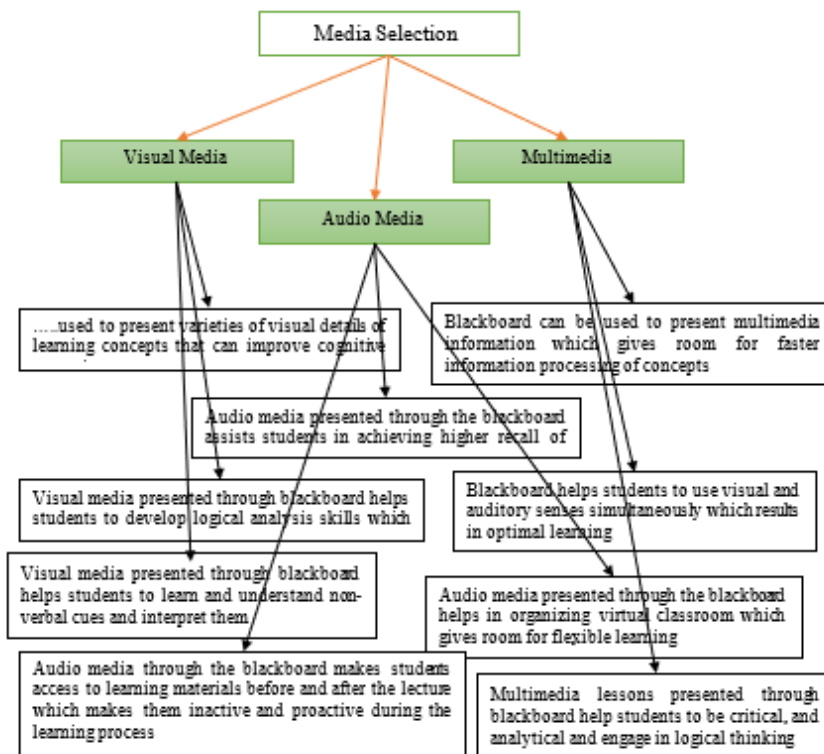
- A) Media Selection
- B) Students' Collaboration
- C) Multitasking learning
- D) Students' Focus

Theme One: Media Selection

Media selection encompasses two things. The first one is a media communication device, while the second one is a communication medium. A blackboard represents a communication device that can be used to prepare and disseminate cognitive information or messages. "Communication media" refers to several methods used in disseminating intellectual information. Blackboard has a significant influence on cognitive communication because it can be used to present

cognitive messages in a variety of ways that allow female students to learn based on individual preference and speed. This is because the blackboard can be used to present visual, text-based, audio, and multimedia cognitive information to meet learners' educational needs. Access to a variety of media selections on the blackboard is supported by the work of Jacek, Tunde, Edmund, and Kurt (2018) on students' and instructors' perspectives on the use of the blackboard platform for delivering an engineering course, where the instructors confirmed that the blackboard was a good platform for developing varieties of learning materials and it was well received by the engineering students. Media Communication is the first theme that emerged from the analysis of the lecturers' views on the influence of the blackboard learning system on cognitive communication. The media communication theme has three linked codes: visual media, audio media, and multimedia. Figure 1 shows the evolving theme, codes, and linked quotes from the perspectives of the male lecturers as follows:

Figure 1: Media selection



All five male lecturers agreed that the use of the blackboard learning system influences female students' cognitive communication since the blackboard system has been designed with visual and audio components and combines the two media in a multimedia form to present information. The platform has the potential to attract the attention of

