Faculty Members' Digital and Instructional Practices in E-learning Programs at Saudi Universities

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By

Ibtisam Alhasaf

Approved By:

Major Professor: Raymond A. Dixon, Ph.D.

Committee Members: Janine Darragh, Ph.D., Ahmed A. Ibrahim, Ph.D.,

Areej A. Alosaimi, Ph.D.

Department Administrator: Raymond Dixon, Ph.D.

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Abstract

With the increasing popularity of e-learning programs, educational stakeholders are attempting to promote the successful implementation of interactive e-learning programs. Scholars have long tried to understand how faculty members perceive and practice e-learning instruction in Saudi universities, where e-learning is a relatively new concept. A few studies conducted in different regions of the Kingdom of Saudi Arabia have investigated faculty members' perceptions. This study added to the limited body of knowledge on Saudi faculty members' perceptions of their practices in e-learning programs. This qualitative study recruited 17 instructors from six universities in Saudi Arabia using a generic qualitative inquiry approach. Semi-structured interviews with the participants were used to collect data. Findings indicated that the participating faculty members have a variety of practices and experiences regarding implementing an interactive e-learning program. These experiences were conceptualized in four main themes: interactive activities, assessment, multimedia learning material, and students' acceptance of e-learning programs. The present study clarified that instructors use various interactive activities, tests and quizzes for assessment, and videos as the main multimedia tool in their online classes. The results elucidate that students are increasingly accepting e-learning environments and the technologies used in their learning space. The study also throws light on factors affecting the successful implementation of the interactive e-learning program. Exploring these competencies and practices can provide instructional designers, faculty members, directors of online education, and other relevant stakeholders with the present picture of faculty techniques and virtual ability to teach in dynamic online spaces in Saudi universities.

Keywords — E-learning, Saudi Arabia, Semi structured interviews, learning, social media

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Dedication

I am extremely grateful to my mother Thamra for her love, prayers, caring and sacrifices for educating and preparing me for my future. My special thanks go to my father Musfer (late) who always encouraged me and from thousands of miles away before he was gone. I am very thankful to my husband Abdullah and my kids, Saeed, Rose, and Lulia for their love, understanding, prayers and continuous support to complete this research work.

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Chapter 1: Introduction

Background

The internet today is not what it was ten years ago. It has evolved from merely a medium for sharing files, multimedia, and data, into a complete platform where the social infrastructure with all its institutions has taken deep roots. Just a decade back, the World Wide Web activities ranged from sharing multimedia content to updates and blogs. It was mostly just a medium to connect, view, and share. One can say that the internet then was limited by its capabilities, as data sharing and streaming could be done only to a limited extent. The World Wide Web today, however, is a force to reckon with; it has entrenched itself into the deep functionalities of routine human existence, supporting and helping people grow in whichever field they want. It is now possible to share video, audio, and information at incredible speed and volume, and greater efficiency. Slowly, the internet is evolving, and we, as a global society, are evolving with it. How we used to view the practices of the past, such as working at the office, commuting, socializing with friends and family, and even the attainment of education, is being metamorphosed. Freelancers are the next major workforce of the future, transforming the workplace, unlike anything that would have been considered possible earlier. This mighty prowess of the internet has also significantly impacted our take on education and how we thought it could be delivered (Downes, 2005).

E-learning has been gaining increasing popularity and acceptance around the world (Downes, 2005). Almost all contemporary educational institutions are implementing some form of e-learning in one way or another (Marchisio, Rabellino, Spinello, & Torbidone, 2017). We are using the term of e-learning as the "innovative approach to education delivery via electronic forms of information that enhance the students' skills, knowledge, or other

learning performance" (XaymoungNhoun et al., 2012, p. 843). A glaring example of such a trend is the Massachusetts Institute of Technology (MIT) open courseware program that aims to make educational information, including course books, quizzes, assignments, and lecture notes, available to students around the globe without even the need for registration (MIT, 2020). This project is the first of its kind where a world-class university is allowing access to all those who wish to learn, without any kind of prerequisites or fees. But e-learning is a relatively new concept with a lot of skepticism in certain regions of the world. Moreover, there are also concerns about the level and quality of education that can be imparted to the students when not in a traditional classroom (Yamani, 2014).

This study investigated the emerging trends of e-learning with a focus on higher education in the Kingdom of Saudi Arabia (KSA). Although there have been some studies published on the effectiveness of distance learning through the use of digital technologies (Arkorful, 2014; Qureshi et al., 2021; Brindley, 2009), important variation in educational structures are not thoroughly discussed. This is especially true in the case of KSA. Education through e-learning is not only composed of the course material and the solution of assignment problems, but it is deeply affected by the students' culture and the influence of the teacher's thought processes. Important dimensions of education, such as teamwork, connectivity, social integration, and the flow of cultural values in e-learning groups, need to be analyzed in detail to ensure desired and targeted outcomes are achieved. Moreover, there is a need to analyze the outcomes of e-learning through various studies to determine whether the metrics used to establish outcomes give a complete picture. This study will explore faculty members' perceptions of efficient methods in utilizing e-learning in higher education programs, specifically in KSA.

The paper is organized in the following manner: Chapter one presents the problem statement, the purpose of the study, the theoretical framework, the significance of the study, and the definition of terms. Chapter two discusses related literature, introduces the term e-learning, and throws some light on its history in general and in KSA. Chapter three describes the research methods and procedures used in generating the study findings. Chapter four presents findings from conducted interviews. Finally, in Chapter five, the paper concludes with significant findings, discussions, and scope for future research.

Statement of Problem

Saudi Arabia has established 42 colleges and universities across the country with new technological infrastructure. These universities in KSA are playing an essential role as leaders in teaching and learning by significantly increasing their focus on e-learning approaches. With the advancement in technology and rising costs of human and other resources, these universities have shifted to e-learning and blended learning environments. Several universities have introduced e-learning environments to some of their degree and vocational programs in the past decade. Physical distancing protocols due to COVID-19 have also added to the need for e-learning environments in all educational disciplines (Alobathani, 2021).

While many universities in Saudi Arabia understand the needs and benefits of e-learning, some institutions are still not prepared for the challenges associated with e-learning. Unfortunately, some universities have achievement gaps in their e-learning programs and some faculty members are not effectively utilizing technology in their courses (Al-Sarrani, 2010). Because e-learning programs involve a much larger class sizes and competencies among designers and learners differ to a greater extent (Martin, Budhrani, Kumar, &

Ritzhaupt, 2019), the demand for new pedagogies in learning at different levels have increased significantly in e-learning settings.

Almalki (2011) stated several issues facing the successful implementation of e-learning in Saudi universities. One of them was due to a lack of skills in pedagogical and e-learning instructional designs. Another issue was the inability of websites' designs to increase students' interaction with course content and interaction among students. According to Lebel, Olshtain, and Weiss (2005), ease of use of technology and practical accessibility of e-learning courses determine students' completion rates. Additionally, students who are not used to taking ownership of their learning are more prone to a lack of motivation for e-learning courses.

Advocates of the multimedia social sciences curriculum at Medgar Evers College convey that "multimedia courseware holds students' interest better than typical college course materials do. Students who were interviewed said they enjoyed the feeling of being proactively involved in the material" (Fitzgerald & Olsen, 1993, p. 41). However, most online learning courses for higher education in Saudi universities tend to be very text-based rather than incorporating multimedia tools. Instructors assume that a text-heavy environment is the best way for higher education learners (Alsadhan, Alhomod, & Shafi, 2014), ignoring that visualization is a powerful tool for comprehension. Blackboard is the most dominant Learning Management System (LMS) in Saudi higher education (Alebaikan & Troudi, 2010). However, many faculty members consider it a complex system. They view the producing and posting of instructional materials, recording lectures, and uploading multimedia presentations as challenging tasks (Bayaga & Alghamdi, 2016).

Most studies emphasize the need to implement e-learning models properly. Because learners come from different backgrounds with a variety of skills and competencies, the accessibility of those courses must be simple enough for learners to follow and yet robust enough to achieve the learning outcomes set forth. Further research needs to be conducted to explore fundamental techniques used in KSA for interactive activities, multimedia, and assessment. It is imperative to investigate faculty existing practices and their ability to engage students in the designing of course to ensure quality in Saudi higher education e-learning environments.

Purpose of the Study

The purpose of this study is to explore the perception university faculty members in KSA about their teaching practices in e-learning environments and determine the extent to which their strategies reflect best practices in terms of interactivity, assessment, multimedia learning material, and student's acceptance of e-learning environments at Saudi universities. The following research questions guided this study:

1. What kind of interactive activities do faculty members use to ensure the active engagement of students in e-learning environments in Saudi universities?
2. How do faculty members in Saudi universities assess and evaluate students' academic performance in e-learning environments?
3. How do faculty members perceive the value of using interactive multimedia in instruction?
4. To what extent do faculty perceive students' acceptance of e-learning environments?

Theoretical Framework

Three theories that address efficient pedagogical practices that improve student's academic performance informed this study, Community of Inquiry (CoI), Constructivism, and Connectivism.

Community of Inquiry (CoI)

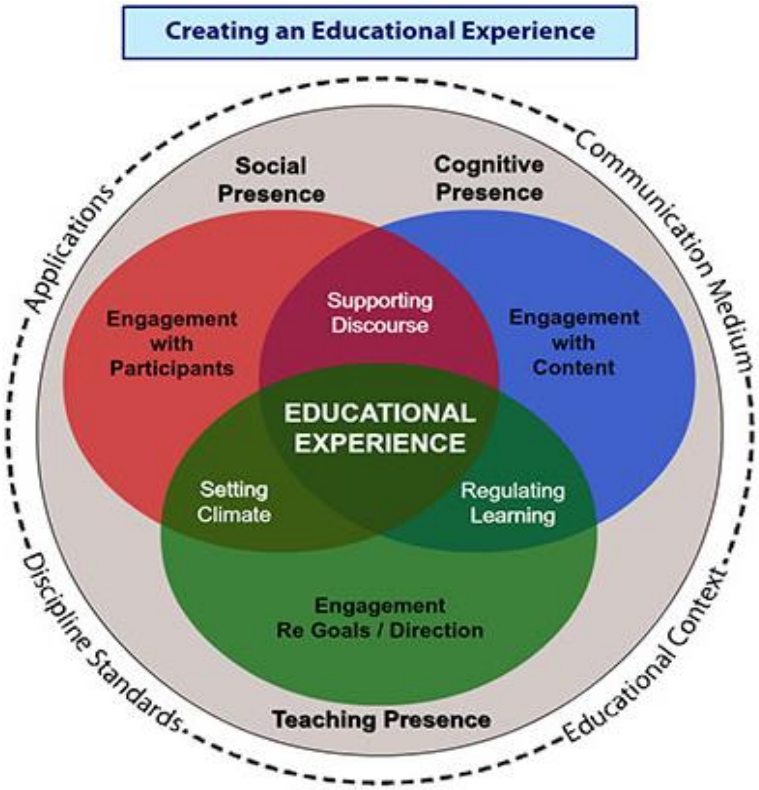
While the Community of Inquiry (CoI) concept was used first by early pragmatists C.S. Peirce, John Dewey, and Jane Addams (1916), the subsequent theory was developed by Anderson, Garrison, and Archer (2000). It is a theoretical framework that is comprised of well-known approaches for designing the best learning experience for the online environment. This framework characterizes a procedure for developing meaningful, deep (i.e., collaborative-constructivist) learning practice and experience via the formation of three interdependent constituents – cognitive, teaching, and social presence (figure 1) (Shea, Richardson & Swan, 2019). In other words, it posits that teaching presence, social presence, and cognitive presence are significant constituents for providing an interactive and successful educational experience in online learning environments (Fiock, 2020). Anderson et al. (2019) developed CoI instructional strategies for instructors, online course developers, and instructional designers to use in teaching online courses. According to Cleveland-Innes, Garrison and Vaughan (2018), this framework is used to create an effective and cooperative online learning environment for knowledge construction.

Social Presence refers to the participant's capability to recognize the community, purposefully communicate in a believing environment, and form interpersonal relations by reflecting their personalities. *Cognitive Presence* refers to the degree to which students confirm and develop meaning via discourse in a critical Community of Inquiry and sustained

reflection. *Teaching Presence* refers to the facilitation, direction, and design of social and cognitive procedures to realize individually meaningful and worthwhile learning outcomes educationally (Garrison, Anderson & Archer, 1999). Each of these presences has indicators and categories. The importance of CoI lies in the fact that, despite its critical reflection's stated objectives of intellectual autonomy, it is fundamentally communal and social in nature. (Shea, Richardson & Swan, 2019).

Figure 1

A Community of Inquiry (CoI) Theory



Note. Reprinted from *Building bridges to advance the community of inquiry framework for online learning.* Educational Psychologist, by Shea, Richardson & Swan, 2022

Implication of CoI Model in E-learning Environment

CoI framework can effectively be used in e-learning. It allows the learners to engage and collaborate so that their social and cognitive skills can be improved, and they can effectively complete their tasks (Shea, Richardson & Swan, 2019; Stewart, 2019). This framework helps to understand the complexities of technology and build a learning environment for the students to address the challenges they face in learning and education. CoI is found to be effective in blended and online learning experiences and assists teachers in providing practical solutions to encourage learners to gain education and improvise their skills.

The incorporation of technology in online teaching fluctuates from developing the use of particular applications, to forming the use of digital spaces for complementing course resources and providing complete online courses through the course management system. In the environment of online learning, particular features of the technology can assist specific teaching and learning activities (Smidt, Chau, Rinehimer & Leever, 2021). For example, Screencast-o-Matic, a free online software that develops high-quality videos (Ngubane-Mokiwa& Khoza, 2021), may be incorporated in a course on a Learning Management System (LMS). This screen capturing tool easily records the screen view of the computer, and users can also narrate what is going on. Therefore, this tool can be used effectively to develop tutorials or to train students, such as a teacher instructing about WordPress by recording virtually and narrating what she is doing on the platform of WordPress (Wan, 2021). Cognitive presence therefore is assisted by the capability to use advanced tools that assist in cognitive processing.

Constructivism

Constructivism can be defined as an approach to learning whereby learners actively construct or develop their own knowledge and understanding and not passively just yield to the information (Bagnoli, 2022). Constructivism depends on the assumptions that students cognitively and socially construct their own knowledge and insight, utilize their past information as a foundation, and expand on it with new knowledge that they learn (Conway, 2003; Merriam & Caffarella, 1999).

Constructivism stands on two tenets that are rooted in cognitive and social theories; 1) As learners interact with their environment, mentally they are actively constructing their own understanding and they create knowledge by going beyond what they are given, and 2) social interactions are important in this knowledge construction process (Chi & Wylie, 2014; Schunk 2016). A study by Tam (2000), highlighted that there are four basic characteristics of constructivist learning environments. These characteristics must be considered when implementing constructivist teaching strategies:

- Knowledge will be shared between teachers and students.
- Teachers and students will share authority.
- The teacher's role is one of a facilitator or guides.
- Learning groups will consist of small numbers of heterogeneous students.

Implication of Constructivism in E-learning Environment

The basic responsibility of the teachers is to develop a problem-solving collaborative environment in which the students would become participants actively involved in their learning. Considering this, teachers work as facilitators of learning instead of instructors (Bagnoli, 2022). They are required to understand the present concepts of students and guide

them accordingly to build new ones. One of the significant features of effective teaching is scaffolding where the teachers adjust the level of their response based on the performance of students. Considering the class environment, scaffolding includes modelling skills, acclimatizing material and delivering cues or hints. It is evaluated that there are seven pedagogical goals of constructivist learning environments (Honebein, 1996). These pedagogical goals are:

1. To provide experience with the knowledge construction process (students determine how they will learn).
2. To provide experience in and appreciation for multiple perspectives (evaluation of alternative solutions).
3. To embed learning in realistic contexts (authentic tasks).
4. To encourage ownership and a voice in the learning process (student centered learning).
5. To embed learning in social experience (collaboration).
6. To encourage the use of multiple modes of representation, (video, audio text, etc.)
7. To encourage awareness of the knowledge construction process (reflection, metacognition).

Connectivism

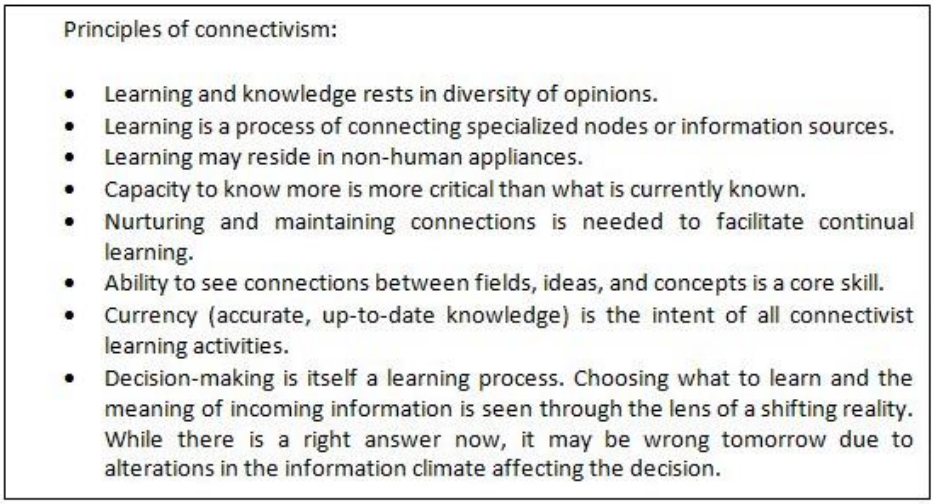
George Siemens (2004) has been the main proponent of connectivism, a theoretical framework that acknowledges major shifts in the way knowledge and information flows, grows, and changes because of vast data communications networks (Picciano, 2017). Connectivism accepts technology as a major factor in the learning process. It focuses on the

role that internet tools like web browsers, search engines, wikis, online discussion forums, and social networks play in creating new learning opportunities (Picciano, 2017). It is argued that Connectivism sets apart from other theories in the view that "learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing" (Siemens, 2004, p.5).

Connectivism Learning Theory acknowledges that the massive data communications networks cause significant changes in the way knowledge and information flow, develop, and change. Learning does not simply happen within an individual, but within and across the networks. Technology enables individuals to learn and exchange information in ways that were not conceivable before the advent of the internet and the World Wide Web. George Siemens developed Connectivism Learning Theory by mapping out a set of principles for connectivism, and these broad guiding statements are listed in Figure 2.

Figure 2

George Siemens' eight guiding principles of Connectivism



Note. Reprinted from Connectivism: Its Place in Theory-Informed Research and Innovation in Technology-Enabled Learning, by Frances Bell, (2011)

Many views that predated the development of these principles saw pupils only as receivers of information. However, connectivism confirmed the assumption that knowledge is dispersed over networks, where links and connectedness influence learning.

