

PLANNING AND IMPLEMENTING REMOTE LEARNING IN RIYADH SCHOOL DISTRICT, SAUDI ARABIA

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ABSTRACT

The Covid-19 pandemic wreaked havoc throughout school systems across the world during the 2020-2021 school year. Riyadh School District in Saudi Arabia effectively transitioned from in-person student learning to remote student learning as a result of effective planning of resources and effective processes for implementation of remote learning. Employing Stufflebeam's CIPP evaluation model, an input evaluation and a process evaluation were conducted to shed light on the planning process employed to distribute resources and implement remote learning in a large school district in Saudi Arabia. Centralized supports for schools, including proper national funding, coordinated national teaching supports, and effective communication, aided Riyadh School District in the effective implementation of on-line learning for students.

INTRODUCTION

The Kingdom of Saudi Arabia (KSA) experienced a sudden, dramatic shift from in-person learning to remote learning due to the global Coronavirus 2019 (COVID-19) pandemic. Within 10 hours of announcing that school would be closed as precautionary measures to prevent the pandemic from spreading, the Ministry of Education (MoE) launched its distance learning initiative (MoE, 2020). Accordingly, the Kingdom of Saudi Arabia (KSA) shifted immediately to remote learning due to heavy investment in improving education and technology integration within education systems (*Saudi vision 2030, 2016*). A shift to distance learning does not merely depend on utilizing technology; it also depends on the capacity of teachers, staff, and school leaders to serve their students via technology. As a result, the MoE exerted the utmost effort to provide teachers with the skills necessary to make effective use of virtual classroom technologies and distance education platforms (MoE, 2020).

Over the past decade, there was an initial focus to expand infrastructure and build teachers' capacity and capability as part of Vision 2030 (Tatweer, 2017). On April 25, 2016, Prince Mohammed bin Salman launched the Kingdom's Vision 2030, an ambitious strategic plan that reflected the government's confidence in the ability of its people to realize their aspirations and potential. Saudi Vision 2030 aims to underpin citizens and create a diverse and sustainable economy. It states:

We are determined to build a thriving country in which all citizens can fulfill their dreams, hopes, and ambitions. Therefore, we will not rest until our nation is a leader in providing opportunities for all through education and training, and high-quality services in employment, health, housing, and entertainment. (*SaudiVision 2030, 2016, p. 7*)

Alghamdi and Holland (2020) confirmed that Saudi Vision 2030 was a continuation of a reform education initiative. The researchers found the education reform journey to be guided by a very ambitious social and economic plan called the National Transformation Program 2020, part of its Vision 2030 development (as cited in Saudi Vision 2030, 2016). Since Saudi Vision 2030 was launched in April 2016, the government has taken bold steps and emphasized technology, innovation, growth and quality. There has been an apparent shift from the quantitative to the qualitative perspective on the education front, which the government considers a valid indicator of education development. Accordingly, the Saudi government is committed to closing the gap between

higher education outputs and the job market requirements. Saudi Vision 2030 (2016) stressed the link between education and a competitive economy, noting that investing in education leads to a more prepared workforce able to meet market requirements.

Researchers conducted studies on e-learning in higher education institutions before and during the pandemic (Alarifi, 2020; Al-Asmari & Khan, 2014; Alhabeeb & Rowley, 2017; Aljaber, 2018; Alqabbani et al., 2020; Alshehri et al., 2020; Alturki, 2014; Tayyib et al., 2020; Walab & Luppisini, 2020), but investigations of remote learning in K-12 schools were scarce (Alenezi, 2019; Alwahoub et al., 2020; Bingimlas, 2017; Munshi & Aljojo, 2018). This paper offers suggestions for planning and implementing remote learning. The original study used the CIPP evaluation model (Stufflebeam, 1983) to conduct a comprehensive evaluation of the Riyadh School District's implementation of remote learning (Alzahrani, 2023). This paper reports on the input and process evaluations from the original study. The paper concludes with recommendations and insights gained from the Riyadh School District on best approaches to effectively plan for and implement distance learning.

PROBLEM STATEMENT

According to Hassounah et al. (2020), officials reported the first confirmed coronavirus case in the KSA on March 3, 2020, thereby forcing the KSA, like many other countries worldwide, to shut down classrooms. Nevertheless, the MoE did not allow any stoppage of education, even for a single day. Educational institutions started to implement distance learning by using web-based instruction programs on March 8, 2020. This change forced many K-12 educators to quickly shift from teaching students in the classroom to a remote experience, introducing the educational system to emergency remote learning.