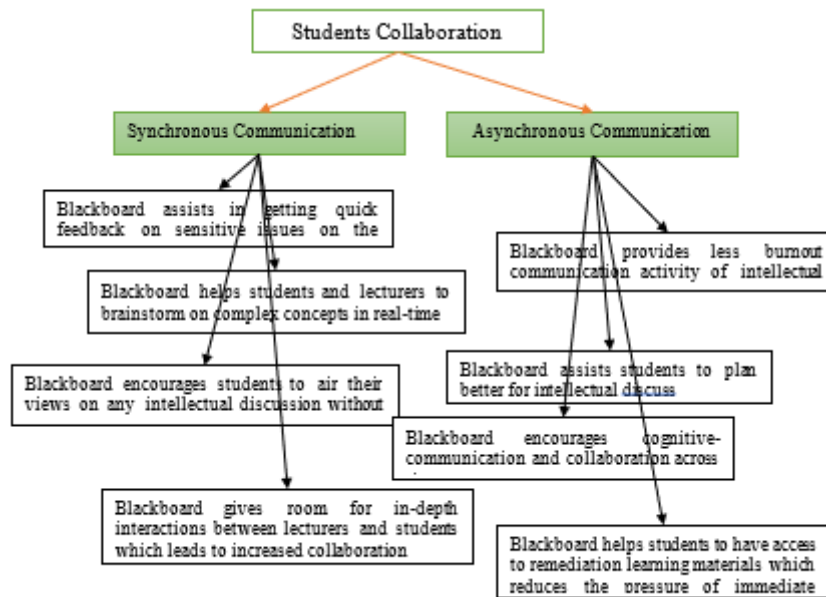
female students as pictures and images can be displayed in addition to sound during learning. In quotation lecturer 1's words, "I often use a blackboard to present varieties of visual details of learning concepts, using a blackboard to communicate with my students." Lecturer 3 supported this statement by stating that "Visual media presented through the blackboard helps students to learn and understand non-verbal cues and interpret them." These two are supported by the work of Bester and Brand (2013), which claimed that teaching students using a variety of media ensures meaningful learning.

2012; & Mintorogo, 2004), which claimed that using technology like Blackboard allows students to receive feedback and be ready for its implementation. Lecturer 4 believes that 'blackboard makes female students become visual preceptors, which helps to increase creativity and conception of learning content. This claim agrees with the report of Abdelhameed (2004) that confirmed multimedia on blackboard helps to develop visual design thinking during the learning process. Using a blackboard for teaching with various media helps female students develop a deeper understanding of the learning content. This view is supported by the work of Milovanovic et al. (2016), which helps students to have meaningful learning through the integration of words and pictures.

Theme 2: Students' Collaboration

Blackboard offers three different modes of collaboration during cognitive-communication, which are synchronous, asynchronous, and hybrid methods. The hybrid method combines synchronous and asynchronous collaborative methods (Alexander, Lynch, Rabinovich, & Knutel, 2014). Another important benefit of the blackboard system is its ability to foster collaboration between students, which invariably influences the way students and teachers collaborate. The five male lecturers interviewed shared several views on the influence of the blackboard system on students' cognitive communication through collaborative roles during learning. There are two codes listed under this theme: synchronous communication and asynchronous communication, with several quotations. The emerging theme and codes were outlined using schematic diagrams in Figure 2.