Implication of Connectivism Learning Theory in E-learning Environment

Digital technology is something that most people use, therefore, it makes sense that it is included in educational opportunities. Large-scale networks have become indispensable in helping people with managing data and information. Examining a student's educational experience from the perspective of Connectivism theory is informative to both researchers and educators in that it helps us understand the personal and situational factors that promote students' deep engagement in learning.

Connectivism primarily relies on technology, so the first stage in establishing a connectivist classroom is to increase options for digital learning, such as online courses, webinars, social networks, and blogs. Connectivism is particularly appropriate for very high enrollments in online courses, where the learning aim is to develop and create knowledge rather than to disseminate it (Siemens, 2004). The learning responsibilities in Connectivism Learning Theory is transferred from the teacher to the learner. The educator's responsibility is to support students in becoming capable leaders of their own academic and personal growth.

Connectivist Learning works best in e-learning, where students are able to collaborate virtually. E-learning builds on the ideas of the Connectivism Learning Theory— including social interaction, ongoing knowledge exchange, and seeking information through digital channels. Digital tools, like LMS, enable students to form deep connections and exchange knowledge. Some ways to incorporate connectivism in online classes are:

- Social media: For example, using a class Twitter account or Telegram channel to share information, engage in discussion or announce assignment tasks.
- Student blog posts: To improve the support that instructors offer to their students and promote effective networked learning. Through students' blogs, learners can share information and learn from each other on-demand, which fosters an ongoing learning environment in online classes.
- Gamification: Games of class assignments and activities to turn learning into an interactive experience. Teachers can employ a variety of learning-based apps and instructional technology to include gamification in the classroom. For example, Sprite's Quest: The Lost Feathers for geography concepts, DuoLingo for language learning, and Brainscape for adaptive flashcards.
- Simulation: Provides students with opportunities to apply new skills, knowledge, and ideas in a practice setting that mirrors the real world to understand course concepts. The simulation also adds interest and fun to a classroom setting.
- Group Collaboration: Conducting group collaboration and discussion in online classes allows for different viewpoints and perspectives regarding decision-making, problem-solving, and making sense of information. Through group collaboration, students can share information and learn from each other on-demand, which fosters an ongoing learning environment in online classes.

CoI & Connectivism Link to Constructivism

CoI framework and Connectivism are related to Constructivism in that all of them predict the effectiveness of online learning. Both CoI framework and Connectivism are constructivist process models that presume effective online learning requires the

development of community. They view learning through internet technologies and in online environments as a function of the interactions of three elements: social presence, cognitive presence, and teaching presence.

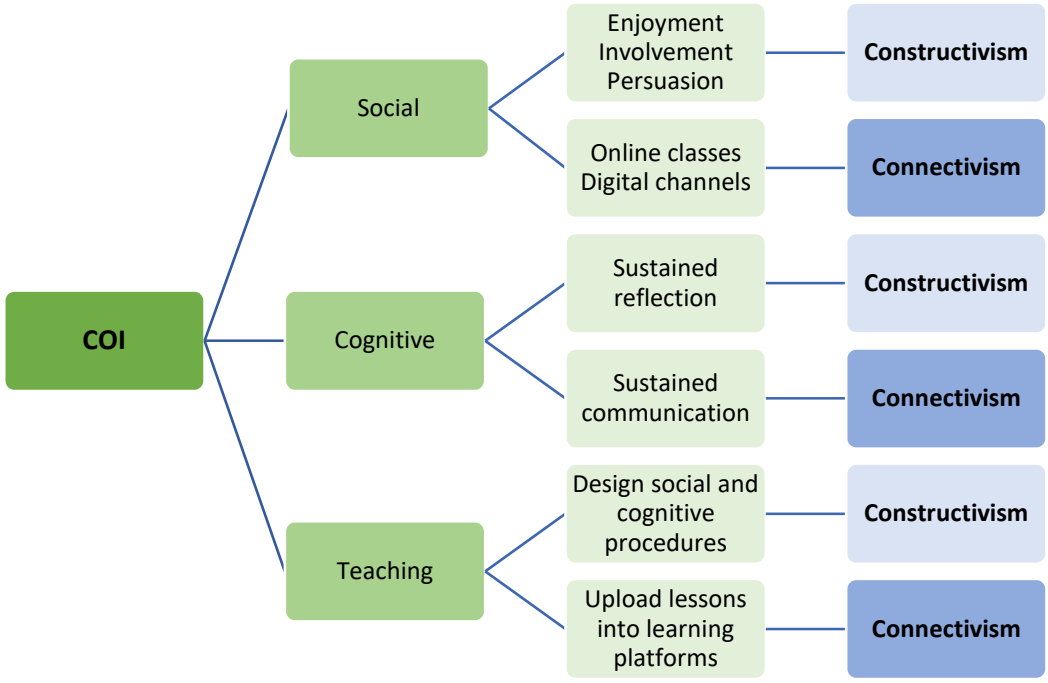
The CoI framework explains how learning occurs for a group of individual learners through the educational experience that occurs at the intersection of social, cognitive, and teaching presence. According to Garrison et al. (1999), online academic staff and students work together to produce a productive online learning environment (connectivism/social presence), where knowledge is constructed (constructivism/cognitive presence), to create an effective online learning environment (CoI/teaching presence). This environment is created by the skillful marshaling of the three forms of presence of CoI framework.

Social Presence, one of the elements of CoI, links to Constructivism when the participant has the ability to perceive the community, he can interact meaningfully in a supportive environment and establishes interpersonal relationships that represent his personality. Indicators of social presence, such as enjoyment, involvement, persuasion, etc., are also indicators that constructive learning is taking place in e-learning. (Figure 3). Moreover, the Social Presence in online classes is conducted through digital tools and channels which promotes the concept of Connectivism that adopts technology as a major factor in the learning process. Cognitive Presence links to Constructivism, where students can confirm and develop meaning via discourse in a critical Community of Inquiry and sustained reflection (Anderson, Rourke, Garrison, & Archer, 2001). Moreover, Cognitive Presence refers to learners' ability to construct meaning through sustained communication. (Anderson, Rourke, Garrison, & Archer, 2001). Through sustained reflection, students will be able to structure and build concepts. In addition, Cognitive Presence is related to

Connectivism when it gives learners the opportunity to build information, form their own opinions, and learn from others in an informal and safe space in online environments. Teaching Presence supports Constructivism through facilitation, direction, and design of the social and cognitive procedures to realize meaningful and worthwhile learning outcomes from the constructed knowledge. Through technology (Connectivism), teachers can upload lessons, instructions, activities, and videos into learning platforms, thus making possible their teaching presence.

Figure 3

CoI & Connectivism Link to Constructivism



Connectivism Learning Theory builds on the ideas of Constructivism, including social interaction, ongoing knowledge exchange, and seeking information through digital channels. Digital tools, such as LMS, enable students to form deep connections and exchange knowledge. Online discussion, sharing information, and learning from each other on-demand

allow different viewpoints and perspectives when it comes to decision-making, problem-solving, and making sense of information.

Significance of the Study

Several studies have tried to understand how faculty members perceive and practice e-learning instructions in Saudi universities, where e-learning is a relatively new concept. A few studies conducted in different KSA regions have investigated faculty members' perceptions (see Alajmi, 2010; Almuqayteeb, 2009; Al-Sadoon, 2009; Al-Sarrani, 2010). This study will add to the limited body of knowledge on KSA faculty members' perceptions of their practices in e-learning and shed light on how their strategies reflect best practices in e-learning in terms of interactive activities, assessment, and multimedia learning material. Exploring these competencies and practices can provide instructional designers, faculty members, directors of online education, and other relevant stakeholders with the present picture of faculty techniques and ability to teach in dynamic online spaces in Saudi universities.

The research's significance lies in the need for Saudi Arabian universities and scholars to have a general conception of faculty members' existing techniques and their ability to engage students when designing online courses. As more universities in Saudi Arabia start to implement virtual learning, the challenges associated with student engagement and practical assessment and evaluation techniques are becoming more pronounced. Faculty members accustomed to the traditional learning environments are not fully ready and sometimes are resistant to transitioning to the e-learning environment (Cohen, Manion, & Morrison, 2007; Ali & Magalhaes, 2008). Existing teaching ideologies that worked with traditional courses interfere with the effectiveness of e-learning. In addition, the acceptance

ratio of e-learning from students is relatively low (Chumley-Jones, Dobbie & Alford, 2002). These threats are mainly due to the fact that e-learning is a new addition to the Saudi education system (Alenezi, 2012). Accordingly, the findings of this study will enrich the base of knowledge that exists in this field.

This research study will also help determine the nature of the type of groundwork that is needed to implement better e-learning programs. As more institutions establish e-learning platforms, students' assessment and their interest in engaging in e-learning classes are critical (Naveed, Muhammad, Sanober, Qureshi, & Shah, 2017). An efficient and effective e-learning platform calls for a robust technological plan to implement and execute courses. Designing courses with interactive activities and multimedia engages students in the learning process and promotes internal reflection (Keengwe, 2018). When students are on board with the technology and the e-learning program, they are more likely to engage in the learning process and succeed. As a result, universities are likely to see increased student retention rates in e-learning programs. Course designers are expected to ensure students are engaged in the course and that their chances of success are high. Students' buy-in will increase when there are interactive learning methods to increase their participation (Chumley-Jones, Dobbie, & Alford, 2002).

Practical assessment and evaluation techniques allow for effective student engagement. A positive e-learning environment provides tools for feedback about learning, assessing students' progress, and course evaluation. Students' positive academic achievement in e-learning courses is tied to robust evaluation techniques implemented in the program. E-learning courses may not necessarily use traditional assessment evaluation techniques such as surveys or other course evaluations used in face-to-face classes.

Exploring the actual methods used by faculty when teaching in e-learning environments will illuminate researchers and practitioners about areas where they need improvement, and the implementation of best practices will improve faculty and student transition and experiences in these virtual spaces. Therefore, the results of this study will aid in revealing areas of strengths and weaknesses of faculty members' practices in the e-learning system at Saudi universities and identify areas where remedial efforts are needed to achieve the nation's educational goals.

Definition of Terms

The following operational definitions were used for clarity of several specialized terms used throughout this study.

- ***E-learning.*** "The use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for the face-to-face meetings by online encounters" (Guri-Rosenblit, 2005, p.1). E-learning community focuses on using the technology to deliver learning and training programs. "E-learning is to take a course online using a modem, wireless, or cable connection to access academic course material from a computer, phone, or handheld device" (Governors State University, 2008, p.146). E-learning is a term of electronic-learning, which refers to learning conducted through electronic media that intend to support the learning process (Tavangarian, Leypold, Nölting, Röser, & Voigt, 2004).
- ***Massachusetts Institute of Technology (MIT).*** Open courseware program to publish all of the educational materials from its undergraduate- and graduate-level courses online available and free to students around the globe (MIT, 2020).

- ***Saudi Ministry of Education (SMOE).*** A ministry provides educational opportunities for all citizens, raises the quality of its outputs, increases the effectiveness of scientific research, encourages creativity and innovation, develops the community partnership, enhances the skills and abilities of educational members. It also supervises general education, university education, studying abroad and accommodates electronic services to its members in Saudi Arabia (Saudi Arabia's National Unified Portal for Government Services, n.d.).
- ***A learning management system (LMS).*** A software application or web-based technology used to plan, implement and assess a specific learning process.
- ***Online Interactive Activities.*** Educational activities to engage students online in a number of ways to engage with content, rather than passively absorb it (Algonquin College of Applied Arts and Technology, n.d.). They can help students truly connect with the e-learning content and immerse online learners in the environment.
- ***Assessment.*** The wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (Glossary of Education Reform, 2015).
- ***Multimedia***. Using a computer to combine sound, video, graphics, and text tools with links to express ideas to students (Defining Multimedia, n.d.).

Chapter 2: Review of Related Literature

Definition of E-Learning

Many different definitions of e-learning have been presented, each focusing primarily on a certain aspect of e-learning. For example, Mason and Rennie, in their famous book about the basic framework and the key concepts in e-learning, talked about the problems with defining e-learning. E-learning has been defined through a myriad of ways and structures, some focused on the technological aspect of e-learning while others focused on the delivery system that distributes it from one mind to many others (Mason & Rennie, 2006). Delivery systems are different in conventional classrooms versus e-learning classrooms. In traditional classrooms, the teacher and the students are in a closed environment where the teacher has the full attention of the students. The physical presence of a teacher in close vicinity enhances his capability to effectively deliver the lecture without interruptions, and he can get instant feedback from studying the students' body language. In e-learning environments, however, the teacher does not have this kind of access to student feedback, keeping in mind the multi-window platforms of video link software shows only small thumbnails of the student's face (Mason & Rennie, 2006). E-learning environments therefore limit the capacity of a good teacher to effectively deliver his lecture.

In an analysis of conceptual frameworks of e-learning, Sangra, et al., (2012) pointed out the conceptual differences in the definitions and frameworks of e-learning presented by researchers. Most researchers from educational institutions defined e-learning as a new method and tool for teaching rather than a completely new system of its own. These conceptual differences are referred to as the Educational Paradigm Theories, which insist e-learning is merely a tool for education, therefore, on its own, e-learning is not able to sustain

itself or produce results that are even close to the traditional system. The use of computer technology, networks, internet, and communications through technological innovations to enhance the structure, efficiency, and delivery of educational systems is considered as e-learning (Aldrich, 2005).

The following is a concise list of definitions from a variety of sources including websites, journal articles, conferences, and renowned books. They have been chosen to ensure that many of the leading aspects of e-learning are presented, in an effort to establish a broader understanding of the issues at hand.

- "E-learning is a broad combination of processes, content, and infrastructure to use computers and networks to scale and/or improve one or more significant parts of a learning value chain, including management and delivery" (Aldrich, 2005, p.24).
- "E-learning refers to educational processes that utilize information and communications technology to mediate synchronous as well as asynchronous learning and teaching activities" (Jereb, et al., 2006, p.3).
- "E-learning is defined as information and communication technologies used to support students to improve their learning" (Ellis, et al., 2009, p.17).
- "E-learning is education that uses computerized communication systems as an environment for communication, the exchange of information and interaction between students and instructors" (Bermejo, 2005, p.141).
- "E-learning is the delivery of a learning, training, or education program by electronic means" (Li, et al., 2009, p.37).
- "E-learning is the delivery of educational activities relevant to instructing, teaching, and learning through various electronic media" (Koohang, et al., 2005, p.77).

- E-learning is “a relatively new field for both practice and research. Its disciplinary cornerstones and precursors include instructional technology and design, distance education, and educational psychology. E-learning combines insights from these fields with an emphasis on Internet and Web technologies in general” (Friesen, 2008, p.5).

Therefore, e-Learning is the dissemination of human knowledge in all its forms through the use of modern technologies and digital media to people so that they can effectively improve their skills, capabilities, and understanding of knowledge, regardless of the place or region in which they are located.

Differences between E-Learning, Distance Learning, and Computer-assisted Learning

The use of modern technologies to expand the horizons of the educational system has brought with it a plethora of new terms and meanings that define the process of learning through technologies. These terms are often misinterpreted for their true meaning, and most of them have boundaries that are either unclear or intertwined with another field (Stauffer, 2020). Commonly used terms for the process of learning through technology are e-learning, distance learning, and computer-assisted learning. These terms are not mutually exclusive, and they have more things in common than differences between them. An important point to understand is that as the process of e-learning becomes more mainstream, the terms we use are refined by the process of research, study, and analysis. We will analyze the most found and often mistaken terms in the field, but first we establish the grounds that will differentiate them (Stauffer, 2020). They are:

- The location of the learner, or the distance between the teacher and the student.
- The intent and the purpose of the study.

- The intended level of interaction that is taking place between teaching mechanism and the learner through the setup.

By keeping these three core differences in mind, the current literature will be analyzed to study the main distinguishing features of these terms.

Computer Assisted Learning

Computer-assisted learning or CAL was the first use of modern technology that started in universities as a way to enhance learning in undergraduate students (Suppes, 1968). It involves a simulation or program that guides students along the process of learning complex problems or mastering skillful techniques. Basically, it is the use of computer programs to teach students skills and techniques that are required to be repeated over and over to achieve proficiency. CAL is found abundantly in medical universities worldwide (Greenhalgh, 2001). It is costly to develop, but once the software and the necessary equipment for CAL are obtained, it can teach generations of students with minor modifications from time to time. The volume of students in universities has multiplied from what it was a few years ago, and there is pressure on universities to increase educational quality and decrease fees (Lapovsky, 2018). One way to do it is by funding schemes, but the other more efficient way is to reduce the workload on human elements with the assistance of machines. This lowers costs, and according to studies on CAL it increases the capability and training of students, producing promising results (Greenhalgh, 2001).

Distance Learning

Distance learning initially shot to popularity as a great tool for educating those parts of the world that were completely deprived of access to education and training. It is used as a very effective tool to penetrate rural or underdeveloped regions within a country that don’t

have effective learning systems in place (McQuaide, 2009). It involves digitized course material along with supplementary quizzes, assignments, and tasks that are delivered to students through the internet, DVDs, or any other form of digital media transport (Downes, 2005). In the context of the situation, it is a highly effective innovation. Rural and remote areas, and even economically limited countries, do not have the resources to fund universities and pay expensive tutors (McQuaide, 2009). Distance learning is a highly effective method to bring these students knowledge and education from advanced educational institutions so that these students with limited access to resources would have a fighting chance when competing in the market for jobs, or applying to universities (Traxler, 2018).

Differences According to Core Values

The differences between distance and computer-assisted learning can also be expressed in terms of their value in regard to their intent, location, and interaction.

- The intent or the purpose behind CAL is the use of computer technology to develop skills and techniques in students, e.g., medical students train for long hours doing the same operation on computer-assisted simulations to perfect their techniques. Interaction between students and the machine is maximum, but the student does not interact with the teacher that much since the main purpose is to reduce teacher load in this situation (Greenhalgh, 2001). CAL can be started and evaluated at remote locations where the software and connections are available.
- Distance learning provides the main course and supplementary material to disseminate knowledge to areas deprived of it. The main purpose is to allow the students to educate themselves. Interaction does not exist in this kind of learning, and communication only flows one way, from the teacher to the student (Dirani & Yoon,

2009). Therefore, the educational impact of such a technique is limited. Distance learning is available at any remote location where a USB or DVD could be taken and played.

