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Exploring E-Learning Delivery in Saudi Arabian Universities

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Abstract: This qualitative research study explored E-Learning delivery in Saudi Arabian Universities from a holistic perspective to advance knowledge on the evolution of Saudi Arabia's distance education system. Data collection consisted of 28 in-depth, one-on-one interviews with instructors and course designers to capture missing insider perspectives and was supplemented by a thematic analysis of core supporting documents related to the universities' strategies for delivering online learning. Three core thematic areas were isolated and analyzed: (1) Distance education growing pains, (2) Learning theory integration challenges, and (3) Pedagogical and technical alignment. Stafford Beer's Viable Systems Model (VSM) provided an interpretive lens to explain how Saudi Arabia's distance education system remained viable while passing through periods of significant change. A blended learning model is proposed to address the complex interplay of factors influencing E-learning delivery within Saudi Arabia's distance education system.

***Keywords*:** distance education, online learning, E-learning, blended learning, pedagogical and technical support

Résumé: Cette étude fondée sur une recherche qualitative a exploré l'offre d'apprentissage en ligne dans les universités saoudiennes dans une perspective holistique afin de faire progresser les connaissances concernant l'évolution du système de formation à distance en Arabie saoudite. La collecte de données a consisté en 28 entretiens individuels approfondis avec des enseignants et des concepteurs de cours afin de recueillir les points de vue manquants venant des praticiens. Elle a été complétée par une analyse thématique des principaux documents d'appui liés aux stratégies des universités en matière de prestation d'apprentissage en ligne. Trois domaines thématiques fondamentaux ont été isolés et analysés : (1) Les difficultés de croissance de l'enseignement à distance, (2) Les défis de l'intégration de la théorie de l'apprentissage, et (3) L'alignement pédagogique et technique. Le modèle de systèmes viables (VSM) de Stafford Beer a fourni une grille d'interprétation pour expliquer comment le système de formation à distance de l'Arabie saoudite est resté viable tout en traversant des périodes de changements importants. Un modèle d'apprentissage mixte est proposé pour aborder l'interaction complexe des facteurs qui influencent la prestation de l'apprentissage en ligne au sein du système de formation à distance de l'Arabie saoudite.

Mots-clés: formation à distance, formation en ligne, e-learning, formation mixte, soutien pédagogique et technique

Introduction

The advent of distance education in the Kingdom of Saudi Arabia (KSA) has raised questions about the suitability of teaching methods traditionally associated with face-to-face learning environments (Al Lily, 2013; Hamdan, 2014; Selwyn, 2010). Answers, however, have been slow to appear, as distance education is influenced by instructional design models which focus on the objectivist learning approach (Bates, 2015). A teacher-centered learning approach based on behaviorist and cognitive theories (Vrasidas, 2000;

Harasim, 2012); it aims to represent and transfer objective realities from the teachers to the learners (Yang & Liu, 2007). Despite their focus on issues of quality design, explicit learning objectives, and carefully structured content, these models have nevertheless been "criticised by constructivists for not paying enough attention to learner-instructor interaction, and for privileging more behaviourist approaches to teaching" (Bates, 2015, p. 113).

The concurrence of constructivist approaches to learning and the emergence of the Internet have led to the development of online collaborative learning models (Ibid). Constructivism refers to a learner-centered approach in which learners can control their pace of learning (Yang & Liu, 2007; Reigeluth et al., 2017), promoted in online collaborative learning, as students are encouraged to create their knowledge together while the teacher facilitates the discourse or links the knowledge community (Harasim, 2012, 2017; Kim et al., 2015; Peterson et al., 2018). Collaboration between learners has both a social and academic emphasis because this community is nurtured through social interaction and purposeful academic communication (Garrison, 2013).

Scholars seeking to understand evolving relations between learning technologies and pedagogical models have struggled to keep pace with the rapid expansion of information technologies. However, it remains difficult to gauge how globalizing trends (i.e., Internet penetration) are adopted and adapted in unique local circumstances such as the KSA. "Distance education" or "distance learning" are used as umbrella terms that encompass distinct forms of remote learning such as correspondence learning, E-learning, and blended learning. Correspondence learning refers to the first system of distance learning which relied on the postal service to deliver printed materials. E-learning refers to courses that use technology and the Internet to provide constructive learning opportunities to students. Finally, blended learning is unique as it combines

face-to-face and online instruction (Garcia et al., 2014; Abdelrahman & Irby, 2017; Hockly, 2018). This study explores the complexities of pedagogical model application within the larger context of Saudi distance education. Drawing on insider interviews and document analysis, Stafford Beer's Viable Systems Model (VSM) provides an interpretive lens to explain how Saudi's distance education system remains viable through periods of significant change.

Background and Research Context

This study is framed by the Viable Systems Model (VSM) to understand how an organization's operation systems interact to form an overall organizational culture. The Viable System Model (VSM) was developed by the cybernetician Stafford Beer in his book, *Brain of the Firm* (1972). VSM "explain[s] *how systems are viable*—that is, capable of independent existence" (Beer, 1984, p. 7). This model can be used to examine the process of how Saudi distance education remains viable in a changing environment. Within the higher educational sector, systems approach offers a unique lens for capturing a holistic picture of technological change within the larger context of a learning society. As Laurillard (1999) explains, "the more [the university] addresses the concerns of society in its research, and the more it widens access to all members of society to benefit from the fruits of that research, the more it supports a genuine `learning society'" (p. 120).

Distance education in Saudi Arabia has passed through three distinct phases. The first of these began in 1972, with the advent of correspondence studies programs, known in Arabic as *Entesab*, at King Abdulaziz University (Alturki, 2014). Such programs were traditional in that course material, otherwise delivered in conventional classroom

settings, was transcribed and made available to students through printed materials and books delivered by the Saudi Post (McLaren & Alanazy, 2015).

In the early 2000s, several factors converged to bring about significant institutional changes and a second phase for Saudi distance education (Aljabre, 2012). The inclusion of certain technologies prompted changes in teacher-student interactions, creating a recognizable distinction between E-learning and first-phase correspondence courses (McLaren & Alanazy, 2015). In the Saudi context, technology-driven efficiencies lead to advanced correspondence programs, known in Arabic as *Entesab Motawar.*

Such changes were reflected in institutional adaptations, such as at King Abdulaziz University (KAU), which created a separate department for distance learning in 2002 (Alturki, 2014), and established distance learning deanships in 2005 (Al-Asmari & Khan, 2014). Thus, a new form of distance education was underway, with others, such as King Fahd University of Petroleum and Minerals (KFUPM) establishing the Kingdom's first E-learning centre (Aljabre, 2012). King Faisal (KFU) and King Saud (KSU) universities followed in a similar fashion; the E-Learning Unit at KFU was established in 2008 (Al-Asmari & Khan, 2014). In support of such changes, KSU established the Deanship for E-Learning and Distance Learning in 2007 (ibid). Other universities followed suit, and several such administrative positions now exist across Saudi Arabia (Alshahrani & Cairns, 2015).