Figure 2: Students' Collaboration Theme

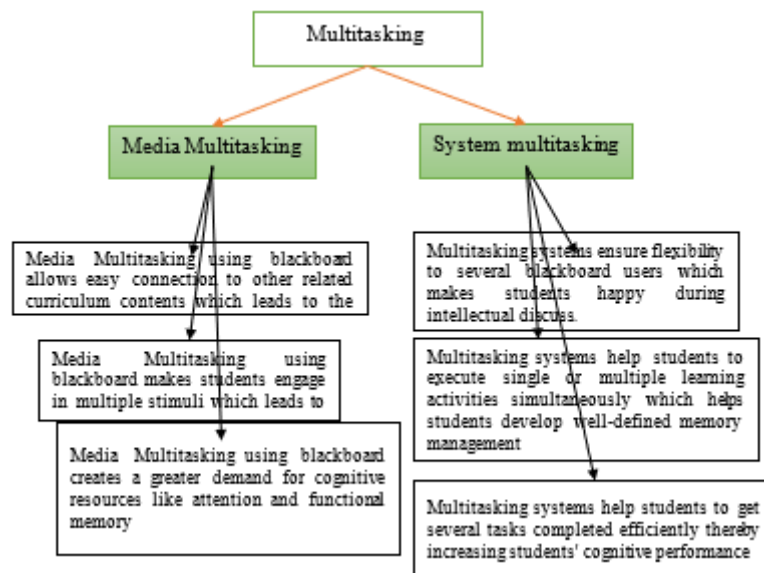


From the results, it was found that there are many associated quotations shared between 'Synchronous communication and Asynchronous communication' codes. Reese (2014) reported that the use of a blackboard presents several advantages to both lecturers and students because it gives room for convenience and flexible exchange of intellectual messages. Findings from the interviews indicated that the use of the blackboard encourages live communication with students and also permits students to engage with other tasks while learning. For example, lecturer 3 said, "Blackboard assists in getting quick feedback on sensitive issues on intellectual matters." Lecturer 4 confirmed that "Blackboard provides flexible and convenient learning. According to Lecturer 5, "the use of the blackboard with synchronous and asynchronous modes allows for the learning of higher-order thinking skills." Lecturer 1 believes that "Blackboard provides room for equal participation and prevents one student from dominating the talk". Lecturer 2 affirmed that "Blackboard reduces virtual isolation during cognitive communication of instructional content. The view of virtual isolation is supported by the work of Ku, Tseng, and Akarasriworn (2013) on the benefits of online delivery modes for online users. The response to blackboard flexibility is confirmed by the work of Buxton (2004) on the advantages blackboard offers for online learners. The response to higher-order thinking was in line with the work of Huang and Hsiao (2015) on the benefits of synchronous and asynchronous modes of discussion. The response on quick response or feedback is in support of the work of Reese (2014) on the delivery of learning materials through the use of blackboard.

Theme 3: Multitasking Learning

Multitasking is exposure to different learning materials and swapping between different media, which may be consecutive or simultaneous (Ophir, Nass & Wagner, 2009). Having access to multiple learning materials simultaneously and the ability to do more than one activity is part of the good characteristics of the blackboard. Students can listen to educational podcasts and take notes at the same time. Students can be driving and can still be listening to audio learning materials at the same time. In short, the blackboard improves students' performance and gets several tasks completed with ease compared to conventional methods of disseminating cognitive information. Findings from the interview sessions revealed two main codes under the theme of 'Multitasking activities' as follows: media multitasks and system multi-tasking. The emerging themes, codes, and quotations were depicted using schematic diagrams in Figure 3.

Figure 3: Multitasking Learning Theme



From the analysis, it can be found that many associated quotations were identified as a result of the male lecturers' interviews. Describe the influence of blackboard use on cognitive communication. Lecturer 1 remarked that "media multitasking using blackboard makes students engage in multiple stimuli, which leads to motivation during learning." Lecturer 2 asserted that "media and system multitasking lead to the good psychosocial well-being of students, including emotional positivity and the influences of blackboard use on cognitive communication. Lecturer 1 remarked that "media multitasking using blackboard makes students engage in multiple stimuli, which leads to motivation during learning." Lecturer 2 asserted that "media and system multitasking lead

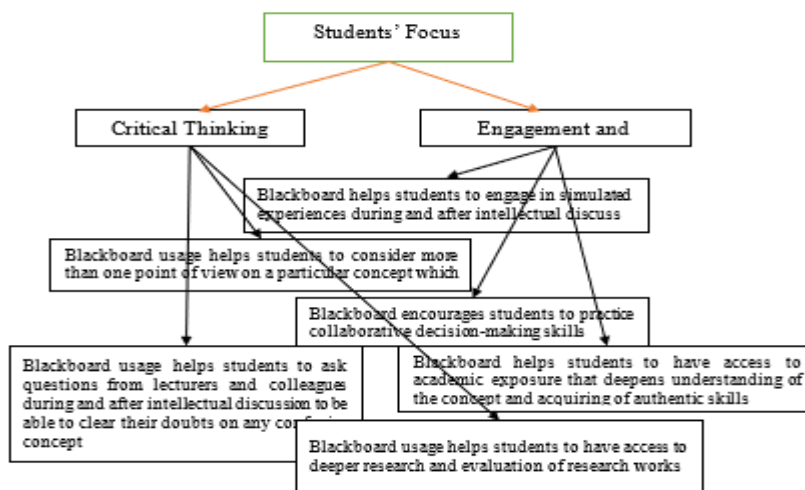
to the good psychosocial well-being of students, including emotional positivity."