Remote learning helped shift the pedagogical strategy in the KSA from a teacher-centered to a learner-centered learning approach (Walabe, 2020). Although the significance of distance learning lies in changing the bias for face-to-face learning, a number of challenges faced education groups. Therefore, the Saudi government adopted new policies and strategies to enhance the e-learning system and overcome the difficulties educators and learners encountered. In addition, the MoE used new technologies and procedures to ensure continuity of education during the crisis. It also provided learners adequate access to educational curricula and enriching materials through various methods and means. However, a formative evaluation of the implementation of remote learning was needed to provide feedback to policymakers and the administration of schools in Saudi Arabia.

Due to the scarcity of empirical studies evaluating virtual learning in K-12 Saudi schools, it was essential to conduct an evaluation of virtual learning in K-12 schools during the COVID-19 pandemic to enhance remote learning experience in future years.

RESEARCH QUESTIONS

The following research questions were developed to guide the performance of the study. The effectiveness of implementing distance learning was evaluated by taking an input and process approach.

1. Were the resources allocated to implement distance learning appropriate to effectively support teachers' effective implementation of distance learning in Riyadh schools during the 2019-2020 school year? Explain. (Input)
2. Was distance learning implemented as it was designed to be implemented in Riyadh schools during the 2019-2020 school year? (process)

CONTEXT OF STUDY

The study was conducted in public schools in the Riyadh region of the KSA. Riyadh is the capital city of the KSA and the largest public school district in the KSA. The Riyadh region included 282 schools. In addition, 807,502 students attended its schools and 50,805 teachers taught in the schools during the time of the study (Schools Data 1442 H, 2020). Thus, the population of this study consisted of teachers and administrators employed in Riyadh public schools. It was important to collect the voices of administrators and teachers from the north, east, south, and west areas of Riyadh region at a minimum to support distance learning experience. Teachers and administrators were working together to overcome the challenges and adopt distance learning. The data were collected from the voices of teachers of elementary, middle and high schools. Additional voices were collected from principals, supervisors, educational office leaders and design team representatives.

CONCEPTUAL FRAMEWORK

The conceptual framework for the study was the context, input, process, and product (CIPP) evaluation model (Stufflebeam, 1983). The CIPP model asks, “What needs to be done? (Context) How should it be done? (Input) Is it being done? (Process) Did it succeed? (Product)” (Stufflebeam, 2010, p. 5).

Oliveira et al. (2021) used the CIPP model to investigate interrelations among the context, input, and process elements of emergency remote learning during the COVID-19 crisis. The researchers stressed that it is vital to learn how to develop empathy online as this helps to involve all the participants in the learning process. Results also revealed some ground for future research, particularly concerning applying and engaging students in virtual learning, as these are fundamental factors in the learning process. The findings of the study were broad, and the recommendations can be generalized at the university level.

In contrast, Al-Shanawani (2019) conducted a mixed-methods study to evaluate the self-learning curricula of a kindergarten in the KSA by utilizing the CIPP model. Al-Shanawani found that the objectives of the curricula were moderately correlated to the context. The input, process, and product also moderately contributed to the educational needs of the Saudi community. On the other hand, the curricula failed to meet the needs of the kindergarten students and the community with regard to providing multiple sources of knowledge, teaching competencies, and training opportunities. Accordingly, the researcher indicated the need to develop a kindergarten curriculum based on the children’s educational needs and the community’s developmental needs. This study did provide in-depth understanding and analysis due to the mixed-methods approach utilized; however, one should view the study findings with caution as a result of the limitation the researcher described with respect to the absence of curriculum inputs.

Alhamid (2020) utilized methods similar to those of Al-Shanawani (2019) to evaluate an intensive English program undertaken in the KSA to prepare students for university study. The researcher employed the CIPP evaluation model to evaluate the intensive English program and provide some recommendations to improve the program, finding that the intensive English program enhanced students’ self-confidence and educational skills. Although the research revealed mutual cultural acceptance between students and their native English teachers, it found that the textbooks were unsuited to the Saudi context and incompatible with intensive English program assessment approaches. Although this study did provide in-depth understanding and analysis due to the mixed-methods design employed, the findings of the study and the recommendations can be generalized only at the university level.

The CIPP model was comprehensive enough to be used to evaluate remote learning focused on improving the e-learning system. In this article, we are reporting on the input evaluation and the process evaluation of distance learning in the Riyadh District schools.