- In e-learning, the intent is to create a complete classroom like environment in which students can not only learn the course material but also get educated in teamwork, character building, and other important traits that produce a completely educated person (Ellis, et al., 2009). The intent is to expand the concept of the classroom beyond the classroom walls. Since e-learning is a complete educational doctrine, the interaction must be maximized to the fullest extent possible. Both the teacher and the student have two-way communication with the added advantage of tools available at their disposal to enhance the learning experience. The location is remote, and the teacher and the student can be separated by any amount of distance. However, strong internet connectivity is a must in e-learning to allow for continuous, uninterrupted communication streams. On the other hand, the internet is not a requirement for distance and CA learning.

Blended Learning System

A blended learning system refers to the introduction of e-learning tools in a traditional classroom setup. The physical presence of a teacher and his interactive personal communication encourages the students to participate more in the learning process (Murphy & Manzanares, 2008). A study conducted in the US suggests that more than 78% of the interviewed 1000 students still preferred to learn in traditional classrooms than in non-conventional ones (Karambelas, 2013). Students feel involved when working in groups together with their classmates to achieve an outcome. Team spirit is higher in a traditional

classroom than in an online one, where interactivity is limited to web-based tools (Sethughes, 2020). Whereas a traditional classroom is more comfortable for students, some tools and techniques in e-learning are very effective at training and teaching the students. The time in a traditional classroom is less as compared to e-learning modules where students can take a course or a part of that course over and over again, taking as much time as they want to give it (Aljaber, 2018).

With e-learning gaining increasing popularity in modern universities (MIT, 2020), there are a plethora of web-based tools readily available in the market to assist in the process. These range from online video conferencing, course management, group chats, group simulations, cloud storage and file sharing tools that make it convenient for the students to learn and connect. But since it is a new industry, the software is untested and littered with bugs. Zoom is a popular video conferencing tool used for online classes among other things. Hackers got access to the webcam of millions of users jeopardizing their privacy (Fire, Goldschmidt & Elovici, 2014). Moreover, it sometimes just takes one wrong click to be connected to a complete stranger. Similarly, the software for connecting students with their peers and course materials are also new and untested. They do not keep in mind the learning environment and the student's specific needs, instead repurposing already existing technology for E-learners. The haphazardly made web-based tools do not contribute towards providing a conducive learning environment to students. A lot of tools have come and gone with no results to show in students learning (Anderson, 2020).

By combining the best attributes of both ways of teaching, traditional and e-learning, we get a blended learning model. Blended learning models have been gaining increasing popularity in modern classrooms all over the world (Alebaikan & Troudi, 2010). The reason

is that students find it easier to use the modern e-learning tools in the presence of an instructor, gaining full advantage of them. Moreover, a blended setup supports the modern techniques of learning with the traditional, more comfortable, setup of a traditional classroom. It is suggested that instead of directly introducing students to pure e-learning models, they must first be introduced to blended environments. This will enhance their learning and understanding of the tools, and they will feel more comfortable with distance learning when they are familiar with the environment and the tools (Murphy & Manzanares, 2008).

Relevant Theories for E-learning

Pedagogical practices are methods or practices adopted by teachers or educators to promote and support the lifelong learning of learners. The experiences and learning opportunities help to promote spontaneity, and creativity and link theories to practices via an evidence-based approach. This study framework addressed three theories including Community of Inquiry (CoI), Constructivism Theory, and Connectivism to concern the evaluation of efficient pedagogical practices that improve student's academic performance.

Community of Inquiry

A Community of Inquiry (CoI) theory is a model for online learning environments developed by Anderson, Garrison, and Archer (2000). CoI concept was used first by early pragmatists C.S. Peirce, John Dewey and Jane Addams. It purports the concept of three presences; cognitive presence, social presence, and teaching presence; in the learning space. These presences are interdependent, as depicted in Figure 4. Anderson et al. (2019) generated CoI instructional strategies for instructors, online course developers, and instructional designers to use in teaching online courses (Fiock, 2020). Their model supports the design of

blended and online courses as active learning environments requiring interactions among students and instructors. Anderson et al. (2019) believe that "presence" is a social phenomenon that manifests itself through sharing ideas, information, and opinions between instructors and students (Picciano, 2017). Cognitive presence refers to the academic content and engaging of the mind in the online environment (Anderson, et al., 2001). This presence refers to the extent to which students are able to build and confirm concept through sustained reflection and discourse in a critical Community of Inquiry (Garrison, Anderson & Archer 1999). Teaching presence is defined as designing, facilitating, and directing cognitive and social processes with the goal of achieving personally significant and educationally valuable learning outcomes (Anderson, et al., 2001). Teaching presence is how the teacher participates in and leads the class, and it could be a little trickier to achieve in an online setting. Each function of designing, facilitating, and directing cognitive and social processes, includes multiple activities. Designing process includes finding and creating curriculum materials, planning lesson sequences, and creating assignment guidelines and evaluation criteria (Anderson et al., 2001). The facilitation process includes monitoring and commenting on students' work to model the type of students' contributions and engagement in the course. The third function, directing cognitive and social process, includes taking on a guidance role, checking in with students regularly, offering the greater content knowledge to confirm understanding, help students correct misconceptions, and offer resources (Anderson, et al., 2001).

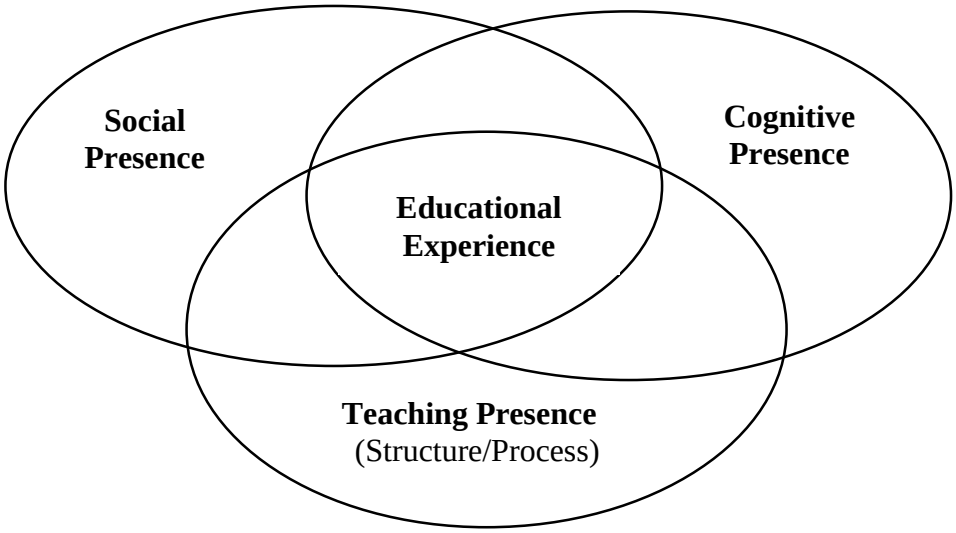
According to Lowenthal & Lowenthal (2010), "social presence is a theory that explains the ability of people to present themselves as 'real people' through a communication medium. Most studies on social presence focus on how students present themselves and/or

are perceived as ‘real’ people online” (p. 1). Teaching presence is the instructional design, facilitation discourse, and direct instruction of cognitive and social processes to support learning (Garrison & Arbaugh, 2007; Garrison et al., 2000; Fiock, 2020).

CoI in Online Learning Environments is used to create interactive and meaningful educational experiences among students and faculty using discussion boards, blogs, wikis, and videoconferencing (Fiock, 2020). The Community of Inquiry (CoI) has become one of the most widely used frameworks for building communities online, particularly for higher-order learning (Akyol, 2009).

Figure 4

Designing a Community of Inquiry in Online Courses



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Constructivism

Constructivism depends on the possibility that individuals effectively build or make their insight; students utilize their past information as a foundation and expand on it with new knowledge that they learn (Conway, 2003; Merriam & Caffarella, 1999). People have various perspectives on how the world functions, and they utilize this view to interpret the information they are attempting to learn (McGill, 2016). Students as well need to have learning material to interact with and interpret in a way that fits their manner of constructing knowledge (Ihlström & Westerlund, 2013).

Most of the hypotheses about interactive learning are supported by the constructivist view. Studies found that efficient classrooms rely on constructivist strategies for learning (Powell & Cody, 2009). Jonassen (2008) recommended that constructivism principles be used in the design of online classes to engage students in active, constructive, intentional, authentic, and cooperative activities for learning. Resnick (2007) argues that today's digital tools can play a significant role in learning and adopting the constructivist view in designing courses will develop learners as creative thinkers. Interactive learning environments will also enhance learners' critical thinking (Wang, Woo, & Zhao, 2009).

Connectivism

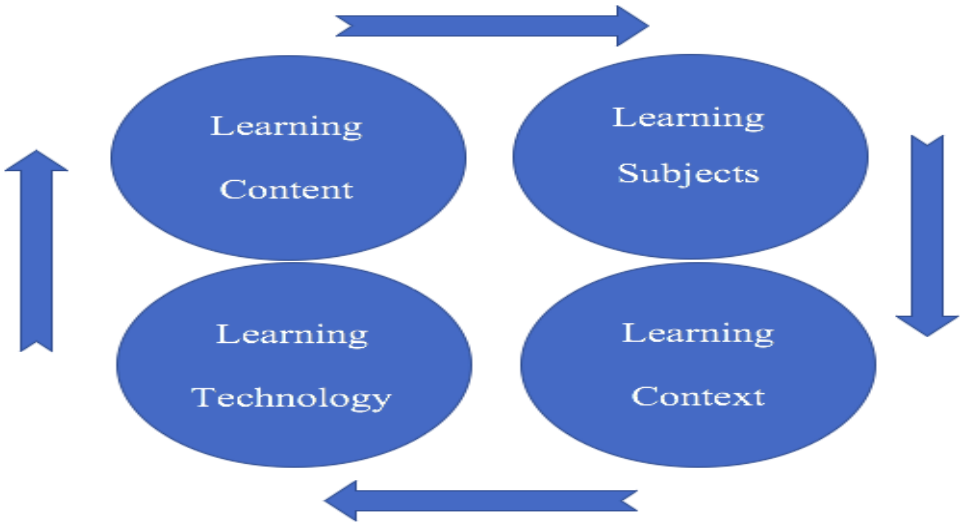
Connectivism was introduced as a coherent theory by two theorists, George Siemens and Stephen Downes in 2004. Siemens published online his article "Connectivism: Learning as a Network Creation" in 2004, and Downes' article "An Introduction to Connective Knowledge" was published in 2005. It can be described as a network theory of learning and knowledge that focuses on using digital technologies to enhance and extend online interaction (Siemens, 2004). This initial idea was developed further through debate and

improvements at a conference on connectivism in 2007 and a series of extensive online courses titled "Connectivism and Connective Knowledge" (2008, 2009, 2011, 2012). Networked learning communities and information technologies is a central idea of connectivism where it offers a framework for understanding students' use of information resources as well as students' knowledge creation processes. (Figure 5).

Siemens (2005) found that conventional learning theories, like behaviorism and cognitive, cannot account for learning-based technology in educational institutions. According to Siemens, the explosion of knowledge and how learning happens in such an environment cannot be explained by classic learning theories, which are not developing as quickly as technologies (2005). As a result, Siemens' famous article titled "Connectivism: A new learning theory for the digital age" was written based on the constraints of traditional learning theories (Banihashem & Aliabadi, 2017).

Figure 5

Connectivism Learning Theory



Downes, (2012), characterized the Connectivism in his book "Connectivism and Connective Knowledge" as "The thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks" (p. #). The most thorough explanation of connectivism in recent years may be found in Al Dahdouh, Osórioand, and Caires (2015). They started by examining connectivism as a theory of knowledge and provide the following summary: "It does not make sense to consider learning merely as an internal construction of knowledge. Rather, what learners can reach in the external network should be considered as learning. Moreover, the knowledge itself has a structure; it is not something fuzzy or mysterious. It is complex and chaotic, of course, but it has a structure" (p. #).

According to the works of literature in this context, there is enormous potential for students to experience Connectivism in learning environments. Neville, a teacher in a Canadian community college, participated in CCK08 and CCK09, the Connectivism and Connective Knowledge MOOCs. He experimented with Web features such as blogs and wikis in his class. After this experiment, he was prepared to use these small innovations in a more comprehensive approach which encouraged the active learning of his students increasingly (Bell, 2011). He was able to implement innovations in his classroom using the connectivism lessons he had learned, and he reflected on the results of using them. Student blog posts and reflective assignments improve the support that instructors offer to their students and promote effective networked learning.

Studies on the Success and Limitations of E-learning in Higher Education

Most educators approach the e-learning paradigm with varying degrees of enthusiasm and concern. E-learning has only been around for a few years, and as is with new

innovations, we need time and experience to further our understanding of the intricacies involved so we can be better prepared to face the challenge of working in this new environment as well as embrace the new opportunities that it has to offer. This portion presents an analysis of the current issues and success regarding e-learning in higher education systems.

Success

Feedback and Assessment

The e-learning system has a very expansive space for student improvements, provided that the student yearns to improve. The e-learning system has an inbuilt feedback and assessment structure that is very reflective for the student as he slowly progresses through the course. The teachers in e-learning systems are not only spectators who are there to just observe and guide, but they are co-researchers and team leaders of groups of students that lead them to solve the problem in a faster and more efficient way (Berge, 2002). Good assessment and feedback should be emphatic, encouraging, and educational and only then can it produce positive results (George & Cowen, 2016). This means that feedback in an e-learning environment must keep in mind the human element and take care of the students' sensitivities. Moreover, assessments must be educational so that they may add value to the students' knowledge, and feedback should always be encouraging for the student. According to Hyla, (2015), feedback and assessments in e-learning environments cannot be the same as in traditional classrooms, e.g., saying "bravo," or "wrong answer" in an e-learning environment would be counter-productive. The feedback must be constructive, detailed, and helpful.

Administrative Cost Reduction

The economic benefits of e-learning are many. E-learning represents so many opportunities for students who wish to learn but do not possess specific resources. The cost of student learning through e-learning is significantly less than the cost of traditional teaching methods (Kasraie & Kasraie, 2010). Initially, the investment in setting up e-learning systems and the cost to maintain them is high, but as the system starts operating, its operational costs are significantly lower than classroom teaching. Moreover, Kasraie and Kasraie, (2010) point out that efficiency and costs are two different things. E-learning education is much more efficient as it develops a targeted approach to each individual catering to specific needs that would produce results.

Globalization

The expansion and universality of e-learning have intricate and significant impacts on the globalization of the world. The traditional educational courses and packages are being metamorphosed into modern global educational courses that can be used anywhere in the world. A new market for the new educational material and capitalist industrial design is emerging (Starke-Meyerring, 2010). E-learning is becoming the new global trend that further intensifies the diffusion and assimilation of cultures around the world.

Students' Perception, Interaction, and Satisfaction

E-learning systems produce greater satisfaction in students and teachers if they have positive perceptions about the process. Liaw (2008) performed a study on 424 students who were given simple questionnaires to answer a list of questions related to their understanding and perception of e-learning outcomes. The results show that the perception of the student about herself/himself, and the outcomes of Liwa's study have significant impacts on how

well students adjust to e-learning (see also Murillo-Zamorano, et.al., 2019). Al-Fraihat et. al (2020) conducted an empirical study on 563 students and used a mathematical model to evaluate aggregated average values of the students' answers. The study was performed in a UK university. The study showed that students who achieved e-learning capabilities had a close relationship with how useful they thought the course was for them, how much the course satisfied them through the knowledge they gained, and what future uses they could get out of it. These values explained about 65% of variation in e-learning capability, meaning that the ability to learn is highly correlated with perceptions and satisfaction. In regions where e-learning is considered a great technological tool that enhances the students' skills, results show significant improvement in learning capabilities. On the other hand, regions where e-learning is associated with low self-esteem, such as the Middle East (Al-Masaud & Gawad, 2014), the results are poor.

The system of learning through online connectivity is centered around the idea of collaboration and teamwork. Groups of students working together on the e-learning system in collaboration with peers and teachers alike have a significant positive impact on the output of results (Concannon, et. al., 2005). Student interaction and connectivity increase the efficiency of the system by increasing satisfaction, acceptability, and sense of teamwork in student groups. Studies have found that individual students working alone do not see the system as helpful (Liaw, 2008). Mortera-Gutierrez and Murphy (2000)) outlined three important aspects of interaction and connectivity in e-learning that will enhance the progress of any e-learning program. These are:

- Peer-peer contact: Peer to peer contact leads to efficient learning and an inflated satisfaction from the course. Students must be provided with ways to keep in touch with their peers.
- Teacher-student interaction: There must be responsive, detailed, and informative communication between the two.
- Student-course contact: The students should be given time and the ability to study their course material in the way they like; video lectures, textbooks, summaries, notes, etc.

Limitations

Administrative Resistance

The first problem is the struggle in adapting to the new system of learning. Students are more used to the traditional pedagogical structure of a teacher and a classroom full of students. E-learning has a steady learning curve that requires time, not only for the students, but also for faculty and administration to adjust to this innovative way of teaching. Students who have an online history learn faster than those who have not used the internet before (Abbad, Morris & Nahlik, 2009). For them, it is easier to adapt to the system. Similarly, the same can be said for teachers. Teachers find it difficult to accept e-learning, as they are more accustomed to the working environment of a university and the benefits that come with it. Prestige and social status, in and outside the university, exists partly because of the traditional classroom structures (Ubell, n.d.). Moreover, there is a lack of professional development opportunities in e-learning classrooms for the teachers which is compounded by an absence of recognition from the institution and virtually no rewards for the extra effort put in by the teacher (Abbad, Morris & Nahlik, 2009). Another reason given by the

administration during case studies to determine why the staff was reluctant to adapt to e-learning, was the “lack of time” (Anderson, 2012, p.#).

Investment Intensive

E-learning platforms require a considerable amount of investment for the development of the software. Moreover, further time and resources are required to test the platforms and give training to teachers and staff in order to make full use of the platform. Additional support and technical staff are required to keep e-learning systems and their dedicated servers online and working to ensure their efficiency. A slow, struggling e-learning system would quickly collapse and not see the light of day (Dalsgaard, 2006).

Time Consumption and Constant Supervision

E-learning is time-consuming for the students as they have to go through extensive texts and routines to complete the course (Taylor, 2002). This problem is exacerbated when teachers do not aid students in navigating new online courses. It is found that teachers do not aid students as much online as they would face-to-face (Bassam, 2012). A teacher might be unavailable after university hours which is the time most people do e-learning. Moreover, it is not in the job description of a university professor to be available to students 24/7. Therefore, there is a need for a dedicated person who takes care of technical and urgent matters of online students through the day (Nawaz & Khan, 2012).