These developments gave rise to the establishment of a National Plan for Information Technology (NPIT), which supports online learning and distance education in universities (Alebaikan & Troudi, 2010). Under the NPIT's direction, the National E-Learning and Distance Learning Centre (NCeL) emerged in 2006 (Alahmari, 2017; Aljaber, 2018). The main role of the NCeL was to cooperate with the Ministry of

Education (MoE) to support and standardize distance learning at all Saudi universities through "technical support, tools, and the means necessary for development of digital educational content in higher education throughout the country" (Alebaikan & Troudi, 2010, p. 53).

A third phase of Saudi distance education was inaugurated in 2016, when the Ministry of Education curtailed traditional style correspondence programs entirely. By this point, the system of *Entesab Motawar* had surpassed the quality of these programs and rendered them obsolete (Almowaten, 2015). During this phase, the Ministry of Education emphasized blended learning as a high-quality distance learning option (Aljaber, 2018). In Riyadh City, the Saudi Electronic University (SEU) was established and became the first university to offer a blended learning program to its students; blended learning occurred across several programs, such as business and financial studies, health sciences and computer science (Moukali, 2012; Alturki, 2014; Zawacki-Richter et al., 2015; Aljaber, 2018; Alahmari & Amirault, 2017). Subsequently, other branches of the Saudi Electronic University were established in other cities around the Kingdom (Alturki, 2014; Richter et al., 2015; Aljaber, 2018). This phase also prompted other institutional adjustments, most notably with respect to the NCeL, discussed at length in this paper's "Findings" section.

Initially enabled by the expansion of the Internet, Saudi Arabia's National Plan for Information Technology, and the NCeL itself, expanded in the context of a government commitment to massive infrastructure development (Basahel & Basahel, 2018). Saudi Arabia's 9th and 10th Development Plans (2010–2019) pledged to diversify the Kingdom's economy, establish a "knowledge economy," and invest heavily in core infrastructure in health and education (Ministry of Economy and Planning, 2019). The current development plan, *Vision 2030*, continues these priorities, with added emphasis

on women's rights, scientific research, and expanded access to higher education (Ibid). At nearly nine per cent of gross domestic product (GDP), Saudi expenditure on education is considerably above the global average (Ibid). In effect, capacity building in Internet connectivity and educational facilities has been seen as essential to the Kingdom's increased integration into the global economy beyond the oil sector (United Nation High-Level Political Forum, 2018). In turn, distance education has facilitated basic priorities, especially expanded access to higher education (Hamdan et al., 2020).

Despite large expenditures, Hamdan (2014) has pointed out that the culture of learning itself has remained largely traditional in the KSA. She argues that a banking analogy offered by Paulo Freire continues to suit Saudi education – 'deposits' of information are made into empty 'vessels', i.e., students. A traditional approach to education is characterized by a teacher-centered focus with relatively little teacher-student interaction, rote memorization, and an objectivist ontology (Ibid).

The developing shift in learning culture has been explained in different ways by various scholars. Wang and Reeves (2007) pushed for scholarly focus on how culture, broadly defined, interacts with online learning technologies to create new, locally situated learning cultures. For the Saudi context, Hamdan (2014) has argued that declining emphasis on a single interpretation of Islam (Hanbali) exposed Saudi students to the concept of diversity itself. This cultural shift, combined with online learning technologies, has prompted new perspectives on the content of Saudi education, and the nature of learning in relation to established learning theories, including Behaviorist, Cognitive Theory, Constructivist Theory, Pragmatist Theory, and Connectivist Theory (Ertmer & Newby, 1993; Siemens, 2004; Downes, 2007; Harasim, 2012; Morgan, 2014; Kop & Hill, 2008).

The qualitative research in this paper, drawing from teaching and course design experts, focuses less on culture defined in the broad sense. Instead, taking a holistic approach on the institutional level, we trace the emergence of a learner-centered culture through the experiences of experts as they selectively applied various theories of learning while integrating new collaborative learning technologies.

Methodology

This study used a qualitative research design to explore the distance education delivery in Saudi Arabian Universities from a holistic perspective to advance knowledge on the evolution of Saudi Arabia's distance education system (Creswell & Poth, 2018; Merriam, 1988). Data selection employed a nonprobability sampling strategy to gain insights from the selected sample (Merriam, 1988). Nonprobability sampling is preferred in qualitative case studies as it helps the researcher discover and gain insights from the selected sample believed to be able to reveal the most (Merriam, 1988). As such, "each unit of analysis in the population does not have an equal chance of being selected for the sample" (Eid, 2011, p. 10). As part of the nonprobability sampling, quota and sequential strategies were used. Quota requires a pre-set number of units in each category (Eid, 2011), while sequential sampling involves adding relevant cases until there are no new characteristics or information available to be obtained (Eid, 2011; Neuman, 2007; Neuman, 2014). This is referred to as the "saturation point", in which the participants' examples become repetitive and confirm previously collected data; this is a sign that data collection is complete, because no new information is being added (Jackson et al, 2011).

As part of the nonprobability sampling strategy, the researcher made use of criterion, quota and sequential strategies when selecting the data, interview participants, and

documents for the study. First, the researcher recruited participants based on certain criteria, which is a valuable strategy for assuring the quality of the study (Neuman 2007, 2011a). In this study, the criteria were that instructors from the Saudi universities needed to have had a minimum of two years of distance teaching experience within the Saudi Electronic University (SEU) or any other university that offered distance learning programs. Similarly, participants from the National Center for E-learning (NCeL) were also required to have a minimum of two years' experience involving the delivery and managing of distance learning in Saudi universities. Second, a request email (in Arabic and English) was sent to Saudi universities and to the NCel in order to obtain permission for conducting the study at their institutions. In addition, the researcher asked the Saudi universities and NCeL for suggestions of individuals who fit these criteria and who might be willing to participate in the study. In this study, the researchers continued to gather information from the participants at Saudi universities and NCeL until saturation was reached.

Documents were also identified through the use of criterion and quota strategies. The first criterion for the documents was that they had to be written in Arabic and English, since the Saudi universities and NCeL are Arab institutions and English is the second language used there. The researcher also requested insider (published) documents from the participants concerning the strategies and principles used by the Saudi universities to deliver online learning. Furthermore, the researcher explored the posted information and published documents on the websites of the NCeL and universities that agreed to conduct the study with their staff, as well as other peer reviewed articles and articles available online.

Quota and sequential strategies were also employed in the selection of the documents. This means that general topics were identified by the researcher and then relevant cases

were selected until there was no new information or new diversity from the cases (Neuman, 2011a; 2014). The majority of documents identified using these approaches were those posted on the websites of the NCeL, SEU and KAU, as well as the peer reviewed articles.

As one of the study researchers was a Saudi citizen, this provided a useful insider perspective; procedures were followed (ongoing researcher journal) to guard against possible bias and to maintain adequate distance from the data, as suggested by Lincoln and Guba (1985). The ongoing researcher journal included several kinds of entries like reflexive and introspective notations about the researcher's mind in relation to what was happening in the field of Saudi distance education (Ibid).

Multiple data collection methods (insider interviews and documents) were used in this study to capture a holistic picture of distance delivery in the KSA context. A total of 28 participants representing all Saudi provinces were interviewed in this study: 16 instructors from the Saudi Electronic University (SEU) (5 from the West branch, 4 from the South branch, 2 from the North branch, 1 from the East branch, and 4 from Center branch), and 5 administrators (4 Blackboard® Learning Management System [LMS] trainers and 1 instructional designer). Four participants were from the National Center for E-learning (NCeL), namely a director in the Center, a Jusur LMS Representative, SHMS (which means sun in Arabic and the name of the program) OER Representative, and the E-learning Pioneers Program Representative. From King Abdulaziz University, there were three participants (a Vice Dean at the technical section, a Blackboard trainer, and an instructor).