enhanced the prosocial behavior of students' activities. This finding is confirmed by Wang and Tchemev (2012) on the positive effects of multitasking on well-being, which leads to emotional satisfaction on cognitive performance. Lecturer 3 claimed that multi-tasking activities on the blackboard help students overcome or reduce stress during intellectual activities. This response is supported by the work of Chen and Yan (2016), which says that multitasking is an indisputable phenomenon in education and life. Response from lecturer 4 affirmed that "multitasking assists students to develop interpersonal relationships. This response is in line with the assertion of Smith (2012) on the benefits of hyper-connected students during academic discussions. Lecturer 5 indicated that "multitasking helps students to achieve many goals at the same time. This view agrees with that of David, Xu, and Kim (2013) on the benefits of interacting with multiple other things during cognitive communication.

Theme 4: Students' Focus

One of the responsibilities that any student is expected to be involved in during any cognitive communication is to pay attention or concentrate whenever an instructional activity is on. This is assumed to be one of the factors to be taken seriously while using the blackboard to learn. It is one of the major building blocks of students' learning. This skill provides a road map for closing learning gaps to attaining mastery of learning content. Moore (2007) referred to it as the power of sense that can be applied to master any intellectual content. This theme consists of two major components: critical thinking and engagement. The emerging theme codes and related quotations are illustrated using schematic diagrams in Figure 4.

Figure 4: Students' Focus Theme



All the male lecturers concluded that in their experiences with the use of the blackboard system in teaching female students, the system stimulates students to think critically in learning and equally makes students concentrate during learning activities. As noted by lecturer 3, "Blackboard in the learning environment can foster female students' capacity to reason." This assertion is supported by the work of Shutkin (2004), who reported that when technology is integrated into the learning environment, it enhances learning capacity. Lecturer 1 stated that "lessons presented through Blackboard make females more engaged during the lessons." This report is in line with the report of Hoagland et al. (2004), which claimed that when a student's blackboard is used to present learning content, female students show more concentration and engagement. Lecturer 2 agreed that "blackboard allows easy transfer of knowledge among female students. This fact was confirmed by the report of Oberlander and Johnson (2004), which opined that technology assists learners to maintain attention on the instructional concept being presented and thus helps in comprehending the concept of the lesson presented. On the other hand, lecturer 4 preferred the use of a blackboard for teaching female students because integrating technology into learning influences students to learn and helps them to engage meaningfully in the learning process". This is backed up by the report of Wise (2003), which claimed that using technology creates a learning ambiance. Responses from lecturer 5 confirm the potency of using blackboard for teaching female students by saying that "its usage helps female students to be active during the lesson. This agrees with the report of Scot and Harding (2004), which supported that the use of technology in the teaching and learning process helps students to learn and lead.

Research Question Two: How does cognitive communication on the blackboard learning system affect the sociocultural settings in Saudi Arabian Universities?

The term 'Social-cultural' simply refers to social standards or traditional issues that are germane in the community where the learners stay. The social-cultural setting, therefore, emphasizes how cultural beliefs and attitudes affect how learning takes place. This term equally stresses how mentors and peers influence individual learning. It can be viewed as the drifts and changes in attitudes and values of people in society which may affect the way people learn and socialize. Saudi Arabia is an Islamic country where women or female learners have a limited amount of time to spend with men that are not their relations and also train to observe strict gender-based rules. This is why the use of technology is necessary to ensure a meaningful transfer of quality cultural values among female learners that are exposed to this limitation. In addressing question 2 above, this section presents lecturers' views on the items of the interview protocol that aimed to explore how the cognitive communication use in the blackboard learning system influence the