Conflict Resolution

When a dispute occurs between students or teachers, or there is any misunderstanding between members of an online group, an administrator needs to intervene to rectify the situation. Counseling and crisis management through online support is challenging, but studies suggest that it can provide positive results (Schroeder, 2014). The groups are not

normally closed, and the members may leave and enter at will. For example, to join any online class in a university, you need to have a link for the class. That link can be shared with anyone; hence the privacy of the group is violated. It is difficult to implement control measures in this scenario, as students who log into the classes can freely give any information to their peers. The students' private work might be at risk, and the hacker can easily cover their steps to avoid detection (Barik & Karforma, 2012). Such situations make online classes susceptible to disturbances, reducing the overall efficiency of the structure (Gary & Remolino, 2000).

IT Support and System Stability

There is a need for technical support in any tech-related software. Proper e-learning cannot be achieved in the absence of efficient and problem-free networks (Taylor, 2002). A computer network complete with consistent internet connectivity is the most basic requirement of an e-learning system. After that, there is a need to address the technical issues that are incurred when the online system is catering to classes and students. E-learning strives to provide the atmosphere and the environment of a university class at home, be it online video classes, streaming of recorded lectures, or even a chat with some peers, any disturbances in the medium by virtue of technical difficulties would catastrophically affect the experience of all the people involved. E-learning requires constant, smooth, and error-free execution for maximum benefit (Nawaz & Khan, 2012).

E-learning in The Middle East

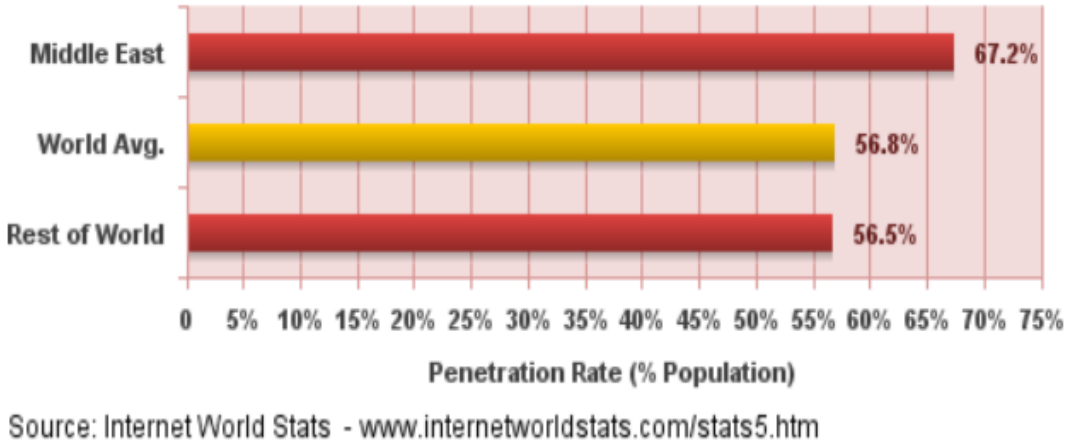
E-learning has been developing a firm foothold recently in Middle Eastern countries. Although e-learning first bloomed in the European and American regions, countries of the Middle East quickly realized its economic importance and started to adapt to this efficient

and economical way of learning (Weber & Hamlaoui, 2018). Employers realized the importance of e-learning when their workers started to leave jobs to get better learning opportunities, since progress in life is more important to them than a job that does not allow them to grow (Mardinger, 2019). E-learning is seen as a path toward the future in Middle Eastern countries, which has sparked a race to develop it faster in the region.

Internet consumption in the Middle East has improved in the last couple of decades. The Middle Eastern region has internet penetration that is much higher than the world average (IWS, 2019). The term “internet penetration" refers to the percentage of the population that is using internet facilities in a region or a country. Figure 5 shows the statistics of internet penetration in the world as compared to the Middle Eastern region; 67.2% of the population in the Middle East has access to internet facilities and can use them if they want. The world age internet penetration is about 57%, which is 10% less than the Middle East. Middle Eastern citizens, therefore, have better access to the internet than in other parts of the world. These are fertile grounds for the promotion of e-learning in education systems in the region. The Middle East is in a very good position to start implementing e-learning in their higher education systems for the advancement of the technological race in education and come out on top as a leader in world e-learning.

Figure 6

Internet Penetration Rate in the World and the Middle East



Studies of the cultural impact on e-learning reveal that it is greatly influenced by the cultural values and whether students belonged to a culture that promotes collectivism, or a culture that promoted individualistic views (Aparicio, et al., 2016). The study finds, after interviewing students from a variety of cultures and backgrounds, that students belonging to a collective culture respond better to e-learning programs and report a higher level of satisfaction as compared to students from individualistic societies (Aparicio, et al., 2016). The Middle Eastern region has profoundly collective cultural values where success is measured in terms of the whole team, and teamwork and support are given priority over individual effort (Al-Masaud & Gawad, 2014). E-learning will surely show promising results in the region when implemented properly.

The Middle East region is known for its conservative norms and traditional religious views regarding the role of women in society (Crocco, Pervez & Katz 2009). As such, e-learning provides an excellent opportunity for women to educate themselves whilst not facing any resistance from their culture or society. For example, Tubaishat (2008), pointed

out that in Zayed university in the UAE, female students faced difficulties accessing campus after the closing hours of the university. This comes from the cultural values of the country, and the rest of the region, as it is not considered wise for females to go outside the home after the sun has gone down. The university arranged an online management system that helped those students to get in touch with their teachers and peers to solve problems and get their queries answered. Also, female students felt more comfortable when engaging in online chat forums than face-to-face proceedings (Tubaishat, 2008).

According to research done by Abbad, Morris and Nahlik, (2009), in Jordan's educational institutions, they found that the students who adapted faster to e-learning were the ones who were already using the internet frequently. According to them, there is a correlation between the usage of the internet and the speed of adaptation to e-learning. Those who struggled were the ones who had not used the internet or computers before. Computer literacy is of serious concern in Middle Eastern countries (Al-Masaud & Gawad, 2014). Technology is abundantly available in the oil-rich Middle Eastern region as the government and the people have no shortage of resources. The barrier is the level of literacy that is required to operate modern technology. General computer literacy in the Middle Eastern region is very low, and women are more illiterate than men (Primo, 2010). Women face hurdles in attaining digital knowledge in the form of barriers that block access to education, political involvement, economic independence, and a very stringent culture marginalization (Primo, 2010). Digital literacy, Information and Communication Technologies (ICT) skills, and e-learning are great tools for women of the Middle East to enable them to become independent and successful and not have to rely on others for their sustenance. Since internet penetration is increasing in the Middle Eastern region, this could result in the easy spread of

e-learning. The growth of e-learning in the Middle East cannot be expedited if digital literacy remains low in men and women alike.

Although internet penetration is high in the Middle Eastern region, the number of people availing themselves of e-learning opportunities is still pretty low (Mirza & Al-Abdulkareem, 2011). These factors are caused by the high price of establishing an internet connection in the area, the quality and the connectivity of being very poor in some areas, and general fear in the society that the internet is something devilish that would bring chaos, immorality and infectious western values to the region (Al-Masaud & Gawad, 2014).

The expansion of e-learning in the Middle East suffers more because of perceived falsehoods rather than on practical grounds (Mirza & Al-Abdulkareem, 2011). The cultural outlook on any innovation affects how it is perceived by society. The advent of electricity would not have been possible if people thought it to be devilish or if it was the cause of people dying. The Middle Eastern region is notorious for not accepting new trends and innovations easily, something that is evident from the white dress that is common in the region, but nowhere else in the world. A common misperception with distance learning programs in the Middle East is that it is not a 'real' degree (Dirani & Yoon, 2009). It is seen as being inferior to traditional university degrees, and there is a low-level of esteem and satisfaction attached to such a degree. Companies also pay less to students with e-degrees as compared to students with university degrees. Such a situation has lowered the will of the people and the institutions alike to invest in e-learning programs (Dirani & Yoon, 2009).

E-learning in Saudi Arabia Universities

The Kingdom of Saudi Arabia has given special attention to e-learning in recent times. A national headquarters was set up by the kingdom to facilitate the expansion of e-

learning throughout the kingdom. The center was set up in Riyadh in 2005, and it has been continuously updated and improved since then. The establishment of the National Center for e-learning and Distance Learning (NELC) shows the resolve of the government to promote e-learning, and it started much earlier than other regional governments (NELC, n.d.). The site has manuals for e-learning controls, developing e-learning skills, and an online education plan in case of global emergencies like that of the recent coronavirus.

The efforts of the government are commendable, ensuring that there is awareness for e-learning in the country. However, a study conducted by Chanchary and Islam (2011) showed that about 73% of the total students interviewed across Saudi Arabia still preferred attending university classes than to studying online. This shows that students in the kingdom are not ready to forgo an opportunity to visit the university, as it holds a special place in their cultures and societies. The university is not a place to get only a degree and education, it holds more importance than that; researchers studying the benefits of e-learning sometimes forget that physically being with your peers and teachers cannot be replaced by any amount of technology. For students and teachers, their universities hold great sentimental value; cultures have always inflated the prestige and honor of attending a university. Not long ago, universities were open to only a closed elite group of society, and people felt honored to have attended a university like Harvard (Chatterton, 2000). Universities have now become accessible to the masses, and more so with the introduction of e-learning and Distance learning. But cultural values still influence students' choices and preferences in opting to attend a university or choose distance learning. To remedy this, most of the universities in the country have adopted a model for tertiary education that combines parts of e-learning and traditional lecture systems to produce a blended model that is currently very popular among

students (Aljaber, 2018). E-learning is supplementing and enhancing traditional learning modules in Saudi Universities which will help students in becoming more accustomed to using digital technology.

One thing that is seen lacking in the universities is that teachers, as well as students, do not trust the system, and teachers are particularly averse to taking the extra time to teach their pupils about e-learning modules (Bassam, 2012). The already confused students are left to explore the e-learning technology themselves which takes a considerable amount of time and effort and discourages the students in the long run. The reason behind this, according to Bassam (2012), is the lack of instructor-student interactions in a distributed learning environment. The government of Saudi Arabia is keen on pushing e-learning, distance learning, and other forms of modern study techniques into the top Saudi universities. The government does this in order to promote the spread of education so that the remote areas have access to modern education, and to increase the standing of the Saudi universities in the world. But doing so hurriedly, and without proper training of the administration, has created resentment among administration, faculty and students (Alshumaimeri & Alhassan, 2010; Bassam, 2012).

In a case study from Qassim University, Al-Masaud and Gawad (2014) tried to explore the impediments to the advancements of e-learning in Saudi universities. They conducted interviews and on-ground research to identify the problems facing the process. It was found that faculty, as well as students, had low computer proficiency and could be considered computer illiterate. Moreover, there were some challenges facing faculty and courses curriculum designers with more work and regular follow up with students (Al-Masaud & Gawad, 2014). The low literacy in setting effective online courses is compounded

by another problem of language barriers imposed by the weak understanding and literacy of English (Al-Asmar & Khan, 2014).

King Saud University was the first university to be built, and the first that started providing e-learning services to its students. KSU has especially helped marginalized women from Saudi Arabia in gaining an education, since the culture tends to create obstacles for women who are interested in becoming educated or independent. KSU provides e-learning modules to its students, but it is facing difficulties in making complete courses, semesters or degrees online (Saha, 2015). The reason for this is students and professors themselves don't trust the e-learning mechanism, as they see it still needing a lot of work and development. Online courses have a lack of support from senior administration in the system, fearing that they would reduce the standard of education of the university degree programs (Aljaber, 2018).

E-learning environment opens more opportunities for people who are disadvantaged by their physical or social circumstances. In more conservative societies such as Saudi Arabia, an e-learning environment can have a positive impact on society. Holmes and Gardner (2006) showed the applicability of e-learning in numerous settings and stated that e-learning provides great flexibility in delivering the information via different formats applicable to a variety of audiences (Holmes & Gardner, 2006). The popularity of e-learning methods has also increased as a response to rising costs and limited physical and human resources in low-density areas. Additionally, working individuals who aspire to continue their education along with their work greatly benefit from e-learning environments (Goldstein & Ford, 2002). The E-learning environment allows them to work according to their own time and place rather than a scheduled in-class course.

Challenges in Saudi E-Learning Environment

For instructors to provide a fully functional and practical e-learning environment, the courses must be appropriately tailored to a specific group, implemented, and maintained continuously (Bendania, 2011). Tailored courses lead to learners' positive academic and social development and with an increased understanding of the course. Creating an e-learning environment may eliminate the hassle of conventional in-class lectures, but it comes with its own set of challenges. One of the biggest challenges of creating and maintaining an e-learning environment is the lack of time from universities and their employees to dedicate to e-learning courses. Among the four significant barriers of e-learning (lack of management support, language barrier, information technology infrastructure, and lack of time) in non-English speaking countries as identified by Ali and Magalhaes (2008), information technology is the most common one (Ali & Magalhaes, 2008).

In a conventional classroom lecture, most of the time spent by the faculty, other than the classroom time, is preparing the lectures. Given that the curriculum is already designed, and lesson plans are created, faculty members can rely on their teaching methods and classroom engagement. On the other hand, in an e-learning environment, the content's design and delivery is essential, and continually ensuring that the learners are engaging and benefiting from the course is a challenge.

Students' attitudes towards learning, and e-learning, in particular, are another major influential factor for the success of an e-learning environment. Students come from different backgrounds with different competencies and behaviors toward learning. The acceptance of an e-learning environment by a student defines whether or not the student is willing to put in efforts to determine academic achievement ultimately. Al-Harbi (2010) argued that when

students choose to move to an e-learning environment from a conventional, less-efficient lecture-based environment, they are more committed to it and succeed better (Al-Harbi, 2010).

Additionally, better implementation and applicability of the e-learning environment also depend on students' willingness to engage in the virtual learning process. Students' acceptance directly correlates with their active engagement in the courses. Al-Harbi (2010) characterized students' social, institutional, and demographic characteristics to predict their attitude towards e-learning (Al-Harbi, 2010). The author found that students' attitudes towards e-learning had a strong impact on the academic achievement of students who were engaged in virtual learning methods in Saudi universities. Moreover, building positive attitudes about e-learning by universities and faculty members builds a strong foundation in how students perceive e-learning. When potential users of the e-learning process are inclined towards a goal, they are more likely to engage and use it to enhance their knowledge. In turn, these attitudes would result in positive outcomes both for the e-learning process and the academic achievement of learners.

Interactive E-learning Environments

The advanced technologies in various sectors have led to improved processes, efficiency, and understanding. One of the sectors that benefited from these technological advancements is the education system. The education sector has seen improvements in how students get to learn things, topics, and other relevant information regarding education through technology, mainly in the form of e-learning technologies. The main interest is in learning that is happening through digital environments, and the focus aims at the individual learner.

The early adoption of e-learning environments in Saudi Arabia triggered instructors' concerns, and it did not involve much interaction. Alebaikan and Troudi (2010) state that e-learning environments were only translated from traditional classes with a significant lack of interaction in Saudi universities. Learners' boredom and disengagement were proven causes of passive learning in e-learning program (Zhang et al., 2004). This lack of interaction leads to facing difficulties in making complete online courses in Saudi universities (Saha, 2015).

In Saudi Arabia, universities are funding educational centers where both e-learning courses, as well as blended learning methods (a combination of traditional in-class learning and e-learning), are provided (MacDonald and McAteer, 2003). One of the reputed universities in Saudi Arabia, King Khalid University, encourages its students to opt for e-learning courses as an effective way of instruction within the institution. The University believes that they are widening the knowledge horizon of their students through e-learning. The integrated learning method used at King Khalid University allows students to be close to their traditional learning methods while learning in a virtual environment (Al Zumor, Al Refaai, Bader Eddin & Aziz Al-Rahman, 2013), allowing for a smooth transition to e-learning methods. Some of the noticeable challenges of the e-learning environment that this research aims to focus on are briefly described in this section.

Lack of Student Engagement and Interactive Course Design in E-learning

Tham and Werner (2005) stated the three most important influencing factors in an online learning environment are students, institutions, and technology. Students, being on the receiving end of the learning method, must be fully engaged in an e-learning environment. In comparison to conventional classrooms, students must take greater ownership of their learning of the content. In an e-learning environment, the instructor serves as a consultant

who maintains and manages the online learning environment and allows his/her learners to maximize their learning.

A combination of student-centered learning, as well as directed instruction methods, allows learners to achieve better results in an online environment (Poole, 2006). Directed instruction techniques guide online learners to follow teacher-directed instructions to achieve the objectives of the course. The learners follow directions systematically to enhance their knowledge of the course and participate in the online assessment method prescribed by the instructor. Student-centered learning approaches are more open-ended where all the information is provided, and students are expected to navigate and find information at their own pace and style. This provides more flexibility to students while giving them ownership of their learning.

Memon et al. (2017) carried out a study on blended learning methods through reverse engineering technique where a class of seniors was given partial ownership of their learning through flipping instructional roles (Memon, Erdhal, & Qureshi, 2017). The authors found that upper-class students thrive in environments where they are in charge of their learning. Students engage in methods based on their competencies and grouping in such environments allows for more diversity in learning methods.

Universities play an important role in preparing students for the e-learning environment. In a traditional face-to-face course, students are usually exposed to technology platforms such as Moodle, Blackboard, Pilot, etc. For the universities to establish e-learning programs, the same familiar platforms must be extended for students to transition to e-learning methods. A smooth transition to the e-learning environment, along with help from

the university management, increases the willingness of students and faculty, which results in more successful outcomes (Volery & Lord, 2000).

In online learning, faculty members are encouraged to be well conversant with tools used to make the class interactive and successful. According to Watkins (2005), it is imperative that faculty members turn the same interactive sessions in traditional classes into online courses to cultivate motivation (Abdillah, 2012). Watkins also mentions various ways in which a faculty member in higher learning institutions might be able to make the classes more interactive (Watkins, 2005). The author states that to make students embrace online materials, they can make a group or individual website where they can write about various topics or current affairs. The instructor can instruct the students to read online publications, news, and articles to discuss the required material. Watkins also states how a group or individual blog in an online course should look like for students (Lin et al., 2006). Through the blog, students will be able to get ideas from class, share resources with others, and draw outside participants. When thinking of integrating technologies to improve collaborative knowledge building, a group of students will contribute to a single blog in assignments or discussion boards (Lin et al., 2006). When thinking of increasing student motivation, blogs can be effective and easy personal publications for the student (Abdillah, 2012).

Keengwe and Kidd (2010) state that to deliver online courses, the faculty need to develop and use a series of questionnaires that involve the editing and response of questions, reasoning, and thinking— helping students to take part in getting and analyzing information (Lin et al., 2006). Instructors can measure students' engagement by using questionnaires or discussions regarding the content or questions that have been taught. Through questionnaires, faculty members can continually assess the class progress and understanding of the content

that is being taught to the students (Nandi, Hamilton, & Harland, 2012). The questionnaires can involve topics or articles based on the material being taught that the students are supposed to research online, discuss, or share past experiences about themselves.