Documents were used to provide a historical perspective of distance learning in Saudi higher education, as they could be analyzed and reanalyzed as needed (Lincoln and

Guba, 1985; Merriam, 1988). An estimated 150 documents were used in the research, including strategies and principles used by the Saudi universities to deliver online learning, reports, studies, maps, news, conference proceedings and peer reviewed and online articles. These documents were obtained through several methods. The researchers collected insider (published) documents (in English and Arabic) from the participants which were not available to public. The researcher also analyzed posted strategies, principles, reports and conference proceedings on the websites of the institutions that gave the researchers the permission to conduct the study in their sites. Relevant peer reviewed and online articles available on Google and various databases were also collected.

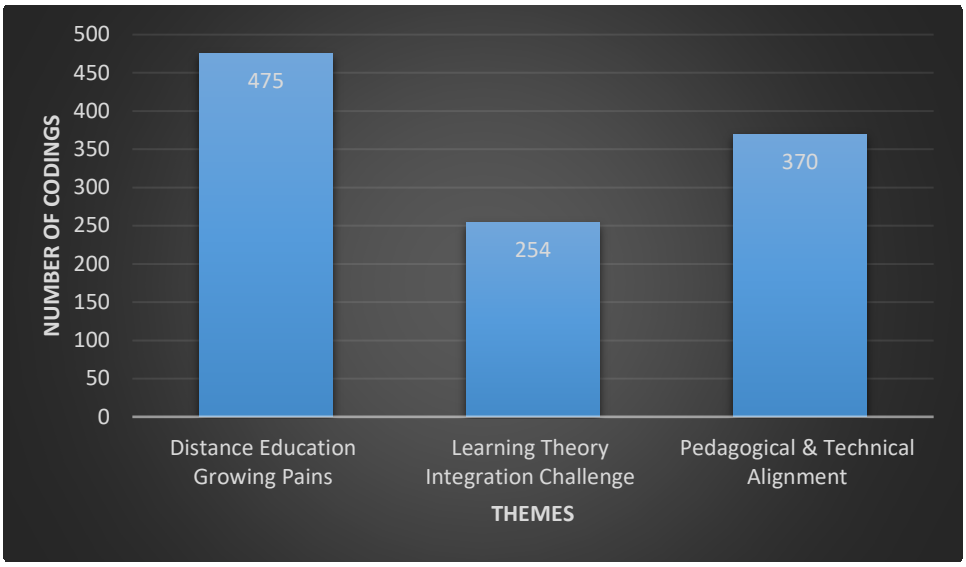
The data analysis processes for this case study research were mainly drawn from Merriam (1988), Miles and Huberman (1994), Neuman (2007), Saldaña (2013), and Creswell (2014). Once the collected data was organized and prepared for analysis, the researcher went through it to gain a general sense of the information. Then, the data was organized into categories on the basis of themes, concepts, or similar characteristics in order to be analyzed (Eid, 2011). Data analysis employed descriptive coding and pattern coding methods to generate a description and an interpretation of the case (Saldaña, 2013). Various approaches were used to ensure the trustworthiness of this study, including the identification of the researcher's biases, triangulation, thick description, member checking and peer debriefing (Creswell & Poth, 2018). Ethical considerations were made throughout all the stages of this study.

Findings

The coding scheme of this study incorporated three categories, which are discussed here in order of relevance to the research question, and presented in Figure 1, with the percentage of the responses in each category.

Figure 1

Coding Scheme



Distance Education Growing Pains

This category gained the highest number of codes with a total of 475 responses, or 43% (Figure 1). Participant responses reveal three discernible sub-themes: early development of distance education in KSA; the transition from correspondence and E-learning to blended learning in Saudi universities; and collaboration and leadership roles.

Participant #15 noted the pioneering efforts of universities such as the KAU in establishing correspondence programs as early as 1972. These early programs emerged to resolve a single logistical problem: to support "those who want to learn but are unable to be present" (Participant #7). However, the advent of distance learning was not accompanied by a formal, underlying change in educational philosophy.

The early 2000s witnessed a significant shift, as some universities began to think about establishing online distance programs in 2003 (Participant #23). The availability of the

Internet as a means of delivering traditional-style courses prompted institutional developments, such as the creation of the NCeL and distance learning deanships discussed in our background section. As Participant #24 noted, these developments were devised to improve distance learning and to "give E-learning its correct value in the universities." Nevertheless, as significant as these changes were, a more fundamental transformation in distance learning, featuring the integration of multiple technologies and effective teacher-learner interactions, is "something new in most settings" (McLaren & Alanazy, 2015, p. 29).

The first phase of this transition came in 2016, when the Ministry of Education decided "there wasn't an immense interest in the quality of distance learning systems" (Participant #11), thus admissions to university distance learning programs were ended (Participant #23).

This transition was continued in October 2017, when the NCeL was given independence and an opportunity to explore avenues outside its initial mandate (NceL, 2017). Independence from the MoE opened the NCeL to a wider array of collaborative possibilities in its efforts to keep apace of distance-learning technologies. One year after gaining independence, the NCeL began shifting its focus, placing less emphasis on the provision of services, and more on its role as a coordinative body setting rules and overseeing the quality of distance education (Participant #24).

At the heart of the NCeL's transformation was a commitment to a gradual transition from correspondence learning to a system of ***blended learning***. Participant #10 describes this transition most plainly, stating that traditional correspondence learning was "abolished" in Saudi Arabia. The Ministry of Education and the Ministry of Civil Service only accredit degrees earned via blended learning programs.

Distinguished for excellence in blended learning, the Saudi Electronic University was designated as the only government university to offer distance education programs. (Alturki, 2014; SEU, 2017a; Participant #6). The distinct feature of the blended learning approach at SEU is that "75% of the content is offered online and 25% requires campus presence (face-to-face)" (Participant #19). Participant #4 described how this works in practice: "we have two lectures every week. In the first lecture, the students have to come physically to our class. In the second lecture, they take it online through a virtual medium, like Blackboard." Weekly online assignments and quizzes may also be given (Participant #3).

However, some concessions may be made under certain conditions. For example, one participant acknowledged that, although rare, classes may be entirely virtual in sections with low registration, or in cases of faculty shortages where the instructor must be assigned from a different branch (Participant #14). Likewise, some general courses taken by all students, such as Arabic language and Islamic studies, are now taught exclusively online at Princess Norah University (Participant #15). This was done gradually at Al-Jouf University, where there are now 19 courses that are online only (Participant #23).

While the blended learning programs are accredited by the Ministry of Education and the Ministry of Civil Service, the job market still associates them negatively with distance learning. For example, Participant #9 mentioned that students often asked, "Do you think we will get a job when we graduate because our diploma will be from the Saudi Electronic University? Or will they consider it to be as if we have diplomas from distance learning?" It may take time for the public (including employers) to differentiate between blended learning graduates and distance learning graduates.