REVIEW OF LITERATURE

As the COVID-19 pandemic spread throughout the world, the education system in the KSA abruptly shifted from face-to-face learning to remote learning to ensure the safety of all educators and learners (Alarifi, 2020; Hassounah et al., 2020; Mann et al., 2020; MoE, 2020a). Leveraging continued investment in developing education and technology, the MoE was able to transfer immediately to remote learning. In addition, distance learning plans and strategies reflected the unique strengths of investments in a digital infrastructure (Al Ohali et al., 2018; Aldiab et al., 2017; Alghamdi & Holland, 2020). Concurrently, the emphasis was on enhancing teachers' capacity to maintain learning continuity during crisis times (AlAmri & Saleh, 2019; Albaqami, 2019; Albugami, 2016; Alresheed, 2017; MoE, 2020a; Sabah et al., 2014). Over the past few years, researchers have focused on exploring e-learning in higher education institutions (Al-Asmari & Khan, 2014; Alhabeeb & Rowley, 2017; Alqabbani et al., 2020; Alshehri et al., 2020; Alturki, 2014; Tayyib et al., 2020; Walabe & Luppardini, 2020). On the other hand, studies on distance learning in K-12 education schools have been more limited due to the rise of online learning during the COVID-19 pandemic (Alenezi, 2019; Alwahoub et al., 2020; Bingimlas, 2017; Munshi & Aljojo, 2018).

The literature search encompassed sources from 2012 to 2020 that identified virtual learning in Saudi Arabia as a critical term. It also comprised literature on shifting to remote learning, investment in education and technology, and teacher professional development programs. The search for sources also focused on the following terms: e-learning in educational organizations, integrating technology in educational institutions, distance learning in educational institutions, virtual learning in educational organizations, remote learning in K-12 schools, teacher training, and teacher development. From 2014 to 2021, the literature search included Dissertation Abstracts International, the Education Research Information Clearinghouse (ERIC) database, World Wide Web Internet searches, Proquest, reference lists from studies related to distance learning and books in the field of education related to distance learning.

Many researchers have contributed to the literature related to e-learning in Saudi Arabia. The research on utilizing e-learning in educational institutions comprised document analyses and review of a body of literature that was a mix of theoretical and empirical data (Al-Asmari & Khan, 2014; Al-Shehri, 2010; Alahmari & Amirault, 2017; Aldiab et al., 2017; Aljabre, 2012; Alhabeeb & Rowley, 2017; AlMegren & Yassin, 2013; Alturki, 2014; Munshi & Aljojo, 2018; Solangi et al., 2018; Yengin et al., 2011). Researchers used both qualitative and quantitative methods to explore this field.

Hassounah et al. (2020) conducted theoretical research on the use of digital technology in the KSA during the pandemic, using official announcements, press releases, news clips, published data, and peer-reviewed literature. The researchers found that the KSA possessed e-learning infrastructure during the COVID-19 pandemic, as Saudi Vision 2030 had paved the way for digital learning. Hassounah et al. cited Aljaber's (2018) research on e-learning management system and explained, "The expected high usage of Internet services, which exceeded the current capacity by around 33%, was also supported by the Saudi Communication and Information Technology Commission, which developed related infrastructure to accommodate the sudden high demand" (p. 5). Similarly, Alarifi (2020) evaluated the impact of the COVID-19 outbreak on the education sector and the ways in which the KSA controlled the spread of the epidemic. The researcher confirmed the significance of

education planning in disaster management, including natural and human-made disasters, to reduce their effects. Concurrently, Mann et al. (2020) utilized methods similar to those of Alarifi (2020) to explore how well the KSA was prepared to deal with the pandemic and school closures. The study found that the KSA was well prepared for the lockdown and shifted to alternative learning by using television, online provision, and instructional packages.

METHODOLOGY

An input and process evaluation was employed to conduct the study to produce answers to the research questions. Input evaluation identifies the resources, infrastructure, curriculum, and content needed to implement the teaching learning processes. Stufflebeam and Coryn (2014) stated input evaluations allow stakeholders to choose from available initiatives, write grant or funding proposals, allocate funds and training, and assign personnel appropriately. The literature related to shifting to remote learning, investment in education and technology, and teacher professional development programs were cited in support of the input and process approach (Alarifi, 2020; AlAmri & Saleh, 2019; Albaqami, 2019; Albugami, 2016; Alresheed, 2017; Al Ohali et al., 2018; Aldiab et al., 2017; Alghamdi & Holland, 2020; Hassounah et al., 2020; Mann et al., 2020; MoE, 2020a; Sabah et al., 2014).

Both components of the study relied on three primary sources of data: document analysis, individual interviews and focus groups. Interviews with administrators, including the principal, a supervisor, an educational office leader, another educational office representative, a design team representative, and teachers were conducted. In addition, personal interviews were conducted with administrators, including principal, supervisor, educational office leader, another educational office representative, and design team representative. Focus groups were conducted with administrators and teachers from the north, south, west, and east areas in the Riyadh region to gather the voices of educators in each one of those areas at a minimum. Data were coded, triangulation, peer debriefing, and member checking to draw conclusions. Table 1 summarizes the research questions, data collection methods, and analysis procedure for this study.