Faculty members are advised to hold a meeting on e-learning platforms with individuals who might not understand or did not understand a previously held class. These meetings make the classes more interactive since they may feel comfortable with the lecturer or trainer (Martin & Bolliger, 2018). Lim states that a one-on-one meeting helps students understand what they have been taught since they ask instructors about materials they have learned but not understood (Lim, 2017). One-on-one meetings make the classes more interactive since the students tend to get comfortable with a lecturer or trainer. The one-on-one sessions help establish an intimate environment with students and faculty, leading to the class being attentive (Martin & Bolliger, 2018).

Making e-learning classes interactive involves ensuring there is dialogue between the faculty members, students, and amongst the students (Vesely, Bloom, & Sherlock, 2007). The faculty members ensure that the students can engage with them during the classes by asking questions, discussing, or seeking clarification (Ihlström & Westerlund, 2013). According to Elsawy and Ahmed, the faculty also need to ensure that students can discuss themselves per a given content or assignment that requires group work instead of individual output (Elsawy & Ahmed, 2019). Meeting discussion makes the class more interactive since the students and the faculty engage with each other based on the content and learning material requirements.

The faculty also needs to use email automation that can send out scheduled emails to the students containing relevant materials or assignments (Nandi, Hamilton, & Harland,

2012). Emails can contain instructions on what to do or compliment a student on his/her participation in a given week (Vesely, Bloom, & Sherlock, 2007). Mohammed, Kumar, Saleh and Shuaibu state that teachers can use email platforms to send learning materials or instructions to the student (Mohammed et al., 2017). This makes the process interactive between the students and faculty members since the exchange of emails between them is considered interactive. Another recommended interactive tool is implementing forums in online courses (Nandi, Hamilton, & Harland, 2012). According to Biasutti, students can use these forums to post questions to the faculty or other students (Biasutti, 2017). Online course forums can; enable students and faculty to talk informally about any topic of interest or discuss assignments (i.e., facilitating sharing and participation); provide answers to questions or direct students to sources that might help them with the questions; ask students about their expectations and suggestions for improvement (i.e., responding to student concerns and establishing an environment of open communication), (Vesely, Bloom, & Sherlock, 2007). These forums seek to foster an intimate environment with the faculty member and the student, leading to the forum being interactive for both the faculty and students (Nandi, Hamilton, & Harland, 2012).

Faculty members can use user experiences when students and the faculty themselves use an e-learning platform. The faculty needs to ensure that the platform with which the students interact provides a good user experience and students can easily access the platform, material, or submit assignments without facing any challenges (Nandi, Hamilton, & Harland, 2012). According to Pandu and Fajar (2019), the faculty can use questionnaires to obtain user experiences from the student, called the User Experience Questionnaire (UEQ) method. UEQ is a method that uses a questionnaire to gather feedback from e-learning users, with

questionnaire items that can make respondents think before filling out the questions (Santoso, Schrepp, Isal, Utomo's, & Priyogi, 2015). The obtained answers help instructors in making the platforms more user-friendly and gives a rapid assessment of interactive user experience (Santoso, Schrepp, Isal, Utomo's, & Priyogi, 2016). UEQ contains six scales of a total of 26 items, including attractiveness, a general impression of users on the course; efficiency, the possibility of using material quickly and efficiently and an organized interface; perspicuity, ease of understanding material usage, and getting used to it; dependability, feelings of users in interaction control, security and expectations; stimulation, what is interesting and fun from the use of the material, the motivation of the user to want to use it more; and material design that is innovative and creative and attracts user attention (Pandu & Fajar, 2019).

Implemented Assessment and Evaluation Methods in E-learning

The concepts of Measurement and Evaluation are important in everyday life as we humans measure dozens of things on a daily basis. Similarly, we evaluate others' attitudes, our own performance, and many other things. In fact, life will be impossible without various measures and evaluation tools; for example, most business transactions require us to measure their products and evaluate their efficiency. In the same way, measurement, assessment, and evaluation are necessary for the e-learning educational system (Kaur et al., 2004). In fact, there is little use of the whole educational system if the performances of students are not measured and evaluated in the best possible manner. There are various concepts and philosophies on what to measure and evaluate and how to do it in e-learning systems (Williams et al., 2012).

As part of online class planning, instructors need to make some choices about the types of used assessment. There are two types of assessment used in education today,

summative and formative assessments (Ko & Rossen, 2017). Summative assessment is "a tool for determining a grade or summary" (Dell'Olio & Donk, 2007, p. 49) while formative assessment is "a tool for assessing the status of teaching and learning efforts while they are underway" (Dell'Olio & Donk, 2007, p. 49). The formative assessment is "part of the instructional sequence, for the purpose of measuring progress and giving appropriate feedback, not graded" Ko & Rossen, 2017, p. 74), and the summative assessment is "a graded assignment or test that takes place at the end of an instructional sequence or as a final assessment of the course" (Ko & Rossen, 2017, p. 74). Different types of summative assessments are used, such as quizzes and exams. Summative assessments are used to summarize students' progress, typically with a percentage or letter grade (Dell'Olio & Donk, 2007). Formative assessments also come in different forms and can be formal or informal (Dunn & Mulvenon, 2009). Examples of formal formative assessments are homework, checklists, quizzes, and more, while informal assessments include observation and asking questions of the students within the classroom (Dunn & Mulvenon, 2009). Dell'Olio and Donk (2007) provide a strong example as to why both are important in assessing student progress. Under the headline "Types of Summative assessments," authors provide a scenario in which a student driver completes only a written test before receiving a license versus a student driver completing both a written and skills test. Then the authors ask the question of with whom which we would feel more comfortable driving. The obvious answer is the latter because knowledge and skills are very different (Dell'Olio & Donk, 2007).

In e-learning, it is important to have an assessment "relevant to the objectives and goals of the course; easily enough accomplished online; clearly outlined to students via logically organized instructions that include the how, when, and where of online logistics"

(Ko & Rossen, 2017, p. 74). Assessments should reveal how well students have learned what instructors want them to learn (Towns, 2009). For this to occur, assessment tools and learning objectives need to be aligned carefully and reinforced with each other (Towns, 2009). To this end, instructors need to align the selected assessment tool to specific behavioral statements (e.g., 'define,' 'describe,' 'critique,' 'apply,' 'solve') in their goals (Payton, 1990; Lowman, 1984). Table 1 shows some examples of appropriate assessment tools that can align various learning objectives (adapted from the revised Bloom's Taxonomy).

Table 1 *Aligned Assessments for Example Objectives*

Examples of learning objective	Examples of appropriate assessments
Recall Recognize Identify	Objective test items such as fill-in-the-blank, matching, labeling, or multiple-choice questions that require students to: ● recall or recognize terms, facts, and concepts.
Interpret Exemplify Classify Summarize Infer Compare Explain	Activities such as papers, exams, problem sets, class discussions, or concept maps that require students to: ● summarize readings, films, or speeches. ● compare and contrast two or more theories, events, or processes. ● classify or categorize cases, elements, or events using established criteria. ● paraphrase documents or speeches ● find or identify examples or illustrations of a concept or principle.
Apply Execute Implement	Activities such as problem sets, performances, labs, prototyping, or simulations that require students to: ● use procedures to solve or complete familiar or unfamiliar tasks. ● determine which procedure(s) are most appropriate for a given task.
Analyze Differentiate Organize Attribute	Activities such as case studies, critiques, labs, papers, projects, debates, or concept maps that require students to: ● discriminate or select relevant and irrelevant parts. ● determine how elements function together. ● determine bias, values, or underlying intent in presented material.

Table 1 Continued

Evaluate Check Critique Assess	Activities such as journals, diaries, critiques, problem sets, product reviews, or studies that require students to: ● test, monitor, judge, or critique readings, performances, or products against established criteria or standards
Create Generate Plan Produce Design	Activities such as research projects, musical compositions, performances, essays, business plans, website designs, or set designs that require students to: ● make, build, design or generate something new.

Note. Reprinted from "Why should assessments, learning objectives, and instructional strategies be aligned?" by Eberly Center, n.d. Copyright 2021 by Carnegie Mellon University.

After developing specific course goals for student learning and identifying the prorated assessment techniques, the course syllabus needs to outline anticipated learning outcomes and tie selected assessment tools to course content (Stassen, 2005). Stating objectives that are linked to class content help instructors implement classroom assessment clearly and identify how each assignment will contribute to successful learning outcomes (Payton, 1990; Lowman, 1984).

The faculty in higher learning institutions tend to use products, platforms, or websites that organizations and business companies provide (Rahnev, Pavlov, & Kyurkchiev, 2014). On the other hand, other institutions develop their custom platforms or products to provide e-learning services (Ruhe, Zumbo, & Bruno, 2008). In order to make these materials as efficient as the ones made by companies for a whole range of sectors, we need to evaluate the usability and effectiveness of the custom platforms and learning materials (Rahnev, Pavlov, & Kyurkchiev, 2014). According to Hadullo, Oboko, and Omwenga (2017), learning institutions need to continuously evaluate their e-learning systems to enable faculty to use the system uninterrupted without the fear of the system failing or having issues during a class session or when the students are interacting with the system. They stated that e-learning

systems evaluation needs to be conducted regularly, and instructors are supposed to ensure that the system works as assumed.

Since e-learning materials and classes use various tools to enable the learners to get information and content for assignments, there are bound to be times when learners get confused with the e-learning platforms or content (Ko & Rossen, 2017). To avoid this concern, faculty members of higher learning institutions must provide clear and precise instructions to students. These instructions should contain what the student is supposed to do while using the e-learning platform, the nature of assignments, or what learning material availed to the learner is supposed to be used (Ko & Rossen, 2017). According to Ihlström, and Westerlund (2013), these instructions are supposed to be given every time a class is in session or after the session. They let the faculty know if the students understood what is required of them while using the e-learning platform. It also assesses the effectiveness of the e-learning approach when the faculty has decided to have an online lesson instead of the traditional classrooms.

The faculty members must ensure that their assessment and evaluation techniques provide a fair assessment of individuals taking e-learning courses. One of the major concerns in having fair assessment techniques is the training and development of faculty members who design e-learning courses (Conrad & Opena, 2018). The knowledge of effective teaching techniques and assessment methods tailored to those teaching techniques are important. The quality of the education provided in an e-learning format has to be maintained for it to have positive outcomes for learners. Some of the most effective assessment methods that can be used in an e-learning environment are discussed by Conrad and Opena (2018). Those methods are discussed in this section.

E-Portfolios

The concept of the electronic portfolio is similar to a paper-based portfolio. However, in an electronic format, an e-portfolio allows students to record their artifacts in a certain area of competency (Conrad and Opena, 2018). These portfolios are used to showcase the competency of students throughout the length of the course. Students accumulate their work, build on it over time, and reflect on it when needed. The use of technology allows for more efficient, easily editable, and accessible work as opposed to paper-based portfolios. Moreover, students tend to get more engaged in activities that last much longer than a daily or weekly assignment.

Journals

Learning journals are more concise and mostly allow students to reflect on their work. In a constant virtual environment, journals act as a communicator between the student and the instructor (Conrad & Opena, 2018). The sense of disconnect that students may feel in a virtual environment can be overcome by assessing them through journals.

Projects

The e-learning environment poses a challenge of students' disengagement from the course content. Projects allow students to be constantly engaged with the content. Projects also allow students to apply the knowledge and processes they are learning.

Discussion Boards

Discussion boards allow virtual students to communicate with their peers on a regular basis. The important aspect of the discussion board is that it should be (mostly) directed by the instructor (Bendania, 2011). A directed instructional technique in this assessment not only allows for more participation and engagement from students but also limits students to

focus on the given subject. Open-ended discussion forums can be too tricky and sometimes messy to handle.

Lack of Integrating Multimedia Learning Materials in E-learning

Multimedia is the employ of a computer to combine text, graphics, audio, and video with tools that enable the user to navigate, interact, create, and communicate to express ideas (Clark, 2014). Some common uses of multimedia in e-learning include pictures (such as illustrations, diagrams, maps), videos (such as animation or any dynamic videos), interactive games, and activities that include spoken or printed text (Mayer, 2017). The faculty can use videos, pictures, educational games, or films that will provide education to the students and ensure that the class is interactive (Clark & Mayer, 2016).

Virtual technology environments can provide a variety of learning materials in various media formats. Mayer (2017) emphasizes designing e-learning multimedia instructional materials that can promote academic and interactive learning. Mayer's study states that learners on online courses containing words and graphics can get a better understanding than courses containing words alone. Alshehry (2016) and Lau et al. (2014) stated multimedia tools motivate and improve learning in terms of curiosity, interactivity, and engagement. Bleed's article (2005) clarifies the usefulness of visual literacy in higher education and how visual materials can better explain things and facts than reading them. Bleed found that using visual multimedia in online courses holds students' interest more than typical college course materials (see also McFarland, 1996). Students who were interviewed in Fitzgerald & Olsen's study said they "enjoyed the feeling of being proactively involved in the material" (Fitzgerald & Olsen, 1993, p. 41).

Multimedia resources are increasingly embraced in elementary and secondary education, but higher education in Saudi Arabia has not demonstrated equal enthusiasm for multimedia (Alshehry, 2016). Nasr (2004) states that spoken words (lectures) are the primary format for instructional communications in Saudi universities in traditional and online courses. Teachers can feel more in control of a class when delivering lectures to convey concepts to students, but it is imperative to know how developing new teaching models using multimedia tools benefits the learning process (Bleed, 2005).

One of the essential characteristics of e-learning is providing interactivity with effective multimedia (Khamparia & Pandey, 2018). Multimedia technologies facilitate the presentation of e-learning course materials in various forms. These technologies effectively provide learning material and learning content to learners based on their preferences, skills, and learning characteristics (Khamparia & Pandey, 2018). Employing multimedia tools also enable learners to make decisions in their digital learning. For instance, they select an activity to do, interrupt a video, explore further activities, and browse Wiki (Anas, 2020). Besides, these interactive media technologies, such as collaborative networking and game-based learning technologies, provide authentic collaboration opportunities whereby the learner experience is enhanced (Khamparia & Pandey, 2018).

While multimedia provides an essential element of interactivity, using too much multimedia will diminish its efficacy and lead to passive cognitive load. A similar thing will occur when conveying multiple ideas in tandem. In addition, e-learning classes tend to have much content that needs to be covered, and learners are generally overwhelmed with full access to the content since they do not know where to begin. (Ko & Rossen, 2017). To counter this, Firth and Newbery-Jones (2019) proposed that feeding students with only

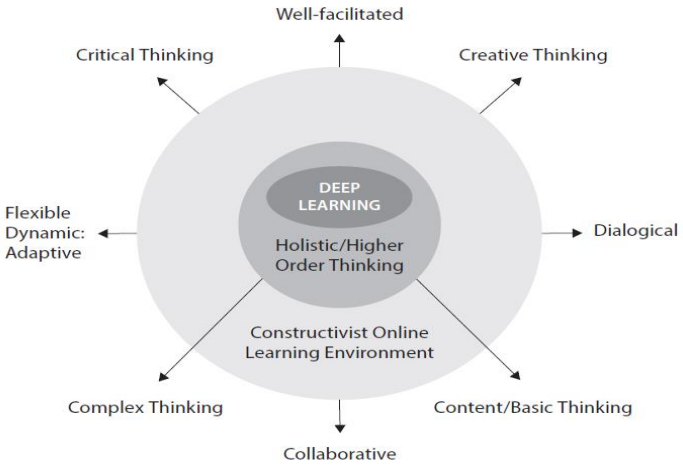
relevant or required information is essential, referring to this as drip-feeding. This enables the learners to have restricted access to materials or content that they are going to use in a specific lesson instead of having unlimited access to all the materials that can possibly confuse them (Nandi, Hamilton, & Harland, 2012). Providing students with multimedia learning materials or content that will only be used in a specific lesson is beneficial to students, since it allows gradual, progressive understanding, rather than being flooded with all the materials and having no idea where to begin (Firth & Newbery-Jones, 2019). Faculty members are advised to break down the content into gradual and procedural chunks and incorporate spacing techniques in the process of learning (Ko & Rossen, 2017).

The Integrated Learning Model

Morrison (2007) proposed an integrated e-learning environment where active collaborative learning and participation from students take place (Morrison, 2017). Within the e-learning environment, students are provided with interactive activities to encourage deep learning (understanding of the course content and active construction of knowledge). The proposed learning model by Morrison (2007) is shown in Figure 6.

Figure 7

Integrated E-learning Model Based on Deep Learning (Morrison, 2017)



Creative thinking activities and collaborative strategies allow students to be more interactive during their learning approaches. In a traditional face-to-face lecture, not all learners are always engaged with the instructor. In an interactive e-learning environment, all learners are expected (and in some cases required) to engage in learning methods. This method allows learners to learn self-efficacy, consciousness, and interdependence (Zimmerman, 2013). It is important to note that other traditional assessment techniques such as homework assignments, quizzes, and exams are still applicable in e-learning environments (Ascough, 2011). These assessment techniques not only add to the positive academic achievement of the learners but also make the e-learning model robust and effective.

Summary

One thing that has remained under-researched is ensuring that the learners are engaging and benefiting from the course when teaching in an online environment. Employing efficient methods in online courses plays a vital role in determining the outcome and effectiveness of education models. Faculty members' perceptions of these efficient methods estimate the level of confidence they have in their teaching ability and the ability to reach out to their students. Making certain of students engaging in online courses and utilizing efficient techniques through managing the course will lead to higher motivation, and it inspires better performance in students and teachers alike. E-learning models require certain technical skill and knowledge to be effectively utilized, and if the instructors lack the basic prerequisites, the attainment of educational objectives will be hampered. Students perform much better when their teachers have confidence in their ability to teach online (Al-Fraihat et al., 2020). Instructors must play a proactive role in the advancement of e-learning by providing an environment that is conducive to successful e-learning. A valid e-learning environment

includes keeping students engaging in digital classes and developing effective assessment methods to support student learning.

Chapter 3: Methodology

The purpose of this study was to explore university faculty members in KSA perception of their teaching practices in e-learning environments and determine the extent to which their strategies reflect best practices in terms of interactivity, assessment, multimedia learning material, and students' acceptance of e-learning environments at Saudi universities. The following research questions guided this study:

1. What kind of interactive activities do faculty members use to ensure the active engagement of students in e-learning environments in Saudi universities?
2. How do faculty members in Saudi universities assess and evaluate students' academic performance in e-learning environments?
3. How do faculty members perceive the value of using interactive multimedia in instruction?
4. To what extent do faculty perceive students' acceptance of e-learning environments?