As one of the significant advantages of the blended learning approach is its academic quality, this has increased the students' demand for it (Bardesi, 2017). Blended learning builds strong relationships between instructors and students as they have face-to-face and/or virtual classes every week (Participant #14). Moreover, blended learning gives more flexibility to students who work during the day, since classes can be held in the evenings (Participant #4).

The concepts of ***collaboration and leadership*** entail collaboration between institutions, both locally and internationally; collaboration between the NCeL and E-learning deanships; and individuals' contribution and cooperation. As the first Saudi university to establish partnerships with foreign institutions to design and deliver online content, the curricula of SEU are developed in cooperation with several international universities (Participant #20). Partnerships are established with leading academics worldwide, though efforts are made to render content appropriate for Saudi culture and society (SEU, n.d.). For example, a U.S. lecturer may have the assistance of a Saudi facilitator (Participant #11).

Domestically, SEU acts as a hub through its partnership with the Saudi Digital Library (SDL), and also through its role in providing training and support for Blackboard to universities across the country (SEU, 2017b; Aljabr, 2018). Meetings, seminars, international conferences, and workshops are organized to allow deans and other educators to discuss issues including potential drawbacks to E-learning and areas to improve with each other and international experts. (Participant #22).

Extensive collaboration is expected within universities. While instructors deliver content that was predesigned by the deanship of distance learning (Participant #28), at the end of each semester, they write a course report giving their recommendations for

improvements based on their experiences (Participant #3). Thus, the instructors also contribute to updating the electronic content.

Additionally, there is informal cooperation between faculty members, typically through a group email or on a discussion board (Participant #17). There is also formal collaboration in meetings and conferences using internal communications tools (Participant #14).

Further collaboration exists between IT trainers, faculty members, and students, as the trainers explain how to use and interact with the tools in Blackboard. Participant #20 notes, "we always try to give them the steps and ideas from a pedagogical perspective." This is done through manuals and video tutorials focused on Blackboard tools (Participant #21).

In many cases, successful ***collaboration*** is a function of sound ***leadership***. The development of distance education in Saudi Arabia was supported at high levels of leadership from the universities, the Ministry of Education, and the royals. The universities first "took the initiative and started developing online courses" (Participant #1). For a time, the only university offering distance learning was King Abdulaziz University (Participant #23); subsequently, King Faisal University and King Saud University also came to be considered leaders in the field of distance learning.

Deans and heads of colleges guided, supervised and promoted the process of distance education. In addition to general supervision (Participant #11), deans were also involved in the development of content, programs, and the courses themselves (Participant #14). All these tasks could be collaborative across locations (Participant #17).

Finally, high-level leadership from the royals and the Ministry of Education was crucial in developing distance education at Saudi universities. One participant emphasized, "when the approval for SEU came from King Abdullah, may his soul rest in peace, it was the greatest support for online education" (Participant #2).

Learning Theory Integration Challenge

This category gained the third highest number of codes with a total number of 254 responses, or 23% (Figure 1). The main subcategories are ***behaviourist***, ***cognitive***, ***constructivist***, ***pragmatist***, and ***connectivist***. It is important to remember that, while instructors use certain strategies, techniques, and tools that are part of learning theories, they often do not recognize this fact, or may not be aware that certain theories exist. Some participants further clarified that learning theories were not clearly applied in both E-learning and blended learning at the Saudi higher institutions:

> In [E-learning] programs, we cannot say they follow any learning theory except they follow the independent learning […] They give you the materials, and you go and study. […]. I cannot say it's constructivism because it's part of the independent learning as constructivism. But we cannot say that because this is unplanned (Participant #23).

Participant #14 added, "there are not many [academic theories] to follow because it's a new trend within the industry. Just recently we had a conference held at the Saudi Electronic University. It was the first international conference on blended learning."

Regardless of whether or not individual instructors use these theories consciously, the institutions themselves apply these theories deliberately. As the only university providing blended learning programs, SEU has collaborations with several international universities, such as Colorado University, Franklin University, Ohio

University, and Florida Institute of Technology. They regularly apply multiple learning theory techniques like managing the attendance of the virtual classes (behaviourist), assessing the students' comprehension (cognitivist), supporting the environment of critical thinking (constructivist), and encouraging practical application (pragmatist).

Behaviourism in learning theory focuses on the observable behaviour of learners (Harasim, 2012). In E-learning courses, students' behaviour can be monitored by having a strict requirement for submitting work on time. In blended learning courses, a late assignment would result in a score of zero (Participant #2). In E-learning courses, quizzes or discussion posts must be completed by a designated time (Participant #28).

There are slight differences between E-learning programs and blended learning programs, particularly in terms of monitoring attendance and required readings. In blended learning courses, attending virtual classes is obligatory. As Participant #6 noted, "when the student is absent for four lectures he's denied immediately." In contrast, students in E-learning classes do not face any penalties for not attending virtual classes (Participant #28). Consequently, reading the assigned E-materials before attending the virtual class is only required in blended courses. In a blended learning course, completion of these readings may be tested by asking questions about the readings at the beginning of class (Participant #13). In blended learning, required virtual attendance and readings are part of the strategy to replicate face-to-face meetings in a virtual setting. In comparison, participants stated that E-learning programs in Saudi Arabia aim to simply deliver the content via technology.

Turning to the cognitivism learning theory, which focuses on the process of attaining knowledge (Ertmer & Newby, 1993), several strategies were used to assess the students' learning attainment in online courses, whether in E-learning or blended learning

programs. These strategies include considerations about the structure and number of assignments, quizzes, and tests. In both E-learning and blended learning classes, unified assessments strategies given by their departments were used to ensure quality of learning and that all the students in that program received the same content.

Another learning theory, constructivism, focuses on the construction of knowledge through the interactions of individuals in a learning community (Harasim, 2012). Adhering to this theory, the LMS tools play a crucial role in online learning to create a virtual collaborative learning community for the students. Through the LMS tools (i.e., blogs, wikis, discussion boards), groups of students can work together to solve a problem or complete a learning task. Thus, the use of those online tools was made mandatory in online teaching and this use could be monitored and verified (Participant #14).

Additionally, the participants revealed that the online tools helped to create a collaborative learning environment, which also promoted critical thinking. One example is discussion boards used to facilitate conversations among students related to a topic (Participant #2).

Online tools like wikis help to create a collaborative learning environment in order to enhance academic skills. For example, Participant #10 noticed the positive influence of wikis in improving the students' academic writing in a blended course that she taught named "Technical Writing," noting in particular that the students benefitted from the interaction between instructor and student, and amongst each other. Thus, interactive online tools help to nurture the collaborative learning environment for the students, so that they learn to value the way their peers contribute to their knowledge.

The pragmatism learning theory, which focuses on the practical application of knowledge (Morgan, 2014), provides strategies that can be applicable in specific majors of blended programs. For instance, law schools use a virtual training court in which instructors "divide the students to prosecutors, defendants, and judges then let them practice those roles. That's close to reality, so we always make sure that they're connected to real-life experience" (Participant #7). In business schools, the assignments focus on real companies operating in Saudi Arabia, rather than abstract examples from elsewhere (Participant #14).

Nevertheless, other instructors, particularly those who teach E-learning courses on subjects like basic computer skills, indicated that connecting their courses with real-world cases would not be possible due to the nature of the class (Participants #26 and #28). This shows a difference between E-learning and blended learning programs; since most blended learning programs aim to prepare students for the workplace, it is beneficial to use real-life experiences. In contrast, E-learning courses are primarily theoretical, so it is unnecessary to connect the course materials to the real world.