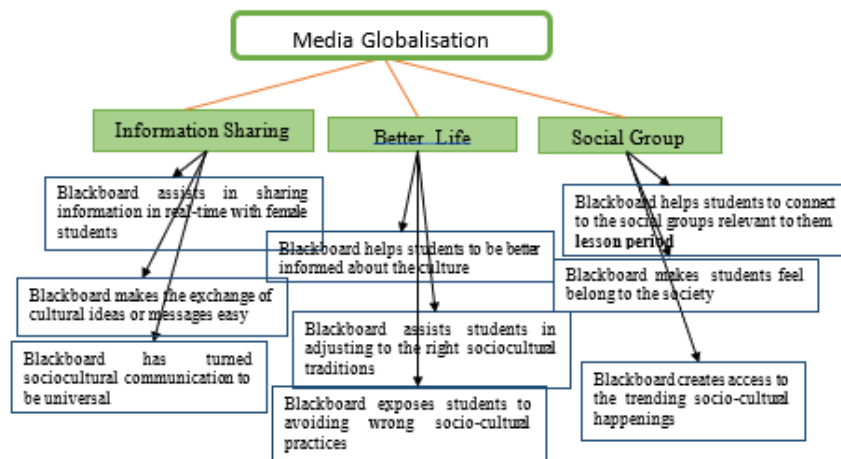
socio-cultural setting between female students and male lecturers in Saudi Arabian universities. Thus, analyses of the male lecturers' views revealed three themes, many codes, and related quotations as follows:

- A) Media Globalisation
- B) Socialization
- C) Bridging Cultural Gap

Theme One: Media Globalisation

Media globalization is the universal incorporation of media through the multi-ethnic interchange of ideas. This helps stimulate the spread of knowledge and technology and also helps in spreading growth potential across countries. Tamandehrou and Khan (2015) opined that media globalization has turned the world into a global village which has encouraged universal citizenship and this allows national cultures to interact. Moreover, through worldwide news broadcasts, television programming, new technology, movies, and music, the mass media are considered as having a significant role in advancing globalization, promoting cultural interchange, and many flows of information and image across nations (Usoro & Abid, 2008). This is to say that, through media globalization, the world seems smaller and brings human beings in closer contact with each other. All these attributes of media globalization can be exhibited by the use of a blackboard for learning when it is properly integrated into the teaching and learning process. Findings from the interview sessions revealed three main codes under the theme of 'media globalization as follows: information sharing, better life, and social grouping. The emerging codes and related quotations were depicted using schematic diagrams in Figure 5.

Figure 5: Media Globalisation Theme



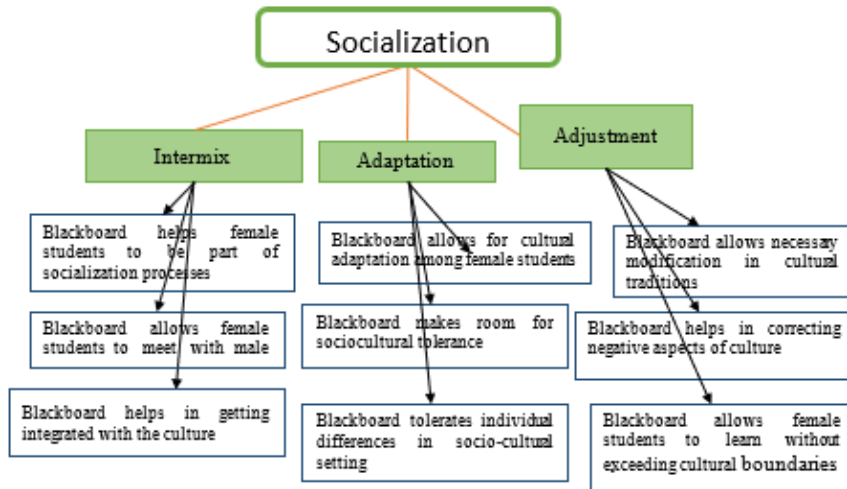
Five male lecturers were interviewed to find out their responses regarding media globalization as it affects the sociocultural setting of