Research Design

A generic qualitative design, also called basic qualitative, was undertaken in this study. Generic qualitative inquiry investigates people's attitudes, opinions, or beliefs about a particular issue or experience (Kennedy, 2016). The generic qualitative inquiry may be viewed as an approach that refuses to claim allegiance to a single established methodology. People's subjective opinions, attitudes, beliefs, or experiences of things in the outer world cannot be measured in the statistical sense, and any study of people's subjective "take" on actual external happenings and events requires qualitative methods (Aronson, 1994). Sometimes, the other qualitative approaches are not aligned to measure such psychological

things. According to Percy, Kostere, and Kostere (2015), researchers should consider a more generic qualitative inquiry approach to use in such cases.

A generic qualitative approach was adopted to achieve the study's aim of having a deeper understanding of faculty members' practices that affect e-learning success in Saudi Arabia. This research methodology was selected to explore the lack of data about faculty members' practices in e-learning environments in SA, gather and interpret faculty members' attitudes in e-learning and describe them from the participants' perspective.

Procedure

Author Positionality

I am a Middle Eastern woman living in the Kingdom of Saudi Arabia. I did my undergrad in Saudi Arabia but completed my masters and doctorate in curriculum and instruction in the United States. Because of my experience in both countries, I am able to view the phenomenon under investigation from several perspectives, but I am also cognizant of the potential biases I may bring due to my racial and cultural identity. I also recognize my privilege in having access to certain resources and giving me the ability to pursue my research.

Sample

In qualitative research, sampling participants is purposive, that is, participants who have knowledge or experience in the studied area are targeted to value the study (Sandelowski, 1995). Selecting participants with the target characteristics based on their roles in e-learning was challenging to locate; wherefore once the researcher had found one individual faculty member, the researcher asked him or her to refer others to participate in the study. This procedure is called snow-ball sampling, where research participants recruit other participants for a study (Evans & Rooney, 2019). Snowball sampling is a non-probability,

purposeful sampling method used in qualitative research (Snowball Sampling, n.d). Through snowballing, the researcher was able to get referrals that assisted in getting hold of people who had a better understanding of e-learning courses' implementation. A sampling of 17 uniquely qualified faculty members was conducted. The sample varied between professor, associate professor, assistant professor, and lecturer teacher. According to Percy, Kostere, and Kostere (2015), "a small, non-representative, but the highly informed sample can provide rich information about the topic" (p. 79). The researcher sought to obtain a sufficiently diverse sample from various universities around the country. In snow-ball sampling, every subject who meets the criteria is selected until the required sample size is achieved (Naderifar, Goli, & Ghaljaie, 2017). Because e-learning is a relatively new approach in Saudi universities, where it scaled back and has remained on the periphery between 2013 to 2019, it was difficult to find faculty members with personal experiences of teaching online (Al-Asmari, 2014). Snowball sampling was suitable for this study to ask the first few samples if they know any other faculty members with similar situations to take part in the research. Selected participants were considered as well-informed faculties in distinguished universities in SA. Although they included a mixture of women and men, teaching in a variety of Saudi universities, all the participants were approaching 35 years old, and were in either full-time or part-time employment.

Data Collection

Semi-structured interviews using closed-ended and open-ended were conducted because the researcher believed that this was the only suitable method that could allow the participants to elaborate on their experiences vividly. The initial questions were derived from the researcher questions, with more probing questions being asked as the interview progressed. Questions were asked about some facts before controversial matters (See

Appendix A). Fact-based questions throughout the interview helped in avoiding a long list of consecutive fact-based questions which can potentially leave respondents disengaged (Qualitative Interview Techniques and Considerations, n.d.). A semi-structured interview format allowed the interviewer to generate follow-up questions about best practices and challenges. The last set of questions allowed respondents to provide any other information they wanted to add and their impressions of the interview. The schedule was divided into three areas of inquiry, and the interviews lasted, on average, around 60 minutes.

Interviews were recorded using a recording device and written notes were also taken during the interview. The recordings were then transcribed verbatim in preparation for analysis. Approval was granted by the Institutional Review Board (IRB) at the University of Idaho before data was collected. An informed consent form explaining the rationale and purpose of the interviews and assuring participants of anonymity and confidentiality was sent to each participant (Singer & Frankel, 1982).

The interview questions were translated from English to Arabic because the study participants were native speakers of the Arabic language. To confirm the accuracy of the translation, the Arabic version of the interviews was reviewed by Dr. Saleh AlQahtani, head of the Department of Linguistics and Translation Studies at King Saud University.

Data Analysis

Thematic Theoretical Analysis (ThA) was conducted to analyze collected data and to derive common themes among the participants to generate research findings. Thematic Theoretical analysis is one type of thematic analysis. Thematic analysis is described as “a search for themes that emerge as being important to the description of the phenomenon” (Fereday & Muir-Cochrane, 2006, p. 82). It is an approach of identifying and encoding patterns of meaning in primary qualitative research (Braun & Clarke, 2006, 2013). Miles and

Huberman (1994) summarized qualitative analysis into three processes which need to be followed in all analyses: data reduction, data display, and conclusion drawing.

Thematic Theoretical analysis employs inductive approaches in the analysis of this study data. The initial themes are predetermined and located in the research question and the existing literature. This study has four research questions. The first three questions addressed three themes of e-learning environment components: interactive activities, assessment, and multimedia learning material. The fourth question addressed students' acceptance of e-learning environments. All these elements were examined through semi-structured interviews with faculty members in Saudi universities. The interview data were well suited to an inductive approach; the researcher looked for patterns across the interviews and then tried to make sense of those patterns by theorizing about them.

The transcribed data were analyzed following the twelve steps process as suggested by Percy, Kostere, and Kostere (2015).

1. Reading, reviewing, and familiarize the data collected from each participant. Identifying the categories that serve as predefined codes from research questions and interview questions. Keeping in mind the predetermined categories (themes) that are related to research questions posed as well as remaining open to any new patterns and themes that are related to the research questions.
2. Examining the transcript multiple times. Reading and reviewing the collected data from each participant individually and then immersing in the data, highlighting any sentences, phrases, or paragraphs related to predetermined categories from research questions.

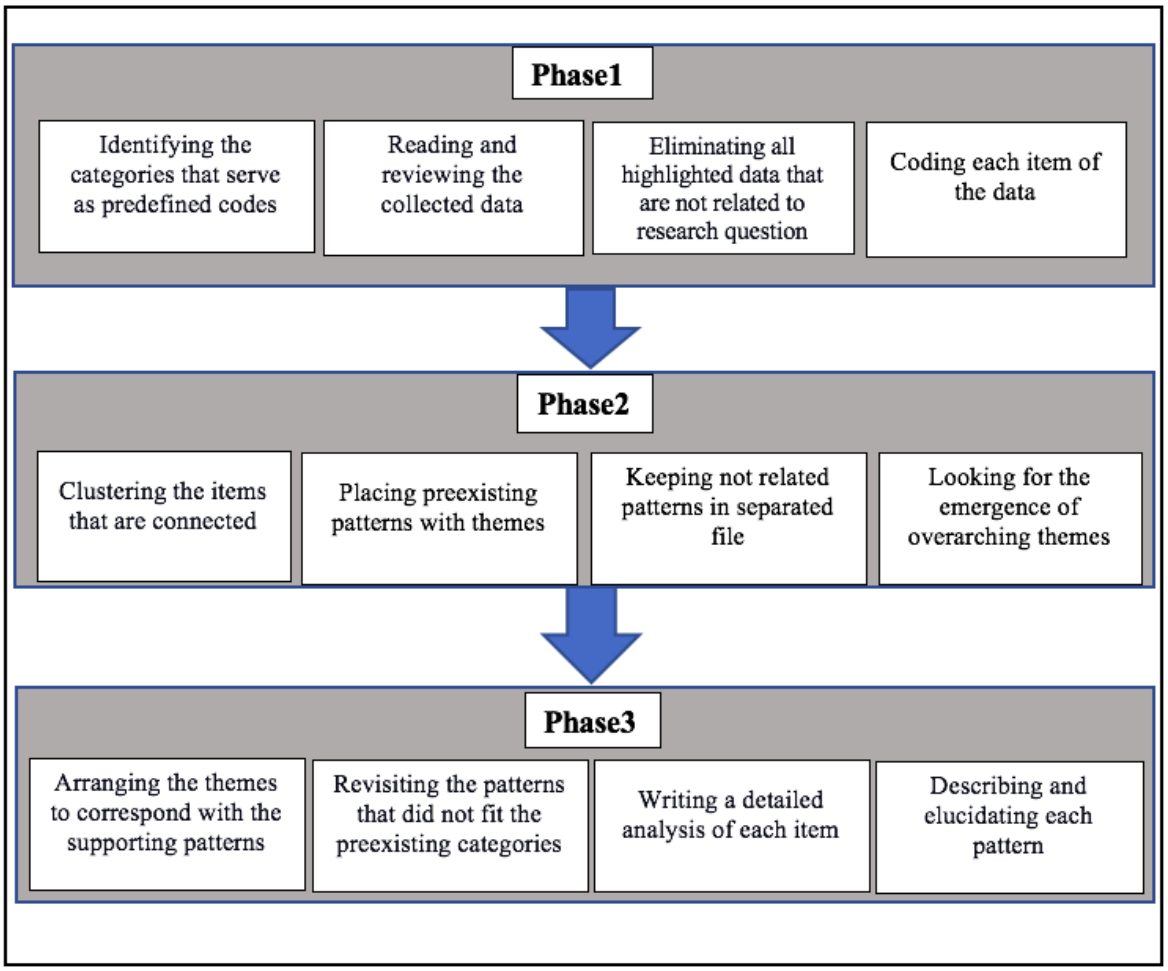
3. Eliminating all highlighted data that are not related to research questions and coding each item of highlighted data after clustering the items that are connected in some way.
4. Taking each item of data and coding or giving a descriptor for the data.
5. Clustering the items of data that are related or connected in some way and developing patterns.
6. Patterns that are related to a preexisting theme were placed together with any other patterns that correspond with the theme along with direct quotes taken from the data.
7. Any patterns that do not relate to preexisting themes were kept in a separate file for future evaluation.
8. Taking all the patterns and looking for the emergence of overarching themes. This process involves combining and clustering the related patterns into the preexisting themes.
9. After all the data have been analyzed, arranging the themes to correspond with the supporting patterns. The patterns are used to elucidate the themes.
10. Revisiting the patterns that did not fit the preexisting categories and remaining open to any new patterns and themes that are related to the research topic and have emerged from the data analysis.
11. Write a detailed analysis describing the scope and substance of each theme.
12. Describing and elucidating each pattern by supporting quotes from the data.

The process is organized in three main phases containing the above twelve steps. Although these twelve steps can be concurrent and followed in any order, many of them were conducted sequentially rather than concurrently (Figure 7).

After Identifying the categories that serve as predefined codes from research questions and the interview questions, the researcher browsed through the transcripts and made notes of the first impressions. Browsing the data helped in familiarizing with the interview data before preparing the codes table. Each transcript was then reviewed thoroughly to properly assign codes.

Figure 8

The Three Phases of Analysis



The second phase was clustering the items that are connected, creating a list of priori codes from the research questions, including interview questions, and creating posteriori codes (Table 2). The researcher searched for meanings and patterns in the conversations. Fourteen priori codes and nine posteriori codes were found alongside the demographic information, which were the easiest to code. Seventeen people were interviewed, but due to considerations of space, only four are shown in the example in Table 2.

Table 2 *Table of Priori and Posteriori Codes*

Demographic Codes	**Interview 1 (Name)**	**Interview 2 (Name)**	**Interview 3 (Name)**	**Interview 4 (Name)**
University name				
Academic department				
Education degree				
Online teaching experience				
Type of taught class(es)				
Priori Codes	**Interview 1 (Name)**	**Interview 2 (Name)**	**Interview 3 (Name)**	**Interview 4 (Name)**
Electronic lesson content				
Electronic learning start				
Student interaction				
Motivation				
Interactive activities				
Cooperative learning				
Platforms				

Table 2 Continued

Online assessment tools				
Students' strengths and weaknesses				
Test type				
Interactive multimedia				
Student satisfaction				
Students acceptance				
Instructors and student's relationship				
Posteriori Codes	**Interview 1 (Name)**	**Interview 2 (Name)**	**Interview 3 (Name)**	**Interview 4 (Name)**
Internet issues				
Lecture				
Discussion board				
Course design				
Assessment challenges				
Test designing				
Test challenges				
WhatsApp & Telegram				
Multimedia challenges				

The third phase was segmenting the data. This phase allowed the researcher to position and connect categories. In phase 2, the researcher had an extensive list of demographics, priori, and posteriori codes, which came to a total of 26 codes. Because this was an unmanageable number, this phase helped in managing the data size where it can then

be used to structure the findings in the report. Columns were used to structure important variables of data analysis using codes as tools for reference, which help to quickly identify what the codes are referring to and determine if one is more important than the other. By reaching the third phase, the researcher was ready to summarize the results in the findings chapter.

Chapter 4: Findings

This study aimed to explore university faculty members' perceptions of their teaching practices in e-learning environments. The results are based on data from semi-structured interviews conducted with 17 faculty members who participated from six universities across the region in Saudi Arabia. The coding and analysis of transcripts resulted in categories and themes associated with each category.

Results are presented by first providing demographic information for each participant. Each research question is then answered by referencing the main idea that emerged for each category related to that research question. The main theme that emerged regarding each research question is then presented.

Demographic Information of Faculty Members in Saudi Universities

Participants were from different universities and different academic departments. Most of the respondents held a doctoral degree, while some of them held a master's degree. The sample varied between professor, associate professor, assistant professor, and lecturer teacher. The years of teaching experience of the respondents ranged from 5 to 20 years. A total of 17 faculty members, nine females and eight males, participated) (Table 3). Respondents were mainly engaged in classroom-based teaching prior to the COVID-19 lockdown, but since COVID-19, teaching classes have been offered mainly online. Only 30% of respondents reported having any previous experience with online teaching. Twelve of them currently teach hybrid classes, and five teach face-to-face classes only. Respondents stated that the sudden shift to online teaching due to the COVID-19 pandemic was credited to involving e-learning in Saudi universities, where e-learning was previously proposed as a new method for teaching but was never actually implemented. This situation gave faculty an

unrepeatable opportunity to understand what the position of this type of methodology could occupy in the education context.

Table 3 *Demographic profile of the participants*

P/No.	Gender	Rank	Experience
1.	F	Assistant Professor	9 years
2.	F	Professor and Former HOD	16 years
3.	M	lecturer	5 years
4.	F	Assistant Professor	11 years
5.	M	Associate Professor	18
6.	M	Senior lecturer	10 years
7.	F	lecturer	6 years
8.	F	lecturer	5 years
9.	M	Assistant Professor	10 years
10.	F	Senior lecturer	7 years
11.	M	Associate Professor	15 years
12.	M	Senior lecturer	8 years
13.	M	lecturer	5 years
14.	M	Senior lecturer	9 years
15.	F	Associate Professor	19 years
16.	F	Senior lecturer	10 years
17.	F	Professor	20 years

Research Question One: What kind of interactive activities do faculty members use to ensure the active engagement of students in e-learning environments in Saudi universities?

Two categories emerged in relation to the first research question. They included interactive activities practices and instructors' and students' communication.

Interactive Activities Practices

The analysis of our interviews shows participant faculty had very favorable opinions of using interactive activities in their online classes. All participants were using web tools and virtual learning environments like Blackboard and Google Classroom to improve interactive communication and collaboration among students and between students and teachers. In addition, participants reported that they usually preferred to involve students directly in producing learning content by employing, for instance, blogs or podcasts. Participant faculty also foster discussion and debate among students in different ways, such as, "Reciprocity in comments, collaborative writing, joint work on projects, discussion board on Blackboard, etc." (Participant 9)

They also used several live chat apps such as Telegram and WhatsApp before, during, and after the lecture to generate discussion among students in large classes. "These live chat apps support the uploading and sharing different documents, videos, audio, and all Microsoft file formats" (Participant 8).

The participant faculty focused on motivating students to interact throughout the course. Most of the participants mentioned the use of teamwork assignments in different ways to implement cooperative and collaborative learning. One of the respondents commented,

> When dealing with a large class, I always divide the students into small chat rooms within Zoom or Blackboard. Each group is given an axis to criticize and analyze, and then we meet again in the main chat room to discuss their results and conclusions. Sometimes, I ask them to create a group on any live chat app in the case of any technical lockdown. (Participant 8)

Four of the participant faculty noticed that the students' interaction during the lectures highly increased when it involved teamwork. This strongly suggests that students are more motivated when their peers acknowledge them. One respondent commented,

> I have been using teamwork profusely since the start of pandemic to take on independent learning responsibilities, and I can see how team-based learning activities increase students' interaction through how they try getting to know each other and face communication challenges. (Participant 11)

The educational institutions have all of the required tools and apps to set up collaborative projects, such as wikis, chat rooms, forums, blogs, social media, YouTube, etc. "The universities have quite good technical facilities to employ and provide equitable and quality education" (Participant 3). Most universities aim to take additional steps, such as "providing video and audio recordings of actual physical lectures" involving interactions between faculty and students, ″digital capture of a faculty’s PC during the lecture, as well as writings on whiteboards″ to improve the educational experiences of students.

The participants underlined the effects of field trips as a motivator activity. They believed that field trips would expose students to real-world experiences. A faculty from special education programs mentioned:

> Taking students on field trips to disability centers to observe the cases is essential. In some cases, if the students cannot visit the site, the instructor interviews the employees and some patients at the center and broadcasts it online for the students to view in real time. (Participant 1)

Another respondent gave an example of field trip activities, "Students were taken to the King Salman Library as a part of a research skills course. They were informed that they had access to all resources at the library and were taught how to use research databases" (Participant 6).

Instructors' and Student's Communication

Participants highlighted the substantial role of building relationships with students and then promoting their interaction in e-learning classes. "Teacher-student interactions and relationships are very important in the virtual environment" (Participant 7).

One of the features of the Saudi e-learning system is how students interact primarily with their instructors. One participant studying in the US says, "The student in US usually contact his instructor only via email or meeting through office hours, but in our Arabian culture, instructors are always welcoming any contact in any time, while we are not required to do" (Participant 9).

Concluded Theme for Research Question One

Instructors are adopting discussion, peers review, and live chat apps to promote and enhance interactive activities in e-learning.

Research Question Two: How do faculty members in Saudi universities assess and evaluate students' academic performance in e-learning environments?

The second research question generated two categories: instructors develop different assessment approaches and internet connection issues.

Different Assessment Approaches

Since assignments and feedback played the most crucial role in e-learning, most participants pointed to tests, projects, weekly tasks, exams, discussions, and participation as

their primary assessment methods. For most universities, 60% of the grade is based on participation, projects, and midterms, while 40% of the grade is for the final exams. (Participant 2, 4, 5, 11, 7, 13, 14, 15). Participants use both formative and summative assessments depending on course objectives and the type of assessment used.