The connectivism learning theory, which uses strategies that focus on connecting a group of learners in order to virtually share information (Siemens, 2004; Downes, 2007; Kop & Hill, 2008), did not appear to be applied in Saudi distance education. As this theory is still very new in Saudi higher education, the NCeL is still working to educate the instructors about the rules and principles of sharing open resources (Participant #22).

Nevertheless, the idea of applying open educational resources (OERs) in the Saudi higher education system was addressed in three seminars with the deans of distance learning from all the Saudi governmental universities (NCeL, 2018). Here, the

connectivism learning theory was introduced to the Saudi higher education with limitations through SHMS OER. Participant #25 clarified how SHMS works:

> The idea is when a professor creates a resource, then another professor from another university can add on to that resource, can update that resource, can add value to it, and then share it again so others can benefit from this resource. So, this is the idea of SHMS: building upon other people's work and updating it, not starting from scratch, sharing it with everybody, and maybe adding to the content.

Overall, participants employed many learning theory-aligned strategies (sometimes unknowingly) in their online teaching. In particular, these theories were applied in the context of course management and managing the students' behaviour (behaviourist), testing the students' understanding (cognitive), developing higher-level thinking (constructivist), connecting the class materials with real-life experiences (pragmatist), and connecting students with professionals outside of the classroom (connectivist). These learning theories were applied more significantly within blended learning courses than within E-learning courses.

Pedagogical and Technical Alignment - Saudi Government Funding

This category gained the second highest number of codes with a total number of 370 responses, or 34% (Figure 1). The main subcategories are: NCeL role and training, and Blackboard training and technical support.

Provided primarily through the NCeL, the Saudi government's substantial support of distance learning is summarized by McLaren and Alanazy (2015):

> The establishment of deanships in most national universities to better facilitate the move to E-learning/distance learning platforms; the establishment of Saudi Electronic University [SEU]; appropriating

> necessary funds via the Ministry of Finance to ensure monies are available for growth and development; the expansion and implementation of polices via the Ministry of Higher Education regarding the application of e-learning and distance learning in the country, and the establishment by the Ministry of Higher Education of the National Center for E-Learning and Distance Learning [NCeL] (McLaren & Alanazy, 2015).

With respect to specific mechanisms of technical and pedagogical support offered by the NCeL, participants highlighted key services, namely: Jusur LMS, eLearning Pioneer Program, and SHMS Open Educational Resources (OER). The first major service was Jusur LMS**,** which initially had limited use until, according to Participant #24, its interface was simplified and "fully Arabized." Beyond developing a more user-friendly interface for Jusur LMS, the NCeL began providing technical and pedagogical support for using the system through a call center, used by faculty and students (Participant #15). Training modules and workshops were subsequently made available to higher education staff (Alahmari, 2017; Participant #25).

Although Jusur "did its job" (Participant #22) in the early period of Saudi distance learning, it was phased out and replaced by initiatives offering greater potential through a wider array of features (Participant #24). Among these, the ***eLearning Pioneer Program*** emerged in 2015 through a partnership between the NCeL and the Open Education Consortium. This program offered year-long, comprehensive training in online skills and blended learning for female faculty members and university leaders (Daly & Young, 2016). Some 40 female pioneers representing all Saudi universities (Participant #22) attended the program, which entailed some online training, summer placements at universities in the USA, and participation in international E-learning conferences (Participant #15). So well received was the program – especially the exposure to educational innovations in the USA – that Participant #22 expressed the

hope it would be maintained, stating, "We think that we need more female Pioneers to look after all issues related to teaching girls."

The Saudi government also invested heavily in national licensing rights of the Blackboard technology, as well as in frequent Blackboard-specific training for administrators and faculty members involved in distance education (Participant #20). This training permitted the development of distance education at all Saudi universities. Such training became the responsibility of SEU, where a Blackboard department was divided between pedagogical services (i.e., organizing workshops and training sessions) and technical services (i.e., dealing with technical issues) (Participant #21).

Finally, in collaboration with the Institute for the Study of Knowledge Management in Education (ISKME), the NCeL established the ***SHMS Open Educational Resources (OER)*** platform. Through this national platform, educational resources are offered in a secure and reliable environment to students, faculties, and teachers. For its contribution to this public-private venture, the NCeL provided advanced training to faculty members on how to share resources through SHMS. For example, in one of the SHMS training sessions, "about 250 trainees [were invited] to be trained over four types of workshops on OER and all issues related to Open Education Resources" (Participant #22).

Also, in keeping with its mandate as a quality-control oversight body, the NCeL ensures that OER uploaded content meets national quality standards (Participant #25). Owing to these efforts, the platform has been so successful that many Saudi universities now use the system, contributing to the NCeL financially (through access fees) and by providing educational resources for shared use (Participant #25).

In addition to these services, the NCeL has started to focus on establishing rules, policies, and bylaws to manage distance education (Participant #24). These regulations include quality standards, granting licenses for companies providing E-learning programs, and conducting further research into E-learning (NCeL, n.d.-a, p. 1).

Analysis

As the qualitative data presented indicate, the Saudi distance education system has undergone significant changes at a relatively fast pace, especially over the past decade. A wide *variety* of seemingly disparate areas within the distance education system – from administrative leadership, to in-class technical training, to the (sometimes) unconscious application of educational psychology – have interacted in increasingly complex ways. Understanding how this system has not only served its original purpose, but also adapted to new technologies and a new oversight structure, is a challenge.

Stafford Beer's Viable Systems Model (VSM) provides a holistic systems scope for understanding how an entity as complex as Saudi distance education has evolved and adapted to change within Saudi society. In his own words, Beer devised the VSM in order to "understand how systems are viable, that is, how they are capable of existing on their own" (Beer, 1984). The VSM maps two primary characteristics in organizations – recursion and adaptability – through five overlapping, interactive systems. Respectively, systems 1-3 deal with primary activities; information and communication channels; and, control structures established to set rules, allocate resources, and so forth. Although all five subsystems of VSM are important in order to maintain the viability of any organization, systems 4 and 5 are most directly related to this study. System 4 bodies within an organization perform reflexive functions such as monitoring the environment to determine measures for adaptation. It relates to current Saudi

distance education as it considers the early stage of correspondence studies and the future effects of external changes (i.e., online tools and Internet), and then uses that experience to monitor how distance education needs to adapt to these future external changes in order to remain viable. Finally, system 5 bodies perform higher-order functions such as "steering" the overall system and overseeing broad policy decisions. In Beer's model, these five systems interact to manage complexity while maintaining sufficient *variety* in the system and allow adaptation and self-replication (recursion) in accordance with the higher-order determinations made in system 5. VSM clarifies how distance education in KSA keeps the balance between its current status and the influence of the advanced external changes, to provide policies and rules for the purpose of enhancing its quality and viability.