**Table 1:
RESEARCH QUESTIONS AND DATA SOURCES, COLLECTION, AND ANALYSIS**

Research question	Data source	Method of collection	Data analysis procedure
Were the resources allocated to implement distance learning appropriate to effectively support teachers' effective implementation of distance learning during the 2019-2020 school year?	Principals, supervisors, teachers, educational office leaders, and design team	Personal Interviews Focus group interviews Document analysis	Qualitative
Was distance learning implemented as it was designed to be implemented in Riyadh Schools during the 2019-2020 school year?	Principals, supervisors, teachers, educational office leaders, and design team	Personal interviews Focus group interviews Document analysis	Qualitative

Research Design

This study utilized an evaluation strategy with a qualitative methods approach. Qualitative methods allowed the researcher to gain a rich understanding of teachers' and administrators' experiences. Stufflebeam (2001) defined evaluation as "a study designed and conducted to assist some audience to assess an object's merit and worth" (p. 11). Stufflebeam and Shinkfield (2007) defined evaluation as "the systematic process of delineating, obtaining, reporting, and applying descriptive and judgmental information about some object's merit, worth, probity [moral correctness], feasibility, safety, significance, or equity" (p. 698). Yarbrough et al. (2011) defined evaluation as "systematic investigation of the value, importance, or significance of something or someone along defined dimensions" (p. 287). Aziz et al. (2018) defined evaluation as "the process of determining the extent to which objectives are attained. It is concerned not [only] with the appraisal of achievement but also with the improvements" (p. 190). Thus, this study is aimed to evaluate remote learning in K-12 education at Riyadh schools using Stufflebeam's CIPP evaluation model.

Research Participants

The population of this study consisted of teachers and administrators employed in Riyadh public schools. Educators are key players in effective implementation of distance education. This research involved the use of a sample of approximately 44 educators, including 20 teachers and 24 administrators. The sampling was gathered from the north, south, west, and east of the Riyadh region.

The researcher utilized a purposeful sample and selected participants to be interviewed based on specific criteria: at least 5 years of experience in the field of education and knowledge of instructional practices for e-learning in public schools. Specifically, the study included participants who used technology platforms prior to the pandemic and who were trained by the Ministry of Education. Participants in the study were required to be between the ages of 27 and 47 and either male or female.

Research Instruments

The instrumentation of the study consisted of an open-ended interview protocol developed by the researcher. For one-on-one interviews and focus groups, this study used an open-ended format derived from the CIPP evaluation model and guided by the documentation of The Saudi MOE Leading Efforts to Combat Coronavirus Pandemic [COVID-19].

Data Collection

A comprehensive review of documents, focus groups, and in-depth interviews provided answers to the research questions. The researchers also used reflective journals as a tool to reflect on issues arising during the phase of data collection.

Focus groups

Focus group interviews were a primary source of data for this study; the researcher gathered qualitative data through group discussions between research participants. Focus group interviews assisted the qualitative researchers to expand the sample size of the evaluation (Creswell, 2013). In addition, focus groups enabled research participants to interact with each other to generate data. The participants were able to focus on the most significant topics and issues in remote learning, thereby making it easy for the researchers to determine consensus on an issue.

Interviews

The researchers also conducted individual interviews with key informants through the Skype program for approximately 45 minutes to one hour. Key informants were identified by asking administrators in the focus group interviews about other candidates working in the same

school district who may be good sources of information. There were four individual interviews with administrators, including principal, supervisor, central office leader, another central office representative, and design team representative. Key informants who were interviewed did not participate in focus groups.

Document Analysis

The researchers conducted a thorough document search, including documents such as The Saudi MOE Leading Efforts to Combat Coronavirus Pandemic (2020b), Saudi Vision 2030 (2016), National Transformation Program Delivery Plan (2021), and the MoE website. The researchers looked at documents including but not limited to internal memorandums, lesson plans, reports, and other essential documents. In addition, the researchers asked key informants for additional documents that should be analyzed.

Qualitative Data Analysis

The researchers conducted a qualitative analysis for this study, as described by Creswell (2007):

Data analysis in qualitative research consists of preparing and organizing the data (i.e., text data as in transcripts, or image data as in photographs) for analysis, then reducing the data into themes through a process of coding and condensing the codes, and finally representing the data in figures, tables, or a discussion. (p. 180)

Creswell (2013) identified six steps in the process of qualitative data analysis: organizing and preparing data for analysis, reading or looking at all the data, coding the data, generating a description and theme, representing the descriptions and themes in the qualitative narrative, and giving the meaning of the data.