Projects, Weekly Tasks, and Discussion Board.

The student must read the learning module and then participate in the activities or the discussion board. Participant 13 found a unique way of using formative assessment in evaluating students in the discussion board.

> I use an evaluation strategy called a 3-2-1; the student is required to list three themes or concepts learned during the unit, two unanswered questions, and one idea the students intended to share with others. This strategy helps me to determine how much of the unit's content the students have retained and how I can improve the next unit.

Another participant used the discussion board differently. "When the lecture finishes, I ask students to write a short narrative about what they have learned about a particular topic covered in class. This is not only an assessment tool, but I use it also as a feedback tool" (Participant 17)

Assessment depends on project work and weekly tasks are adopted to develop students' skills, behaviors, and confidence necessary for success. "It is essential to design work projects that help learners to analyze, evaluate, and extrapolate their plans, conclusions, and ideas" (Participant 6). "A great assessment tool to give feedback and deep evaluation that reflect content knowledge and additional skills" (Participant 12).

Tests and Quizzes

Tests and quizzes are considered traditional assessment tools, but they are excellent tools to engage students in their studies when combined with technology. The results of this study indicated that tests and quizzes are the most popular tools to evaluate learners in e-learning. Participant 3 said, "I always use tests and quizzes as canonical tools to assess students' level of learning because other assessment tools initially slow down e-learning processes." Another participant from Human Sciences College (Participant 14) added, “Many students register for online courses to avoid exams and quizzes, but I intentionally use them because of two reasons: First, I believe that knowledge should have some level of difficulty in order to be remembered well later. Second, tests, quizzes, and exams help in providing feedback to guide future learning."

Questions for online learning are designed differently according to the lecturer and what suits their assessment approach. "In my quizzes, I preferred to use different forms of questions depending on the goals of the book chapters" (Participant 1)."Objective questions such as multiple choice, true and false, matching, fill-in-the-blanks, hotspots, and essay questions that usually used in final exams" (Participant 1). "Objective questions save instructor’s precious time and provides flexibilities of time for the student" (Participant 10). "I use multiple choice and true-false questions to measure student knowledge as well as a source for a post-test discussion" (Participant 16).

Essay-type questions are mainly used by some other participants. This type of assessment questions requires students to express their opinions and beliefs on specific topics. "In my view, to evaluate higher-level students, this type of question encourages

critical thinking, and it is the best way to test their overall comprehension of a topic" (Participant 5). "I like to use essay questions most in my tests although they are harder to evaluate because I like when I give my students opportunities to create the answer instead of choosing it!" (Participant 15).

Participant 2, however, saw some disadvantages in using open-ended or essay-type methods in e-learning. "Essay questions prompt students to explore their thoughts, feelings, and opinions, but they require a longer time for students to think, organize, and compose their answers."

And most participants agreed on overall nature of testing in e-learning,

> The selection of questions is random. The system chooses five questions for the student from the question bank, and the student picks three to answer. The student can answer the questions open-book style, but the questions are not direct, so the student is required to brainstorm to answer correctly and cover all parts of the question. (Participant 12)
>
> "A Zoom meeting with the instructor is offered in case any students face difficulties during the test. The duration of the meeting extends until the end of the exam." (Participant 8). "Final exams are conducted in-person", whereas everything else such as "midterms and projects are done online." (Participant 4).

Internet Connection Issues

Another factor to consider is the extent of familiarity with the use of the internet for education in a culture where the web is not widely used for education. With e-learning being

implemented relatively recently in the educational sector in KSA, "Many students were faced with technical challenges" (Participant 17).

However, with e-learning, students have faced problems when submitting their assignments and exams due to internet issues or an overload on the site. Some participant faculty stated, "Students sometimes faced problems submitting exams because of poor internet connection" (Participant 4). "There are many students trying to submit a 60-question exam at once. For those who were unable to submit, I had to redo the exam for them or extend the time of submission" (Participant 16). "Students were unaware of how to upload their exams, or how to move from one question to the other" (Participant 17). "There are many students who live in villages where the internet infrastructure is not good. This caused many problems in the first semester of online learning. However, we still needed to assess and evaluate the students" (Participant 10).

Weekly tests were given to the students to help them adapt to the nature of online testing. Objective questions were later utilized more often than essay questions to reduce the chances of an overload on the site. One participant mentioned, "Accredited assessment with objective questions is a good option for students participating in online learning and accessed entirely from home" (Participant 5).

Concluded Theme for Research Question Two

Instructors primarily used tests and quizzes in assessment, and students often faced technical problems completing assessment because of poor internet infrastructure.

Research Question Three: How do faculty members perceive the value of using interactive multimedia in instruction?

The third research question generated two categories: estimation of interactive multimedia in teaching instruction and challenges of adopting multimedia.

Estimation of Interactive Multimedia in Teaching Instructions

All participants agreed that courses and multimedia tools in e-learning are designed and selected individually, and the type of activities and the use of multimedia were mainly individual. The cross-section of respondents gave diverse views about using and practicing e-learning in their classes.

The availability of multimedia differed based on college majors. The majority of the participants emphasized the importance of using multimedia tools to support and establish the information given during the lecture. During the interviews, the use of videos, audio recordings, graphs, maps, articles, tweets, and images were repeatedly mentioned, but they mostly preferred using videos. "Students are extremely stimulated when absorbing graphics, video, and animations alongside text. Students become more focused and retain more information as a result" (Participant 10).

> Teaching online needs us to make an extra effort to connect with our students. So, lecturing during the class will waste the time without any contact with students. I preferred to record the lesson, share it, and ask students to watch it before the class. Students came to class already knowing the basics, so I use the class time in in-depth discussions, practical application, answering questions. (Participant 13) "Videos or any multimedia tools during the lecture encourage the student to interact and they help students to receive the

> information through auditory and visual channels simultaneously" (Participant 16).

A participant from School of Engineering in King Khaled University mentioned using "YouTube channels for educational videos to enhance engineering education in the Arab world, where I usually use Professor Lutfi Al-Sharif's YouTube channel, very widely accessed channel, for this activity" (Participant 9).

One of the respondents in contrast commented that they use multimedia tools that they are more confident with. Most of respondents mentioned YouTube videos as the most efficient, clear, and broad tool to use in teaching process. "I asked my students to use YouTube for posting their videos where it is easy to use and enable their peers to comment and interact with each other" (Participant 7).

Three participants mentioned the use of Google Sites which is a website-building platform that allows students to create sites and publish them with no cost. Participants found that students exhibited high motivation, teamwork, and enhanced understanding of conducting projects on Google Sites, and they encouraged the use of technology-backed classrooms. Participant 12 mentioned:

> I always remind myself and other faculty members of a website called Roung, a non-profit massive open online course portal, in the Arabic language. It also provides free academic study materials in various fields and disciplines. It is provided by distinguished academics from all over the Arab world, who are eager to expand the circle of beneficiaries of their specialized scientific and knowledge stock, where they seek to deliver it to those outside the walls of universities.

Challenges of Adopting Multimedia

Regarding the response to the question related to challenges in finding qualified multimedia for the content, nine participants were dissatisfied with many of the provided multimedia. Four opined that most available multimedia supports the English language, and this presents a challenge for students that don't speak or understand English. Several participants stated that the language is not a problem for some majors that are taught in English, in one interview, the faculty stated, "I usually use YouTube videos the most because I can add captions and subtitles in Arabic to the selected videos on YouTube" (Participant 4). Another said, " […] It was hard to find programs that support the Arabic language for my Digital Graphic class […]" (Participant 1).

Overall, participants concluded that students were more attentive and interactive in class due to the use of multimedia. Universities, in turn, are still trying to enrich educational websites with Arabic resources. Participant 15 mentioned, "Each university has sporadic efforts of publishing and collecting educational content materials at one platform under its name and then introduce it to its users, but there is no public general platform to achieve high usability for all users."

Faculty try to enrich platforms with educational materials in some ways. Students are rewarded by faculty when they publish any educational and innovative materials that enriches the Saudi Digital Library (SDL). "We encouraged students to publish at SDL, but most of students work still not providing quality content that meets users' aspirations" (Participant 6). Some faculty also "post many PowerPoints slides at university's library to add real value at various levels, whether entertainment, educational or cultural" (Participant 11).

Concluded Theme for Research Question Three

Instructors adopt the use of multimedia such as video more than any other web tools in the online classes.

Research Question Four: To what extent do faculty perceive students' acceptance of e-learning environments?

One category emerged in relation to the fourth research question, which is students' interaction with technologies and digital tools.

Students' Interaction with Technologies and Digital Tools

Most participants responded positively to the construct students' acceptance of e-learning and technology explored in this study. "Some students think that e-learning is valuable and easy, and few have negative attitudes toward e-learning" (Participant 7). When asking participant 15, who has 19 years of experience teaching in higher institutions, she stated, "I can say that 76% of students found it easy to understand course materials, and 60% of students found it easy to understand assignments and could deal with them comfortably."

Students' impulse to online classes reflected students' thoughts and emotions toward e-learning. "Students are so enthusiastic that they were expecting the following online classes" (Participant 2).

The result found that students who spend longer sessions working in the e-learning environment experience more advantages and find it easier to explain these advantages to other students. "Students who use the e-learning environment often find it easier to use and are more confident in computer use" (Participant 12).

Some respondents perceived that younger students with technology skills tend to adopt e-learning more than older students, while some perceived the opposite. "I am teaching students who are in a senior year. I found them not interested in using technology tools a lot. That might be because they took fewer online classes than freshmen students" (Participant 5). "Students who are in their first years in the college tend to be more successful in using technology than senior students" (Participant 11). One interesting finding was the acceptance of e-learning is related to one's social status. Participant 11 stated:

> A few years ago, deciding to study in an e-learning program within Saudi culture was something difficult because that affects one's image (or social status). Some new generation individuals still have this concept and are unwilling to study in online programs.

Conversely, some participants did not think their students were excited and motivated to learn in online classes. This was represented by what Participant 9 stated:

> The first online learning conducted was during the COVID pandemic, and it was the only practical solution in teaching delivery. Many students negatively responded to online learning during that period and could not do better in the next year.

Another participant has another concern about the reason beyond students' negative responses. "The lack of students' digital performance relies on the poor communication between the lecturer and the students" (Participant 4). Other respondents perceived that students' level of engagement in online classes was high and concluded that most students accepted online learning.

Concluded Theme for Research Question Four

Instructors perceived that students are increasingly accepting e-learning environments and the technologies used in that type of learning space.

Figure 9

Founded Categories & Emerging Themes

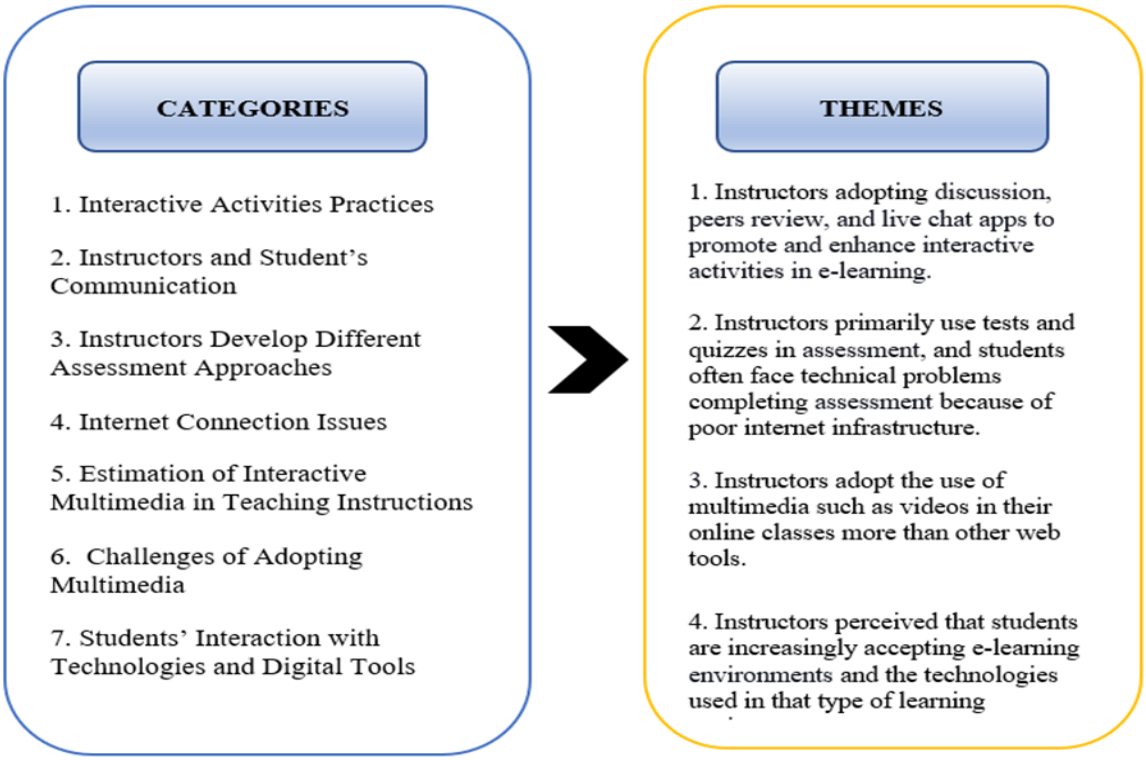


Figure 8 illustrates the seven categories and the four themes that emerged from the analysis of the transcripts from the seventeen faculty members who participated in this study. These themes are further discussed in detail in Chapter 5 of the dissertation.

Chapter 5: Discussion & Recommendations for Future Research

This qualitative study provides a description of e-learning practices of faculty members in selected higher education institutions in SA. Four significant themes are drawn from the findings:

1. Instructors are adopting discussion, peer review, and live chat apps to promote and enhance interactive activities in e-learning.
2. Instructors primarily use tests and quizzes in assessment, and students often face technical problems completing assessment because of poor internet infrastructure.
3. Instructors adopt the use of multimedia such as video more than any other web tools in online classes.
4. Instructors perceived that students are increasingly accepting e-learning environments and the technologies used in this type of learning space.

This study reflects the different knowledge levels and instructional practices of university faculty in their use of digital technologies in e-learning programs at Saudi universities. The lockdown and resorting to online classes caused by COVID-19 also gave university faculty a unique opportunity to better understand and appreciate the role that this modality of offering courses could occupy in higher education in SA. The four research questions are related to founded themes and they both are related to the study theoretical framework as shown in Table 4.

Table 4

Themes and Related Theories

Related Research Question	Themes	Related Theory
RQ1: What kind of interactive activities do faculty members use to ensure the active engagement of students in e-learning environments?	Discussion, peers review, and live chat apps	Social presence CoI
	Websites, Blogs & Podcasts	Teaching Presence CoI
RQ2: How do faculty members in Saudi universities assess and evaluate students' academic performance in e-learning environments?	Tests and quizzes in assessment	Constructivism Theory
	Discussion board	Social presence CoI
	Technical problems completing assessment	Connectivism Learning Theory
RQ3: How do faculty members perceive the value of using interactive multimedia in instruction?	Use of multimedia such as video more than any other web tools in the online classes	Connectivism Learning Theory
RQ4: To what extent do faculty perceive students' acceptance of e-learning environments?	Students are accepting e-learning environments and the used technologies	Teaching presence CoI

Theme # 1: Instructors are adopting discussion, peer review, and live chat apps to promote and enhance interactive activities in e-learning.

The main elements of CoI theory are Social Presence, Cognitive Presence, and Teaching Presence. Social Presence is the participant's capability to recognize the community, purposefully communicate in a believing environment and build interpersonal relationships (Boston, Díaz, Gibson, Ice, Richardson, & Swan, 2009). The results indicated

that 98% of respondents are using student-driven discussion boards, peer review, weekly Q&A boards, and live chat apps during online classes as interactive techniques. These interactive techniques help learners to project themselves socially and emotionally and perceive other learners as real people. According to Boston et al. (2009), "affective expression is the ability of online learners to project themselves through text-based verbal behaviors such as para-language, self-disclosure, humor, and other expressions of emotion and values" (p. 68). Clearly, most faculty use these discussion tools to capture the same type of interactions that exist in the traditional classroom, to increase students' motivation. CoI supports the design of online courses (synchronous, asynchronous, or blended) as active learning environments that require interaction among students and instructors. This encompasses facilitating, via technology, dialogue between faculty and students, and between students and their classmates (Vesely, Bloom, & Sherlock, 2007). Discussion activities are among the general and distinctive features of distance learning materials that help active learning and encourage students to research and interact during the learning process.

Teaching Presence refers to the design, facilitation, and direction of social and cognitive procedures toward individually meaningful educational outcomes (Anderson et al., 2019). Anderson and associates (2019) believe that "presence" is a social phenomenon that manifests itself through sharing of ideas, information, and opinions between instructors and students. Participants in this study use group or individual websites where students could write about various topics or current affairs. Using individual or group blogs in an online course allows students to get ideas from class, share materials with others, and invite outside contributors through the blog. Assignments that involve a group of students contributing to a

single blog or discussion board improve collaborative knowledge building. Thus, interactive online tools help to nurture a constructive learning environment for students, so they learn to value the way their peers contribute to their knowledge.

A surprising finding from this study is instructors had positive experiences in different tasks and activities that engaged their students to think about important concepts, skills, and knowledge they need to master. Because students in SA have less experience doing online programs, the expectation was students would be less engaging and motivated in such an environment. However, the connection or bond between students and their professors in SA is socially strong and this may compensate and explain the active engagement despite the challenges with the technology. In addition, 15 faculty named more than eight digital tools used to enable students to form deep connections, exchange knowledge, and make classes more interactive. Saudi faculties encouraged dialogue with their students and amongst the students. Participants tried to ensure students could interact with them during the lecture by opening discussions, asking questions, and asking for clarification. This reciprocal learning permits students to interact with each other, share knowledge and teach each other for better learning (Powell & Cody, 2009).

Theme # 2: Instructors primarily use tests and quizzes in assessment and students often face technical problems completing assessment because of poor internet infrastructure.

Results show that participant faculties in higher education institutions use small projects, weekly tasks, discussion boards, and quizzes for formative assessment. They also use tests for summative assessment in their online courses. The interviews reveal, however, that faculty rely primarily on quizzes and tests as the most common tools to evaluate students' performance. This finding partly supports previous literature that faculties use an

examination system as the only assessment technique in Saudi universities (Alsadaawi, 2010). Faculty develop different quizzes and test types such as multiple-choice, fill-in-the-blanks, true and false, and matching, which agrees with the findings of Almossa and Alzahrani (2022). Through these different forms, instructors can give constructive feedback to students, improve the learning process, and encourage progress. In addition, tests and quizzes can be utilized as a feedback method for students, and the grades awarded can be used as feedback for the instructor and course coordinator to take corrective actions in their instruction (Bhardwaj & Kandan, 2000).