We can reflect on participants' insights in this study to plot aspects of the Saudi distance education system in relation to the VSM, beginning with viewing significant changes between 2000 and 2017 through the VSM lens. Until 2000, the "operations" (teaching) level of distance learning – centered on system 1 – were viable in themselves, as Beer prescribed. Correspondence courses were created and delivered at the university level and were repeated with little change from year to year. However, the advent of a wider array of information and communication technologies (primarily the Internet) brought about challenges for the information channels connecting systems 1, 2 and 3. Quite simply, course instructors and students alike had personal access to technologies with potential to alter the nature of teaching in ways that system 3 bodies were unable to control and regulate. Without regulation at the system 3 level, technologies held potential to threaten the overall coherence and viability of the distance education system. The NCeL was thus created as a system 3 body that was better suited to handle the variety and velocity of information between the operations level in system 1, and

the existing middle management bodies already in place. Initially, it functioned to allocate resources to system 1 and set rules for their use.

By 2017, two developments necessitated a reorientation of the NCeL's place in the overall system. First, the expansion of electronic teaching tools resulted in a breakdown of system 4 functionality. No longer were system 4 bodies within the MoE able to interpret adaptation needs with sufficient accuracy to inform facilitate the "steering" function of system 5. Independence from the MoE in 2017 paved the way for a greater variety of partnerships, both public and private, available to the NCeL. Just as the distance learning environment had expanded, the NCeL's capacity to assess that environment and find/allocate resources expanded in step. By the end of 2017, the NCeL had become a system 3 and system 4 body.

This overlapping function was also crucial relative to a second development. Despite substantial improvements in distance education delivery, many Saudi employers retained their doubts about the quality of degrees offered through the distance learning approach. Many participants noted pressure for a shift in focus at the NCeL. towards rule setting and quality control, the expansion of capacity at the operations level had exceeded the NCeL's ability to control quality in light of persistent employer doubts. Distance learning deanships, awards for teaching excellence, and new reporting requirements emerged, resulting in a common perception that distance learning degrees are especially valid, given such intense scrutiny and oversight.

The NCeL's independence from the MoE did not position it outside the distance education system. Somewhat paradoxically, perhaps, its independence *from* the ministry was necessary for the NCeL to inform formal policy decisions *within* the

ministry. Its departure from the ministry permitted the growth of *variety* so necessary to system resilience, coherence, and viability according to the VSM.

A key policy (system 5) outcome came in the form of the Saudi Government's commitment to up-to-date learning technologies. Most important among these has been Blackboard, for which the government purchased the licensing rights to ensure usage by all students and instructors throughout the country. Blackboard serves a fundamental operational purpose first and foremost, but its broader function is clear when viewed through the VSM lens. As a full service, interactive educational tool, Blackboard supports the independent viability of systems within system 1. In other words, it provides unprecedented, shared access to teaching resources uploaded by instructors themselves, and between universities. Further, as a single, shared-use system, Blackboard unifies the teaching and learning experience of students across all Saudi universities (Aljabr, 2018). In doing so, it follows a systems orientation in setting explicit rules for how actors in the system must relate to each other, and how success is to be defined (Laurillard, 1999).

Discussion

This study deals with the delivery of distance education in Saudi Arabia; however, it goes beyond mere description of logistics to assess how the current delivery system came into being. The simple answer is that the current system evolved as many complex factors – administrative, political, social, economic, philosophical – interacted over time. However, such factors did not interact in a haphazard manner to result in today's system. The VSM allows us to see seemingly disconnected elements as part of a viable, recursive system that has evolved and adapted since the early 1970s. Most significantly, through the VSM we can interpret how stages of growth and change were

manifest as breakdowns in normal interchanges between systems (1-5) within the overall system.

The first breakdown arrived in the early 2000s when technologies, especially the Internet, presented more options than the existing system had capacity to manage. Communication between basic operations in system 1 was insufficient to allow system 3 bodies to perform regulatory functions. The advent of the NCeL was a response to this challenge, but as we show the NCeL itself adapted and evolved in a short period of time in order to preserve the systems viability. Its most significant changes were when it gained independence from the MoE, and, subsequently, when its focus turned towards quality control and rule setting. These two changes represented the NCeL's expanded role, reaching beyond its initial system 3 functions to system 4 functions.

Changes to the NCeL positioned it to coordinate public-private partnerships, and to advise officials responsible for policies that "steered" distance education from the system 5 level. The most important response flowing from this was the Saudi Government's purchase of the Blackboard licensing rights, which established an entirely new set of unified, consistent opportunities and practices to distance education providers.

As institutional and policy developments were underway, instructors applied aspects of various learning theories, consciously and otherwise. Elements of behaviorist theory (i.e., focusing on observable behaviour, such as the necessity of submitting assignments activities on time) and cognitive theory (i.e., focusing on the process of acquiring knowledge; assessing the learning attainment) were most commonly associated with correspondence and E-learning programs. This finding aligns with Bates (2015), who clarified that most traditional distance education models applied the objectivist learning

approach, influenced by the behaviorism and cognitive theories (Vrasidas, 2000; Harasim, 2012). In other words, an objectivist learning approach is a teacher-centered learning approach that aims to represent and transfer knowledge from teachers to learners (Yang & Liu, 2007). It was obvious from the responses and document analysis in this study that E-learning programs used this technique, as there was a notable emphasis on the role of the teacher to transfer knowledge to the students through technology. For instance, as was stated by Participant #28:

> When I'm doing an online course, I have a hundred-plus students, and I have a very structured course that I have to deliver. So, I think at that point, even if I don't want it, it becomes teacher-centered. Or even not teacher-centered, it becomes a curriculum-centered approach (Participant #28).

In the third phase of distance education in Saudi Arabia (the blended learning phase), there is a significant interest from the Ministry of Education toward applying the constructivist learning approach, influenced more by constructivism, pragmatism and connectivism theories. In a constructivist learning approach, learning is active; learners are perceived as designers building their own knowledge structures, rather than absorbing knowledge transmitted by the instructor (Harpe & Fiona, 2009). The blended learning model demonstrated a shift from teacher-centered to learner-centered approaches in the learning process within Saudi distance education. Participant #17 indicated that SEU ensured a learner-centered approach by having the instructor deliver the basic information (about 30% of the course), and students are responsible for the rest of the work, with the instructor available to answer any questions that may arise. This clarifies how the blended learning model has contributed to a shift Saudi distance education from passive, teacher-centered learning approach to an active, learner-centered experience.

This study examined the principles used within the strategy of a learner-centered approach. Online tools have been used in blended learning to sustain continuous interactions between the instructor and the students, and to promote interactions among peers outside of the face-to-face classroom. The instructors at SEU have utilized the online tools (i.e., discussion boards, wikis, blogs) to connect knowledge with real-life experience (following the strategy of pragmatism learning theory). For example, the school of law at SEU uses "a virtual mock court" to provide the students with a more practical experience in addition to the face-to-face class and the actual court.

In addition, although the connectivism learning theory was only recently introduced to the Saudi higher educational institutions through SHMS OER, university instructors around the Kingdom are gradually collaborating to build on each other's work for the purpose of developing creative digital content to support education. Since its official deployment at the start of 2018, SHMS now contains about 367,141 resources (NCeL, n.d.-b) created collaboratively by university instructors and schoolteachers. This finding aligns with Tony Bates' (2015) statement that the concurrence of the constructivist learning approach along with the evolution of the Internet has led to the development of online collaborative learning models. For instance, signs of an emerging collaborative online community were found on the Blackboard platform. Participant #18 noted, "as an instructor, I can share my teaching material with other instructors around the country through the Blackboard, so that it is an easy and more interactive way." In addition, Aljabr (2018) reported that all the Saudi universities accessing one LMS creates an environment of knowledge sharing and experience transferring between them.