In this study, the researchers transcribed all of the data from the interviews and included them in a document analysis form. The researchers gained a general sense of the data, wrote notes in the margins, and recorded the data. In the third phase of qualitative data analysis, the researchers organized the collected data by classifying the images and text and then labeling each category. Furthermore, the researchers examined common themes of individual and group interviews and then analyzed the associated data between the individuals and groups. Finally, the researchers used narrative passages to explain the outcomes of the analysis, discussing emergent themes that have emerged from the analysis. The researchers used quotations from individuals, groups, and documents in the qualitative narrative. In the final phase, the researchers presented an interpretation of the findings.

FINDINGS

Input Evaluation

Virtual learning has become an essential phenomenon in the Saudi education system since the outbreak of the COVID-19 global pandemic. The Saudi government invests in education and training by allocating a large portion of the budget to develop essential infrastructure and create a digital educational environment. During the pandemic, the Saudi government responded quickly and effectively and adopted new strategies to overcome the difficulties educators and learners encountered. The allocated resources to implement distance learning were viewed in a positive light and were appropriate to support teachers' effective implementation of distance learning.

Financial resources were adequate

In designing and implementing digital learning, the Saudi government has committed to providing strong support for the development of the education sector. Due to education being a top priority of the KSA, the education sector obtains the largest share of government budget expenditure.

Between 2014 and 2020, the government spent on education and training around SAR 200 billion (General Authority for Statistics, 2020). As already noted, in 2019, the government spent SAR 193 billion on education (MoF, 2019).

The educational system in KSA is standardized. Accordingly, the MoE sets standards for the entire national education program, including the hiring of teachers, selecting textbooks and curricula, and allocating financial resources. All public schools are funded equally by the Saudi government. During an interview, an elementary principal stated,

The MoE set a funding formula to determine the total amount of funds needed for each student and establish the school's share of those costs. The MoE promoted equal standards of education to ensure equality in school facilities, personnel, and other training resources.

The government provides funds. Therefore, there are no differences in public school funding from one region to another. Equal school funding is aimed to increase the quality of education among all members of society.

The Saudi government launched many initiatives and structural reforms to enable economic transformation. In 2016, the budget allocated for the education sector was SAR 191.69 billion (\$51.11 billion). One of the primary objectives the MoE concentrated on achieving Vision 2030 was improving the educational environment and accessing high-quality educational opportunities. Accordingly, the MoE provided training and professional development to educators. For long-term success, the Kingdom of Saudi Arabia has launched science and knowledge programs to empower future generations. About 14 digital innovation labs were launched, and 26,000 people, with a total of 260 training camps, have benefited. Even more, the Saudi digital academy was established to develop digital capabilities in partnership with the private sector. Around 104 scientific centers were established inside schools to increase STEM skills. The STEM centers are designed to focus on technology and innovation and raise the professional competence of teachers and supervisors (Vision 2030, 2020). Participants, such as an educational leader of schools, emphasized the resources provided for Vision 2030 helped with the prompt switch to remote learning. In an individual interview, a high school principal emphasized, "Education is a top priority of Saudi Vision 2030."

In 2007, the King Abdullah Bin Abdulaziz Public Education Development Project received the highest budget, amounting to SAR 11.8 billion. The project has allocated SAR 4.2 billion to improve the educational environment. Another SAR 3.58 billion has been allocated to extracurricular activities, and SAR 2.943 billion was assigned to train teachers. The curriculum development program has been given a sum of SAR 980 million (Tatweer Educational Technologies, 2010). Accordingly, the MoE has demonstrated its commitment to developing the education system through providing teachers with modern technology tools. It also provided intensive training for educators to improve their knowledge and skills.

With the government's continued focus on strengthening the education system in KSA, the education sector still obtains the largest share of government budget expenditure, which was 17.5% in 2019. The Saudi Arabian government allocated SAR 192.82 billion in 2019 for public and higher education and workforce training. The budget also included allocations of SAR 4.89 billion for Vision Realization Programs for human capital development initiatives. Education and human resource development received the second-largest allocation (22.5%) of budgeted expenditures after military and security services/regional administration (Ministry of Finance, 2019).

Although the COVID-19 pandemic hit the education sector like all other countries by surprise, the MoE leveraged existing resources to accelerate the shift to remote learning and allocated new resources to meet the needs of students and schools. Due to digital transformation initiatives, education expenditures in 2020 were expected to increase by 1.4% as compared to the

previous year. Therefore, the investment in online infrastructure increased (software and hardware) to accommodate the sudden demand on its networks and complete the academic year. In 2020, the Saudi Arabian government allocated SAR 193 billion (\$254.6 billion) for education and human resource development, the largest allocation (19.37%) of budgeted expenditures (Ministry of Finance, 2020).