female students in Saudi Arabia. The excerpt from the interview conducted with Lecturer 1 confirmed that "blackboard encourages female students to have access to the exchange of cultural ideas and makes socio-cultural communication universal in real-time. This view is supported by the work of Flew and Iosifidis (2020), which reported that media globalization has established virtual communities online that transcend geographical boundaries and eliminate social restrictions. Then, Lecturer 2 believed that "the use of blackboard connects female students in Saudi Arabia to social groups relevant to their values," and his assertion is corroborated by the report of Holmes (2015), which claimed that the use of media technology can connect like-minded people worldwide. An interview conducted with the lecturer indicated that "the application of Blackboard for engaging female students in Saudi Arabia makes them access to trending sociocultural happenings around the world." This view agrees with the report of Flew (2012), which claimed that media globalization causes the expansion of activities beyond the boundaries of particular nations. Lecturer 4 confirmed that 'the use of a blackboard be used to break the tradition of female students spending less time with male lecturers'. This view agrees with the report of Al Meajel and Sharadgah (2018), which revealed that the use of technology for online teaching breaks the connection between physical place and social place, making physical location much less significant for social relationships. Learner 5 agreed that "the use of blackboard for teaching female students in Saudi Arabia exposes female students to a better life because they choose from several information trends globally. This opinion is supported by the work of Manovich (2001), which claims that technology assists every citizen to construct his/her custom lifestyle and select from a large number of choices.

Theme Two: Socialisation.

The term "socialization" simply means the way people in the community mingle and intermix with people of different backgrounds in society. Socialization in the technologically enhanced community means different ways and methods through which people communicate, either to learn or to entertain themselves. It refers to a network to connect more people from all over the world. This is one of the uses of blackboard technology in the field of education. In this context, Blackboard can be used to communicate simultaneously with several female students that have limited time to spend outside, just like in the case of Saudi Arabia. This theme has three codes and several related quotations, which are examined during a one-on-one interview with the 5 male lecturers and their responses during the interaction as in Figure 6.

Figure 6: Socialisation Theme



This shows that the use of technology helps children’s socialization and improves their social connections by participating in academic debates, information sharing, and teaming up a piece of knowledge during intellectual discussion. According to Lecturer 2, "the use of the blackboard assists female students to adjust and get ready to learn during cognitive communication. This assertion is supported by the work of Kong (2011), which emphasized that the use of technology in education has a positive impact on students, enhances the learning process, and fosters learning ability. According to lecturer 3, the use of a blackboard "makes female students feel free to interact and learn faster without fear." This claim was in line with the report of Chen, Teo, and Nguyen (2019), which says that the use of technological equipment in teaching enhances the student's ability to learn and improve communication skills, among others. Lecturer 4's view affirmed that "the use of the blackboard helps female students to participate in both academic and non-academic activities in the school." This claim agreed with the finding of Kardefelt (2017), which confirmed that the use of technology in education increases the analytical capacity and creative thinking of students to be able to participate in both academic and non-academic activities. An interview conducted with lecturer 5 indicated that "the use of the blackboard helps female students to adjust to the negative side effects of culture and they can share information with their colleagues with ease. This supported the finding of Nikolopoulou (2018), which affirmed that educational technology has opened new opportunities for learning students regardless of their gender to share content universally.

Conclusion and Recommendation

Blackboard has a significant influence on cognitive communication because it can be used to present cognitive messages in a variety of ways that allow female students to learn based on individual preference and speed. Because of the lecturers, many services and features were provided by the Blackboard e-learning management system. From the analyses of the male lecturers' responses, four themes were identified with many codes and related quotations as follows. Using a blackboard for teaching with various media helps female students develop a deeper understanding of the learning content. The platform has the potential to attract the attention of female students as pictures and images can be displayed in addition to sound during learning.

Blackboard offers three different modes of collaboration during cognitive-communication, which are synchronous, asynchronous, and hybrid methods. The use of a blackboard presents several advantages to both lecturers and students. It gives room for convenience and flexible exchange of intellectual messages. The blackboard encourages live communication with students and also permits students to engage with other tasks while learning. Another important benefit of the blackboard system is its ability to foster collaboration between students and teachers.

Therefore, training courses should be organized for the Blackboard e-learning management system and distributed to suit the lecturers' schedules. Also, both male and female students should be Provided with video clips to explain the tools and capabilities that are easy to access at any time and be short and targeted by e-mail. There is also a need for intensification of training courses for the Blackboard e-learning management system for both lecturers and students. Facilitating access to technical support for the Blackboard Learning Management System by publishing numbers and support e-mail for quick and direct communication with support officials. and providing training courses for the Blackboard Learning Management System for university students in basic skills.

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