This research makes significant theoretical and practical contributions to the existing academic literature. Connecting teaching strategies and formal learning theories shows

practical applications for these theories, as well as some limitations of these theories in a real-world context. Future research could advance current study findings through a in-depth systems analysis of how individual interaction with new blended learning tools and services co-shape knowledge construction and learning conversations (Pask, 1976).

A significant limitation of this study is that the scope of this research did not allow the researchers to explore the influence of partners and collaborators in the development of distance education and the decision-making process, including the influence of the educational background of these individuals.

Conclusion

This study provided an analysis of current trends in Saudi online learning from the perspectives of higher education institutions' instructors and expert designers to capture missing insider perspectives on the development of distance learning delivery in Saudi Arabia. The Viable System Model (VSM) was applied to illustrate the viability of Saudi distance education through its three phases, showing how it has survived in a changing environment: 1) the early correspondence studies beginning in the early 1970s, 2) the E-learning (by utilizing the Internet and technology) that originated at the beginning of the 2000s, and 3) the blended learning studies that started in 2011 at SEU.

Ultimately the Saudi system is unique, and these conclusions are valid only in the context in which the study took place; nevertheless, it is clear that this approach can be used to highlight key aspects of the development of distance education systems in other contexts as well.

References

Abdelrahman, Nahed & Irby, Beverly. (2017). Hybrid learning: Perspectives of higher education faculty. In IGI Global, publisher & Information Resources Management Association (Ed.), *Blended learning: Concepts, methodologies, tools, and applications* (pp. 1–28). IGI Global.

Al Lily, Abdulrahman. (2013). The social shaping of educational technologies in Saudi Arabia: An examination of how the social fabric shapes the construction and use of technologies. *Technology in Society, 35*(3), 203–222. https://doi.org/10.1016/j.techsoc.2013.04.001

Alahmari, Ayshah & Amirault, Ray. (2017). The use of e-learning in highly domain-specific settings: Perceptions of female students and faculty in Saudi Arabia. *Quarterly Review of Distance Education*, *18*(4), 37–56. https://eric.ed.gov/?id=EJ1180059

Alahmari, Ayshah. (2017). The state of distance education in Saudi Arabia. *Quarterly Review of Distance Education*, *18*(2), 91–98. https://eric.ed.gov/?id=EJ1159092

Al-Asmari, Ali & Khan, Shamsur. (2014). E-learning in Saudi Arabia: Past, present and future. *Near and Middle Eastern Journal of Research in Education, 2*(1), 2–11. https://doi.org/10.5339/nmejre.2014.2

Alebaikan, Reem & Troudi, Salah. (2010). Blended learning in Saudi universities: Challenges and perspectives. *ALT-J, Research in Learning Technology*, *18*(1), 49–59. https://doi.org/10.1080/09687761003657614

Aljaber, Abdullah. (2018). E-learning policy in Saudi Arabia: Challenges and successes. *Research in Comparative and International Education*, *13*(1), 176–194. https://doi.org/10.1177/1745499918764147

Aljabr, Fahad. (2018, February 21). **تقرير شامل عن مشروع الرخصة الوطنية لنظام إدارة التعلم الإلكتروني (بلاك بورد)**. Unpublished report.

Aljabre, Abdulaziz. (2012). An exploration of distance learning in Saudi Arabian universities: Current practices and future possibilities. *International Journal of Instructional Technology and Distance Learning*, *9*(2), 21–28. http://www.ijbhtnet.com/journals/Vol_2_No_2_March_2012/17.pdf

Almowaten. (2015, May 9). **سحب برامج الانتساب والتعليم عن بعد من الجامعات** . Retrieved May 15, 2015, from https://www.almowaten.net/2015/05/سحب-برامج-الانتساب-والتعليم-عن-بُعد-من/

Al-Shahrani, K. & Cairns, L. (2015). Managing the change during e-learning integration in higher education. In Mohamed Ally and Badrul Khan (Eds.), *International handbook of e-learning volume 2: Implementation and case studies* (pp. 247–255). Taylor & Francis Group.

Alturki, U. (2014). *The development of online distance education in Saudi Arabia*. Retrieved February 12, 2015, from http://elearnmag.acm.org/archive.cfm?aid=2673861

Bardesi, H. (2017). **العوامل المحددة للطلب على التعليم المدمج في المملكة العربية السعودية : دراسة تحليلية** . Paper presented at the International Conference on Blended Learning: Towards a Knowledge Economy, Riyadh, Saudi Arabia, November 21–23. http://sri.seu.edu.sa/defaultar.aspx

Basahel, S. & Basahel, A. (2018). An empirical study of challenges in online distance education in Saudi Arabia. *International Journal of Information Technology*, *10*(3), 289–302. https://doi.org/10.1007/s41870-018-0118-z

Bates, T. (2015). *Teaching in a digital age*. Retrieved April 27, 2015, from http://contactnorth.ca/teachinginadigitalage/

Beer, S. (1972). *Brain of the firm: A development in management cybernetics*. Herder and Herder.

Beer, S. (1981). *Brain of the firm: The managerial cybernetics of organization.* J. Wiley.

Beer, S. (1984). The viable system model: Its provenance, development, methodology and pathology. *Journal of the Operational Research Society*, 35(1), 7–25. https://doi.org/10.1057/jors.1984.2

Creswell, J & Poth, C. (2018). *Qualitative inquiry & research design; Choosing among five approaches.* SAGE Publications.

Creswell, J. (2013). *Qualitative inquiry & research design: Choosing among five approaches.* SAGE Publications.

Creswell, J. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Daly, U. & Young, L. (2016). *Saudi eLearning pioneers transform teaching and learning through open education consortium collaboration*. Retrieved November 06, 2017, from https://conference.oeconsortium.org/2016/presentation/saudi-elearning-pioneers-transform-teaching-and-learning-through-open-education-consortium-collaboration/

Downes, S. (2007). *What connectivism is.* Retrieved January 20, 2016, from https://halfanhour.blogspot.com/2007/02/what-connectivism-is.html

Eid, M. (2011). Introduction to communication research. In Mahmoud Eid (Ed.), *Research methods in communication* (pp. 3–14). Pearson.

Ertmer, P. & Newby, T. (1993). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*, *6*(4), 50–72. https://doi.org/10.1111/j.1937-8327.1993.tb00605.x

Garcia, A., Abrego, J. & Calvillo, M. (2014). A Study of the hybrid instructional delivery for graduate students in an educational leadership course. *International Journal of E-Learning & Distance Education*, *29*(1), 1–15. https://eric.ed.gov/?id=EJ1045776

Garrison, R. (2013). Theoretical foundations and epistemological insights of the community of inquiry. In Zehra Akyol and Randy Garrison (Eds.), *Educational communities of inquiry: Theoretical framework, research and practice* (pp. 1–11). USA: Information Science Reference.