The Saudi government continued to allocate large amounts of budget for the education sector. About 186 billion Riyals were allocated in 2021 for the education sector. According to the MoE (2021), the main projects that were launched; the fourth phase of the Custodian of the Two Holy Mosques external scholarship program to continue the scholarship program; three local academies, the National Academy for Artificial Intelligence, the Academy of Administrative Leadership Development, and the Academy of Public Health; and the cultural scholarship program in vital educational institutions around the world to train 10,000 citizens.

Human resources and training were appropriate

Focus groups and individual interviews with administrators and teachers, as well as document analysis, indicated a high level of commitment from the MoE to train educators during the transition to distance learning. The MoE used funds to support efforts to train teachers and leaders to effectively integrate technology into curricula and instruction and increase educators' digital skills. Although the MoE integrated technology into teaching-learning processes prior to the pandemic, teachers were trained to use technology and hold virtual classes effectively during the crisis. The MoE adopted an intensive training program for all educators and provided them with all the necessary equipment such as tablet PCs and technical tools to facilitate the transition to remote learning. In the focus group interviews, the teachers cited efforts the MoE made to develop a teaching force skilled in remote learning continuity. One of the high school teachers shared the following:

The MoE provided educators free access to online education courses, classes, and lessons from any university in KSA to enhance their learning and teaching. Teachers received intensive training while teaching online, which helped them to acquire the skills, confidence, and resiliency to use a new set of digital tools. Concurrently, professional learning communities have increased opportunities for self-development and the exchange experiences among teachers to address the challenges of distance learning. Many teachers and leaders have produced video clips to explain how to use digital tools. Some teachers have shared sample lessons with peers on YouTube. In addition, teachers and leaders deployed their ideas and exchanged deeper professional learning to support the distance education path.

In the focus group interviews, all administrators agreed that the MoE did its best to prepare teachers and leaders to continue distance learning, as well as promoting the exchange of resources and advice among peers.

The MoE also extended training opportunities to support parents and community members. During an interview, the educational office leader stated,

The Saudi government demonstrated great support for the education and training sector to enhance the shift to distance learning during this crisis. At the same time, the MoE extended their support for all families and educators and equipped them with needed resources to help students learn at home.... In addition, the MoE cooperated with educators, counselors, and social workers to provide additional support to students with needs....

The MoE and National Center for Educational Professional Development (NCEPD) provided online training programs to all educators to facilitate digital transformation. During the

summer of 2020, the MoE placed further training plans to raise educators' awareness of effective distance education. When Madrasati was launched, at the beginning of the 2020 academic year, all stakeholders were provided with training to effectively use the platform. Later, instructors were provided with various professional development opportunities. From the MoE down to the supervisors, there was active participation in training educators to ensure the continuation of distance learning. Supervisors have played a significant role in the professional development of teachers through communicating and exchanging best practice in all subjects during the pandemic.

The MoE invested financial and human resources in the transition to distance learning. In general, the Saudi government has allotted a large portion of the budget to education and professional development for educators. The MoE has provided resources in digital learning to raise educators' digital skills, including both financial and human resources support.

Process Evaluation

Saudi Arabia invested in digital infrastructure that provided a solid foundation in the e-learning sector. Due to previous investments in digital education, the MoE was able to shift to distance learning across the country at an impressively fast rate. On March 2, 2020, the first confirmed case of COVID-19 was reported. Accordingly, on March 6, 2020, the MoE was empowered to suspend schools in any affected province in the Kingdom of Saudi Arabia. The MoE implemented distance learning for all K-12 schools and university education on March 8, 2020. Accordingly, on Monday, March 9, 2020, attendance was suspended in all public and private educational facilities. The MoE took deliberate steps in response to the urgent need for continuing remote learning.

On the first day of the school closure, iEN satellite TV educational channels began broadcasting lessons to all students across the Kingdom of Saudi Arabia. Within 10 hours after the decision to suspend school attendance, the transition to distance learning immediately occurred and lessons began broadcasting to students in their homes according to a specific time plan consistent with the educational plan. Lessons were started from 8:00 a.m. until 12:00 noon. Repeated lessons were broadcast around the clock until the lessons for the next day started broadcasting at 8:00 a.m. Weekends were also devoted to rebroadcasts of the lessons presented during the week. The lessons were broadcast to learners live from the studios according to the educational level and grade. On March 15, 2020, the iEN satellite channels reached 20 educational TV channels offering live and recorded broadcasts of classes for all grades and all subjects.

In the focus group interviews, an educational leader of schools emphasized the following: One of the major initiatives ongoing before the pandemic was the iEN Portal, which includes electronic copies of course materials, enrichment activities, question banks, recorded lessons, and professional development resources for teachers. During the pandemic, iEN and a YouTube channel were redirected to provide live and record lessons for all learners, which facilitated the transition to distance learning.