Participants mentioned that they use quizzes and tests because of the large class size of their online courses. Online quizzes are ideal assessment tools for measuring learning outcome across a large audience (Colman, 2022). Quizzes and tests, in their own rights, are also practical and powerful tools to promote ongoing learning. When quizzes and tests are paired with technology, they are excellent tools for engaging student learning (Tsai, 2009). Different types of summative assessments are used, such as quizzes and final exams, to summarize students' progress, typically with a percentage or letter grade (Dell'Olio & Donk, 2007).

Studies agree that efficient classrooms rely on constructivist strategies for learning (see Powell & Cody, 2009). Through these formative assessment opportunities, students can solve problems in which they extend and re-conceptualize (accommodation) knowledge in new contexts to understand abstract theories and applications. With the use of the principles of constructivism, instructors can develop topics for discussion forums where students get a chance to do open-ended communication. They create an environment where individuals

learn to integrate reactions, experiences, opinions, interpretations, through respectful discussion (Gu et al., 2020; James et al., 2022).

Participant faculties in Saudi universities provide frequent opportunities for feedback and testing. They instruct students to read online publications, news, and articles to discuss the required material with the class, share resources with others, and draw outside participants. Designing discussion prompts and diving deep into active discussions provides peer-review opportunities to reflect on what they are learning and how they will use this knowledge in the future (Honebein, 1996). This approach helps students enhance their research, communication, and collaboration skills and encourages strong relationships among themselves.

Despite the variety of participants' responses to the assessment's techniques, no one mentioned conducting an assessment relevant to the course's objectives or clearly outlining it to students through logically organized instructions. In e-learning, assessments should reveal how well students have learned what instructors want them to learn. For this to occur, assessment tools and learning objectives need to be aligned carefully and connected to each other (Towns, 2009). Stating objectives that are linked to class content help instructors implement classroom assessment clearly and identify how each assignment will contribute to successful learning outcomes (Payton, 1990; Lowman, 1984). In addition, faculty members of higher learning institutions must provide clear and precise instructions about their assessments plan to students. These instructions need to contain what students are supposed to do, when, where, and the nature of assignments. Some of the most effective assessment methods include e-portfolios, journals, projects, and discussion boards (Conrad & Opena, 2018) because they can showcase the competency of students throughout the length of the

course, and students tend to get more engaged in activities which last much longer than a daily or weekly assignment.

Ali and Magalhaes (2008) identified the lack of good technology infrastructure as one of the four significant barriers of e-learning in non-English speaking countries. Another study conducted to identify the e-learning variables that influence the uses and success of e-learning implementation in Saudi higher educational institutions found Infrastructure and Technology Dimension as the most significant among sixteen factors as perceived by respondents (Quadri et al., 2017). This study also confirmed that some students have low quality internet access and face several technical problems when completing assignments online. Infrastructure and technology play a major role in the quality of e-learning experience, and they are fundamental in the successful implementation of e-learning. For successful implementation of e-learning, higher educational institutes in SA need to ensure they have the appropriate hardware, software, internet connectivity, and technical support system.

Connectivism Learning Theory acknowledges that the massive data communications networks cause significant changes in the way knowledge and information flow, develop, and change. E-learning builds on the ideas of the Connectivism Learning Theory, including social interaction, ongoing knowledge exchange, and seeking information through digital channels. The current university students are Generation Z (born after the mid-1990s) (Sakdiyakorn et al., 2021), and they are naturally digitally savvy, but poor internet infrastructure contributes to opportunity, achievement, and equity gaps in their electronic education. Sun et al. (2008) have considered that infrastructure such as: technology dimension and design dimension affect e-learning performance directly. When students are on board with the technology and

the e-learning program, they are more likely to engage in the learning process and succeed, and as a result, universities are likely to see increased student retention rates in e-learning programs. Thus, to ensure more successful implementation of an e-learning system, institutions should pay more attention to their infrastructure and technology systems.

Theme # 3: Instructors adopt the use of multimedia such as video more than any other web tools in online classes.

Interaction is significant and integral to the function of e-learning, which presents a challenge to maintaining students' interest in the course content. As highlighted in the literature review, integrating multimedia into online courses would improve interactive individual and group activities. Participants' instructors utilized audio recordings, graphs, maps, articles, tweets, and images in their classes, but videos seem to be the most popular learning tool used. This comes as a surprise, as the previous literature stated that multimedia resources are increasingly embraced in elementary and secondary education, but higher education in Saudi Arabia has not demonstrated equal enthusiasm for multimedia (Alshehry, 2016). Nasr (2004) also stated that spoken words (lectures) are the primary format for instructional communications in Saudi universities in traditional and online courses. The fact that instructors received training in interactive online learning from educational institutions during and after the COVID-19 pandemic may explain this result. This conclusion agrees with the findings of Chatta (2022), who explained that faculty of higher education institutions had many efforts to educate themselves about best practices in online education between 2019-2021. Faculty invested extra effort to learn about various types of technology and prepare themselves to confront the challenges of a newly converted online higher education program (Chatta, 2022).

Effective educational video platforms make abstract topics that once seemed challenging to teach and learn more understandable and teachable. Connectivism accepts technology as a significant factor in the learning process. It focuses on internet tools' role in creating new learning opportunities (Picciano, 2017). Technology, including watching and creating videos, enables individuals to learn and exchange information in ways that were not conceivable before the advent of the internet and the World Wide Web (Siemens, 2004).

Mayer (2017) emphasizes designing e-learning multimedia instructional materials that can promote academic and interactive learning. Mayer's study reveals that learners in online courses that integrate texts and graphics have a better understanding of the content than courses that are only text-based. Bleed's (2005) article on visual literacy in higher education, clarifies the usefulness of visual literacy in higher education and how visual materials can better explain concepts and facts, than reading only. Bleed found that visual multimedia in online courses hold students' interest more than typical college course materials. Connectivism posits that learning does not simply happen within an individual but within and across networks. Technology enables individuals to learn and exchange information in ways that were not conceivable before the advent of the internet, and virtual technology environments can provide various learning materials in various media formats.

Theme # 4: Instructors perceived that students are increasingly accepting e-learning environments and the technologies that are used in this type of learning space.

Faculty who participated in this study perceived students at Saudi universities are gradually accepting online courses and are becoming more comfortable with the types of technology used to make learning more interactive and engaging in this environment. This is consistent with a recent finding from a study by Alkhawajah, Alham, Alshammari, and

Alnumay (2021). They examined factors affecting students' satisfaction with distance learning at King Saud University and found that 72% of students were satisfied with e-learning arrangement, faculty preparation, learning objectives, and assessment plans. While Alkhawajah et al. examined students' perspectives, this study focused on faculty perspectives, and it is obvious that faculty are seeing evidence, reflected by the quality of students' work and interactions, that are consistent with students being more comfortable with learning in an online environment.

Students come from different backgrounds with different competencies and behaviors. Learners' acceptance directly correlates with their experiences with e-learning methods (Al-Harbi, 2010). Acceptance of an e-learning environment by a student defines whether the student is ultimately willing to put in the effort for academic success. The present results found that faculty think students who spend longer sessions working in e-learning environment experience more advanced. In addition, students with good knowledge of computers tend to think the e-learning environment brings advantages and it is easy to use. The author's interpretation of increasing acceptance of e-learning environments among students likely relates to students' preference of the flexibility that online classes offer. Also, a digital environment is the preferred learning method for Generation Z, where they enjoy digital tools well ahead of lectures, in-person collaboration with classmates, learning applications, and books. This does not overlook, according to Smith, Ascione, & Ruffolo (2019), the fact that some students exhibit reluctance in accepting e-learning environments. It is conceivable that a lower acceptance among the students is due to a lack of knowledge and experience with online education, as many students don't have adequate training or familiarity with used platforms. In addition, when students are in that environment, a lack of

interaction between students may be demotivating and affects their acceptance of e-learning methods. Examining a student's educational experience from the perspective of Connectivism theory is informative to both researchers and educators, in that it helps to understand the personal and situational factors that promote students' deep engagement in learning. Students' attitude towards e-learning is a major influential factor for the success of e-learning programs.

Limitations

This qualitative study has several limitations. One limitation was using only faculty members from Saudi universities as participants. The study did not include administrators, curriculum designers or students. The study also relied on a small sample size, therefore reported perceptions should not be generalize to all Saudi academic institutions. In addition, findings may vary from other regions and types of higher education institutions in SA.

Recommendations for Future Research

Future research can benefit from the following studies to better understand the e-learning phenomenon in Saudi educational institutions:

- Qualitative study to investigates students’ perceptions of e-learning programs in Saudi universities. This type of study may offer better and deep understanding of students’ attitudes and thoughts of e-learning.
- Quantitative study on factors related to student and instructor readiness for professional e-learning programs. This type of Quantitative study could be set up to predict the degree of resistance or acceptance of e-learning style in Saudi universities.

- Quantitative study analyzing strengths and weaknesses of faculty members' practices in the e-learning program. This type of Quantitative study may assist e-learning planners to enhance and improve the quality of e-learning system.
- Case study of implemented e-learning programs in universities. to describe the current e-learning initiatives and projects for students in universities. This type of study can focus on examining government policy for online education in different areas such as: student services; academic assessment; educational policy and administration; and marketing and public relations.

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Appendix A: Interview Questions

GENERAL QUESTIONS

What is the name of your university?

What is your current academic department?

What is the highest academic education degree you hold?

How many years of online teaching experience do you have?

What type of class(es) are you currently teaching?

Category 1= INTERACTIVE LEARNING AND ACTIVITIES

1/ Please describe how you feel about your competency or efficacy to develop interactive activities in your e-learning course?

2/ Describe your typical online lesson. What does it include, and who participates, how do they participate (what activities occur)?

3/ What strategies do you use to keep students actively involved in online lessons?

4/ What are the most current and effective teaching trends in your content area curriculum? Or describe the teaching techniques or strategies that promote active engagement of students in your online classes.

5/ How would you include cooperative learning in online teaching?

Category 2 = ASSESSMENT

1/ How do you help learners experience success? Tell us how you assess your students in online courses to determine how well they are learning.

2/ Describe how your current assessment tool aligns the objectives of your course and the results you want to achieve.

3/ What kinds of methods have you used in your e-learning classes to assess students' strengths and weaknesses?

4/ What kinds of tests do you like to give and why?

Category 3 = MULTIMEDIA

1/ What type of interactive multimedia do you think is necessary to serve most of your curriculum needs?

2/ What kind of multimedia materials do you integrate in your online courses?

3/ Are there any multimedia tools you found to work best with slower learners? Describe them.

4/ Are there any multimedia tools you found to work best with students that are quick learners? Describe them.

5/ Are you constantly searching for multimedia tools to show or demonstrate to learners in your online class? Tell us about some recent discoveries that you have found and used.

6/ Do you face any challenges in finding qualified multimedia for the content?

7/ Do you feel that the teacher should be responsible for developing interactive multimedia tools, or should they be provided in the curriculum?

Category 4 = E-LEARNING ACCEPTANCY

1/ How do you perceive students' acceptance to e-learning?

2/ How do you describe students' digital performance and success?

Appendix B: Consent Form for Interviews

Ibtisam Alhasaf
Ph.D. Candidate
College of Education, Health and Human Science s
University of Idaho
Moscow ID 83 8 44

Faculty Members' Digital and Instructional Practices in E-learning Programs at Saudi Universities

Informed Consent for Interviews

Ibtisam Alhasaf, from the Curriculum and Instruction Department in at University of Idaho is conducting a research study. The purpose of the research is exploring digital and Instructional practices of faculty members in e-learning programs at Saudi universities. You are being asked to participate in this study because you teach in Saudi university.

Your participation will involve interview about your attitudes toward e-learning program. The interview should take about 60 minutes to complete. The interview includes questions such as What does your typical online lesson include? Your involvement in the study is voluntary, and you may choose not to participate. You can refuse to answer any of the questions at any time. There are no names or identifying information associated with your responses. There are no known risks in this study, but some individuals may experience discomfort or loss of privacy when answering questions. Data will be transcript and stored for no longer than for initial purpose. After the transcripts were checked for accuracy all tapes will be destroyed for protecting confidentiality purpose.

The findings from this project will provide information on exploring university faculty members in SA perception about their teaching practices in e-learning environments and determine the extent to which their strategies reflect best practices in terms of interactivity, assessment, and multimedia learning material. If published, results will be presented in summary form only.

If you have any questions about this research project, please feel free to call Ibtisam Alhasaf at (5714902871). If you have questions regarding your rights as a research subject, or about what you should do in case of any harm to you, or if you want to obtain information or offer input you may call the Office of Research Assurances at (208) 885-6340 or irb@uidaho.edu.

By signing below, you certify that you are at least 18 years of age and agree to participate in the above-described research study.

_____	_____
Name of Adult Participant Date	Signature of Adult Participant
___ Ibtisam Alhasaf _____	_____
Name of Research Team Member March 5, 2021	Signature of Research Team Member Date

Appendix B: Consent Form for Interviews/ Arabic Copy

الممارسات الرقمية والتعليمية لأعضاء هيئة التدريس في برامج التعلم الإلكتروني في الجامعات السعودية

الموافقة المستنيرة على المقابلات

تُجري ابتسام الحصف، من قسم المناهج وطرق التدريس بجامعة أيداهو، دراسة بحثية. الغرض من البحث هو استكشاف الممارسات الرقمية والتعليمية لأعضاء هيئة التدريس في برامج التعلم الإلكتروني في الجامعات السعودية. يُطلب منك المشاركة في هذه الدراسة لأنك تدرس في جامعة سعودية.

ستشمل مشاركتك مقابلة حول مواقفك تجاه برنامج التعلم الإلكتروني. يجب أن تستغرق المقابلة حوالي ستون دقيقة. تتضمن المقابلة أسئلة مثل ماذا يتضمن درسك النموذجي عبر الإنترنت؟ مشاركتك في الدراسة طوعية، ويمكنك اختيار عدم المشاركة. يمكنك رفض الإجابة على أي سؤال في أي وقت. لا توجد أسماء أو معلومات تعريفية مرتبطة بردودك. لا توجد مخاطر معروفة في هذه الدراسة، ولكن قد يشعر بعض الأفراد بعدم الراحة أو فقدان الخصوصية عند الإجابة على الأسئلة. سيتم نسخ البيانات وتخزينها لمدة لا تزيد عن الغرض الأولي. بعد فحص النصوص للتأكد من دقتها، سيتم إتلاف جميع الأشرطة لحماية السرية

حول SA ستوفر نتائج هذا المشروع معلومات حول استكشاف أعضاء هيئة التدريس بالجامعة في تصور ممارساتهم التدريسية في بيئات التعلم الإلكتروني وتحديد إلى أي مدى تعكس استراتيجياتهم أفضل الممارسات من حيث التفاعل والتقييم ومواد التعلم متعددة الوسائط. إذا نشرت، سيتم تقديم النتائج في شكل موجز فقط

إذا كان لديك أي أسئلة حول هذا المشروع البحثي، فلا تتردد في الاتصال بابتسام الحصف على (5714902871). إذا كانت لديك أسئلة بخصوص حقوقك كموضوع بحث، أو حول ما يجب عليك فعله في حالة حدوث أي ضرر لك ، أو إذا كنت ترغب في الحصول على معلومات أو عرض مدخلات ، فيمكنك الاتصال بمكتب ضمانات البحث على (208) 885- 6340
أو مراسلتهم على البريد التالي:
irb@uidaho.edu

بالتوقيع أدناه، فإنك تقر بأن عمرك لا يقل عن 18 عامًا وتوافق على المشاركة في الدراسة البحثية الموصوفة أعلاه

_____ _____ _____

اسم المشارك توقيع المشارك
التاريخ

ابتسام الحصف_____ _____ ___٥ مارس ٢٠٢١___
_____

اسم عضو فريق البحث توقيع عضو فريق البحث

Appendix C: Recruitment script

Hello, my name is Ibtisam Alhasaf. I am a graduate student at University of Idaho in the Curriculum and Instruction Department. I am conducting research on digital and Instructional practices of faculty members in e-learning programs at Saudi universities, and I am inviting you to participate because you teach in Saudi university.

Participation in this research includes interview about your attitudes toward e-learning program, which will take approximately 60 minutes. If you agree to participate in a follow-up interview about your view of e-learning practices plans in your university, that will take approximately 10 to 15 minutes.

If you have any questions or would like to participate in the research, I can be reached at

+1 571 490 2871

Or you can email me to: alha0283@vandals.uidaho.edu

Appendix D: IRB Approval

University of Idaho
Office of Research Assurances

March 25, 2021

To: Raymond A Dixon

Cc: Janine Julianna Darragh

From: University of Idaho Institutional Review Board

Approval Date: March 25, 2021

Title: Improving the Academic Performance of University Students in Saudi Arabia Through E-learning: Faculty Members' Perceptions of Efficient Pedagogical Practices

Protocol: 21-012, Reference: 012366

Exempt under Category 45CFR46.104(d)(2).

On behalf of the Institutional Review Board at the University of Idaho, I am pleased to inform you that the protocol for this research project has been certified as exempt under the category listed above.

This certification is valid only for the study protocol as it was submitted. Studies certified as Exempt are not subject to continuing review and this certification does not expire. However, if changes are made to the study protocol, you must submit the changes through VERAS for review before implementing the changes. Amendments may include but are not limited to, changes in study population, study personnel, study instruments, consent documents, recruitment materials, sites of research, etc.

As Principal Investigator, you are responsible for ensuring compliance with all applicable FERPA regulations, University of Idaho policies, state and federal regulations. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice. The Principal Investigator is responsible for ensuring that all study personnel have completed the online human subjects training requirement. Please complete the *Continuing Review and Closure Form* in VERAS when the project is completed.

You are required to notify the IRB in a timely manner if any unanticipated or adverse events occur during the study, if you experience an increased risk to the participants, or if you have participants withdraw or register complaints about the study.

IRB Exempt Category (Categories) for this submission:
Category 1: Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction.

Institutional Review Board 875 Perimeter Drive, MS 3010 Moscow, ID 83844-3010 Phone: 208-885-6162 Fax: 208-885-6014 Email: irb@uidaho.edu

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University of Idaho
Office of Research Assurances

Institutional Review Board 875 Perimeter Drive, MS 3010 Moscow, ID 83844-3010 Phone: 208-885-6162 Fax: 208-885-6014 Email: irb@uidaho.edu

This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.
Category 2: Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: i. The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; ii. Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or iii. The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by .111(7).