Hamdan, A., Sarea, A., Khamis, R., & Anasweh, M. (2020). A causality analysis of the link between higher education and economic development: Empirical evidence. *Heliyon*, *6*(6), 1–6. https://doi.org/10.1016/j.heliyon.2020.e04046

Hamdan, A. (2014). The reciprocal and correlative relationship between learning culture and online education: A case from Saudi Arabia. *The International Review of Research in Open and Distance Learning*, *15*(1), 309–336. https://doi.org/10.19173/irrodl.v15i1.1408

Harasim, L. (2012). *Learning Theory and Online Technologies.* Routledge.

Harasim, L. (2017). *Learning theory and online technologies.* Routledge.

Harpe, B. & Peterson, F. (2009). The theory and practice of teaching with technology in today's colleges and universities. In Carla Payne (Ed.), *Information technology and constructivism in higher education: Progressive learning frameworks* (pp. 27–42). IGI Global.

Hockly, N. (2018). Blended learning. *ELT Journal*, *72*(1), 97–101. https://doi.org/10.1093/elt/ccx058

Jackson, W., Gillis, A., & Verberg, N. (2011). Qualitative research methods. In Mahmoud Eid (Ed.), *Research methods in communication* (pp.237–267). Boston, MA: Pearson.

Kim, Y., Glassman, M. & Williams, M. (2015). Connecting agents: Engagement and motivation in online collaboration. *Computers in Human Behavior*, *49*(1), 333–342. https://doi.org/10.1016/j.chb.2015.03.015

Kop, R. & Hill, A. (2008). Connectivism: Learning theory of the future or vestige of the past? *The International Review of Research in Open and Distributed Learning*, *9*(3), 1–8. https://doi.org/10.19173/irrodl.v9i3.523

Laurillard, D. (1999). A conversational framework for individual learning applied to the 'learning organization' and 'learning society.' *Systems Research and Behavioral Science Systems Research*, *16*(2), 113–122. https://doi.org/10.1002/(SICI)1099-1743(199903/04)16:2<113::AID-SRES279>3.0.CO;2-C

Lincoln, Y. & Guba, E. (1985). *Naturalistic inquiry*. SAGE Publications.

McLaren, A. & Alanazy, S. (2015). Saudi distance education – developing a way forward. *International Journal of Instructional Technology and Distance Learning*, *(12)*7, 29–36. https://www.itdl.org/Journal/Jul_15/Jul15.pdf

Merriam, S. (1988). *Case study research in education: A qualitative approach.* Jossey-Bass.

Miles, M. & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook*. SAGE Publications.

Ministry of Economy and Planning. (2019). Development plans. Retrieved January 8, 2020, from https://www.mep.gov.sa/en/development-plans

Morgan, D. (2014). Pragmatism as a paradigm for social research. *Qualitative Inquiry*, *20*(8), 1045–1053. https://doi.org/10.1177/1077800413513733

Moukali, K. (2012). Factors that affect faculty attitudes toward adoption of technology-rich blended learning (Doctoral dissertation, University of Kansas, Kansas, USA). https://kuscholarworks.ku.edu/bitstream/handle/1808/15072/Moukali_ku_0099D_12474_DATA_1.pdf?sequence=1

NCeL. (2017, October 3). **مجلس الوزراء يوافق على إنشاء مركز مستقل باسم المركز الوطني للتعليم الإلكتروني**. Retrieved June 5, 2018, from https://www.elc.edu.sa/?q=content/918

NCeL. (2018, May 1). **البرنامج الوطني للمحتوى التعليمي المفتوح: التقرير الخامس**. Retrieved June 7, 2018, from https://drive.google.com/file/d/10pxMXEtquGNixUMPSZtlGQg7UpMx8uXP/view

NCeL. (n.d.-a). *National center for e-learning*. Retrieved June 2, 2018, from https://www.elc.edu.sa/?q=en/aboutus

NCeL. (n.d.-b). *RABH license*. Retrieved June 7, 2018, from https://shms.sa/

Neuman, L. (2007). *Basics of social research: Qualitative and quantitative approaches.* Allyn & Bacon.

Neuman, W. L. (2011a). Qualitative and quantitative research. In Mahmoud Eid (Ed.), *Research methods in communication* (pp. 133–207). Pearson.

Neuman, W. L. (2011b). Analysis of qualitative data. In Mahmoud Eid (Ed.), *Research methods in communication* (pp. 341–377). Pearson.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches*. Pearson.

Pask, G. (1976). *Conversation theory: Applications in education and epistemology*. Elsevier.

Peterson, A., Beymer, P. & Putnam, R. (2018). Synchronous and asynchronous discussions: Effects on cooperation, belonging, and affect. *Online Learning Journal (OLJ)*, *22*(4), 7–25. http://dx.doi.org/10.24059/olj.v22i4.1517

Reigeluth, C., Myers, R., & Lee, D. (2017). The learner-centered paradigm of education. In Reigeluth, C., Beatty, B. & R. Myers (Eds.), *Instructional-design theories and models: The learner-centered paradigm of education* (pp. 5–32). Routledge.

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). SAGE Publications.

Selwyn, N. (2010). Looking beyond learning: Notes towards the critical study of educational technology. *Journal of Computer Assisted Learning*, *26*(1), 65–73. https://doi.org/10.1111/j.1365-2729.2009.00338.x

SEU. (2017a). *International conference on blended learning: Towards a knowledge economy*. Retrieved June 15, 2018, from http://sri.seu.edu.sa/defaultar.aspx

SEU. (2017b, April 19). **الجامعة الالكترونية توقع مذكرة تعاون مع المكتبة الرقمية لتوفير قواعد المعلومات لكافة منسوبيها**. Retrieved April 19, 2017, from https://www.seu.edu.sa/sites/ar/Pages/OneNews.aspx?LID=476&src=https%3A%2F%2Fwww%2Eseu%2Eedu%2Esa%2Fsites%2Far

SEU. (n.d.). *Partners*. Retrieved December 5, 2017, from https://www.seu.edu.sa/sites/en/AboutSEU/Pages/Partners.aspx

Siemens, G. (2004). *A learning theory for the digital age.* Retrieved January 20, 2016, from http://www.elearnspace.org/Articles/connectivism.htm

United Nation High-Level Political Forum. (2018). The sustainable development goals report 2018. In *Towards Saudi Arabia's sustainable tomorrow: First voluntary national review*. UN, New York. https://sustainabledevelopment.un.org/content/documents/20230SDGs_English_Report972018_FINAL.pdf

Vrasidas, C. (2000). Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education. *International Journal of Educational Telecommunications*, *6*(4), 339–362. https://www.researchgate.net/publication/252241255_Constructivism_versus_objectivism_Implications_for_interaction_course_design_and_evaluation_in_distance_education

Wang, C-M. & Reeves, T. (2007). The meaning of culture in online education: Implications for teaching, learning and design. In Andrea Edmundson (Eds.), *Globalized E-Learning Cultural Challenges*. Idea Group.

Yang, Z. & Liu, Q. (2007). Research and development of web-based virtual online classroom. *Computers & Education*, *48*(2), 171–184. https://doi.org/10.1016/j.compedu.2004.12.007

Zawacki-Richter, O., Kondakci, Y., Bedenlier, S., Alturki, U., Aldraiweesh, A., & Püplichhuysen, D. (2015). The development of distance education systems in Turkey, the Russian Federation and Saudi Arabia. *European Journal of Open, Distance and E-Learning*, *18*(2), 112–128. https://doi.org/10.1515/eurodl-2015-0016

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