For the success of distance learning, the MoE designed a new online curriculum to facilitate the transition to distance learning. According to the MoE (2020b), during the pandemic, the MoE provided digital educational content supporting virtual learning. The design of the curriculum began with defining curricular goals, developing curricular structures, and choosing curriculum content. Then, the educational specialists designed individual courses and lessons to deliver lessons effectively. Educational specialists had responsibility for filming, recording, editing, and choosing the most effective delivery methods for each lesson.

In the focus group interviews, a curriculum designer emphasized the following:

The MoE designed new curricula to facilitate remote learning. Concurrently, the MoE

provided digital educational content suitable for distance learning such as e-textbooks and e-tests. In addition, the MoE created the Madrasati platform, which is considered one of the greatest achievements of digital education, in addition to virtual kindergarten. The Madrasati platform allowed learners to interact with the lessons and educational activities (homework, tests, enrichment activities, educational paths) of the academic courses. The Madrasati platform also allowed the users to interact with the school's staff, as the school community service allows the deployment of educational materials, while the interactive meetings service allows attending meetings through Microsoft Teams.

During an interview, an elementary principal stated,

The MoE made intensive efforts to develop digital content and facilitate the educational process. The MoE integrated technology into the educational system before the pandemic which accelerated the response to the COVID-19 crisis. QR codes had been created in Saudi education before the pandemic occurred, which enhanced the transition to distance learning. Over the years, the QR codes have increased, and their roles became more effective by offering e-textbooks, educational clips, and learning games. Currently, QR codes allow stakeholders access to different resources and provide feedback on the online curriculum.

In addition, the Saudi government improved the quality of digital services provided to stakeholders by providing fiber-optic network coverage to more than 3.5 million homes across the country. During the pandemic, the Internet traffic increased by 30%, which doubled the Internet traffic and increased the Internet speed from 9Mbps in 2017 to 109 Mbps in 2020. In addition, the Saudi government covered over 576,000 homes in remote areas with broadband services to provide households with basic telecommunication services (Unified National Platform, 2022). Additionally, free Wi-Fi hotspots were deployed in 60,000 public points throughout Saudi Arabia (Unified National Platform, 2022). The Communications and Information Technology Commission instructed Internet service providers to provide free access to educational platforms. Additionally, the government allowed free-of-charge access on mobile applications to government services (Unified National Platform, 2021). Moreover, the MoE collaborated with the Takaful Foundation and other agencies to provide devices and support for in-need stakeholders.

In the focus group interviews, a supervisor stressed,

The MoE worked hard to expand educational solutions to ensure equal educational access for learners. For instance, the MoE allowed all learners to have full access to lessons through educational channels that do not require computers. Also, the MoE worked hard with the Takaful Foundation to provide devices for students with socioeconomically disadvantaged backgrounds. Moreover, the students without technology and the Internet can continue their learning via receiving hard copy materials and regularly visit the school to use the school computer.

The Saudi government worked on its digital and cloud infrastructure by raising fiber connectivity, expanding faster Wi-Fi to rural areas, and driving the shift to 5G. To promote inclusive access to connectivity, free or discounted services were provided for low-income families when the schools closed, and in poorly served areas, trucks were stationed to boost bandwidth. In addition, the two learning platforms, iEN and Madrasati, were continuously improved with tools and technologies that support artificial intelligence applications and adaptive learning solutions. Madrasati's intelligent dashboard permitted instructors to monitor learners' progress, and its parental accounts allowed guardians to be more fully involved in their children's learning (UNESCO, 2022).

During an interview, a supervisor stated,

The technology plan was sufficient and successful to move to remote learning. The MoE set up new policies and strategies for implementing continued learning during school closures. The MoE provided many alternative educational solutions to students from vulnerable segments. The learners without Internet access and/or devices can regularly visit school and use school devices. Moreover, learners can receive printed materials as the primary source. Learners may also watch recorded lessons on TV channels that include all lessons for all grades. Concurrently, the MoE connected schools to high-speed internet broadband.

The MoE provided training and support for teachers to improve engagement with distance education. All teachers were provided with orientation programs and training workshops to improve their digital skills. The remote shift had an impact on digital literacy. “An impressive 93.9% of administrators identified improvement in students’ skills and 95.7% of administrators saw improvement in teachers’ skills” (Online Learning Consortium, 2021, p. 7). Distance learning played a significant role in improving educators’ and learners’ digital literacy skills. In addition, the MoE supported all stakeholders by providing introductory training sessions to educate them on distance learning. According to UNESCO (2022), “The MoE organized over 58 virtual meetings for parents to raise awareness about e-learning and related topics, such as the mental health and well-being of students in the online environment” (p. 19).

During an interview, the elementary school principal stated,the sudden transformation to remote learning forced all educators to improve their digital skills. During Summer 2020, the MoE added further training plans to support teachers’ digital literacy and skills. The training programs raised educators’ awareness of effective distance education strategies and pedagogy

DISCUSSION

The experience of transition to remote learning was unique. The Kingdom of Saudi Arabia is considered one of the leading countries that took precautionary measures to suspend education and rapidly implemented virtual learning to ensure that more than 6 million students continued their education. The existence of digital learning reduced the closing effects of schools and saved the school year with flexibility and high efficiency. Since then, priority has been given to designing and implementing rapid measures to respond to the crisis, particularly through emergency budget tools, such as supplementary budgets, transfers and reserve funds, emergencies, and emergency decisions. Additionally, this unexpected change required overcoming many challenges, but also exposed genuine opportunities worth taking advantage of in learning and teaching.

The centralized education system with a top-down management approach played a critical role in the success of the transition to distance learning. In a centralized education system, the MoE set educational policies and curricula, allocated budgets, and hired staff. The centralized approach was more equitable in Saudi Arabia than the United States because all districts received appropriate funding, unlike the US where it is based upon differing tax bases. The education policy in KSA acknowledged schools’ needs and takes into consideration individual schools’ needs. Accordingly, the MoE sets criteria for distributing the budget according to the beneficiary category and the size of the financial item. The education sector has continued to receive the largest share of the budget expenditure to improve the system of education. According to the General Authority for Statistics (2020), between 2014 and 2020, the Saudi government allocated for education and training about SAR 200 billion to meet digital generation needs. Accordingly, the MoE provided equal funding for schools to ensure equitable access to learning among all members of society. An elementary school principal expressed that the funds received from the MoE were equal, with no differences in

public school funding from one region to another. Although the MoE leveraged existing resources to accelerate the transition to distance learning, the MoE allocated new resources to meet the needs of students and schools. According to the Ministry of Finance (2020), in 2020, the Saudi government allocated \$254.6 billion for education and human resource development, the largest budgeted expenditure. The MoE has set strategic plans to reduce the closing effects of schools and continue remote learning. The coordinator of the Madrasati platform emphasized that the MoE allocated effective resources and tools to implement distance learning. The MoE provided digital content supporting virtual learning that included e-textbooks, educational videos, and e-tests. Concurrently, the MoE supported all educators and learners during the fast transition to distance learning, especially related to Internet connection and access to technology devices (MoE, 2020b). Additionally, The MoE has made intensive efforts to improve the quality of education by subjecting all education policies and initiatives to government oversight. The high expenditure on the educational sector assisted to improve professional training and development, formulate effective curricula, and integrate technological tools.

The MoE set strategic plans to develop the education system. The educational supervisor expressed that the MoE succeeded in tackling challenges by improving teacher training programs and developing plans and strategies to achieve the Saudi Vision 2030. Concurrently, an educational leader of schools emphasized that Saudi Vision 2030 had a major role in restructuring education and updating the goals and initiatives, which facilitated the transition to distance learning. She also stated that all resources allocated to implement distance learning were unique and enabled the acceleration of shifting to distance learning. Participants cited that the MoE expanded educational solutions to ensure equal educational access for all learners. Digital literacy and technical issues had a significant impact on the success of distance learning. In 2022, “the Kingdom has been ranked among the top ten developed countries globally for its robust digital framework” (Unified National Platform, 2022, para. 4).

IMPLICATIONS

Countries can learn much from how KSA dealt with the rapid transition to distance learning. First, KSA ensured that access to technology and resources were available throughout the country. In a time of extreme emergency, KSA demonstrated the effectiveness of a centralized response from a government. The centralized support and direction provided by KSA ensured equitable access to learning.

In KSA, it was clear that education was a priority and the government immediately appropriated funds to be distributed throughout the country. Unlike environments where funds are distributed inequitably locally, the national response ensured resources were distributed immediately and with a sense of urgency. As such, teachers, administrators, and families were properly supported.

Finally, large scale strategy and support must be properly given to educators who were thrust into teaching utilizing a different teaching modality. In KSA, the government was both swift and decisive in establishing support for teachers in Saudi Arabia. The use of technology and the ability to partner with government schools enabled teachers throughout the country to be prepared and supported as they transitioned to distance learning. Central leadership is critical in times of crisis. The hesitation to provide centralized, optional supports, tends to limit the efficacy of the country’s overall strategy to ensure students throughout the country to be properly educated.

CONCLUSION

The Kingdom of Saudi Arabia effectively transitioned from in-person learning to virtual learning during the global pandemic. KSA effectively resourced schools within the country and it had an effective plan to train and support teachers. The centralized function of the country proved to be equitable and responsive to the needs of school staff and students. In times of crisis, a decisive national response can prove to be effective to support large scale improvements.

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