Investigating Students' Perceptions of Their Learning Experience and Self-Regulated Learning Skills During Emergency Remote Teaching

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ABSTRACT

Academically successful students are those who are confident in their learning skills, self-directed learners, able to exert control on their learning, and manage it in a self-reliant manner. One of the highly autonomous instructional contexts students could go through is emergency remote teaching. In this research, the author used a mixed method, through a survey with open-ended questions, to measure students' attitudes towards the rapid transition to fully online classes and explore students' evaluation of their SRL skills during emergency learning circumstances. The author examined students' perceptions of their online learning experience and self-regulated learning. The results highlight students' perceptions of their experience after the rapid transition to distance education which they evaluated as not an easy transition. However, 61 of the respondents agreed that they were motivated towards learning during the pandemic time.

KEYWORDS

Distance Learning Environment, Emergency Online Teaching, Self-Regulated Learning

INTRODUCTION

The global COVID-19 outbreak has had an unprecedented impact on education systems worldwide. International responses to this public health crisis have varied and have been, for the most part, reactionary. Given the rapidly evolving nature of the outbreak, higher education institutions are having to adapt their responses continually with little to no clarity on the length of time that measures/limitations will need to be in place. The solutions implemented thus far can generally be categorized as educational policy solutions by ordering mass closures of academic institutions and structural solutions through the transition to distance learning supporting infrastructure and addressing the needs of stakeholders including students, educators, parents, and education leaders to ensure the availability and accessibility of distance learning.

Global responses to the outbreak have been proportional to the impacts observed to date, and include national school closures in 188 countries, thus affecting over 1.5 billion students or over 89% of the world's student population (UNESCO, UNICEF, World Bank, &OECD, 2021). Under these unexpected circumstances, teachers and students have had to quickly adapt to this new rapid and forced adoption of online teaching and learning. This rapid shift to fully online learning environments

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created a challenging situation for students who were new to this method of teaching and learning. Additionally, the sudden transition during unexpected outbreak caused stressful learning conditions for students, due to the Pandemic conditions' uncertainties. This academic situation required substantial efforts from students to continue their education through high autonomy.

Learner autonomy indicates how learners can be metacognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman, 2001; Zimmerman & Schunk, 2011). Further, learner autonomy can be affected by the course structure as well as by the extent to which learners are able to control the learning process (Giossos, Koutsouba,Lionarakis, Skavantzos, 2009). Indeed, course transactional distance can be evaluated based on the characteristics of learners' autonomy level (Kanuka et al., 2002) which enhances their self-regulated learning (SRL) skills. From a metacognitive perspective, SRL refers to the cyclical processes of understanding the required task, developing a plan, implementing strategies to satisfy task requirements, and monitoring the effectiveness of those strategies. However, there is a lack of studies on the impact of SRL on students in digital environments (Pérez-Álvarez et al., 2018), while research in this field is highly needed to facilitate the shift to online education in emergency conditions (Hodges et al., 2020). Emergency remote teaching (ERT) is a temporary shift of education to an alternate and unplanned online distance delivery mode due to crisis circumstance. This shift to ERT required students to take full control of their learning, employ motivational and SRL strategies more extensively, and effectively strategize the learning process to succeed academically (Hodges et al., 2020).

BACKGROUND

Self-Regulated Learning

Academically successful students are those who are confident in their learning skills, self-directed learners, able to exert control on their learning, and manage it in a self-reliant manner (Moore,1993). They perceive learning as a systematic and controllable process, able to define their learning objectives, take responsibility in achieving them, and maintain proactiveness in dealing with learning challenges and difficult study conditions (Zimmerman, 1990). These behaviors of self-efficacy and active involvement in planning the acquisition of knowledge and continuous self-evaluation to maximize learning experience is defined as SRL skills (Zimmerman & Martinez-Pons, 1988). Comparable to traditional learning environments, the need to explore students' employment of motivational and SRL strategies through online learning platforms is equally important (Quesada-Pallarès et al., 2019) as learning transactional distance depends considerably on the learner's ability to enhance his/her own autonomy in the learning experience (Garrison, 2000).

SRL is considered as a core conceptual framework to understand the cognitive, motivational, and emotional aspects of learning. SRL is a comprehensive and holistic framework that includes a considerable number of variables that influence learning (e.g., self-efficacy, volition, and cognitive strategies). Scholars and teachers need to adopt the differential effects of SRL models and theories to enhance students' learning and SRL skills. Publications in the field of SRL theory have expanded in terms of conceptual development generating several models of SRL (Sitzmann & Ely, 2011). Zimmerman (1986) developed three different SRL models, with the first model published in 1989 and representing the first attempt to explain the interactions that influence SRL (Panadero & Alonso-Tapia, 2014). The first model, known as the triadic analysis of SRL, represents the interactions of three forms of SRL: Environment, behavior, and person level (Zimmerman, 1989). The second model represents the cyclical phases of SRL, which highlight the individual level of the interrelation of metacognitive and motivational processes (Zimmerman & Campillo, 2003). The third model is the multi-level model, which represents the four stages in which students acquire their self-regulatory competency (Zimmerman, 2000).

Boekaerts (1988) focused on explaining the role of goals in relation to SRL and was the first to use situation-specific measures to evaluate motivation in relation to SRL through examining the role of clinical psychology literature on self-regulation and emotion regulation (Boekaerts, 2011). Additionally, Boekaerts (2011) pointed out the key different purposes of self-regulation during the learning process, namely expanding one's knowledge and skills, protecting one's commitment to the learning activity, and preventing harm to the self. A widely adopted model, especially in research implementing computer-supported learning settings, is Winne and Hadwin's model of SRL (Panadero et al., 2015, Winne & Hadwin, 1998). Through this model, students are recognized as active participants in managing their own learning via monitoring and using metacognitive strategies and explaining the effects of self-regulated actions on motivation (Winne & Hadwin, 2008). Pintrich and other researchers examined the relationship between SRL and motivation empirically (Pintrich & de Groot, 1990) and theoretically (Pintrich, 2000). Theyemphasized the lack of connections between motivation and cognition (Pintrich et al., 1993), highlighted the differences between metacognition and self-regulation (Pintrich et al., 2000), and clarified the areas of SRL that needed further exploration (Pintrich, 1999). According to Pintrich's (2000) model, SRL is compounded by four phases: (1) Forethought, planning, and activation; (2) monitoring; (3) control; (4) reaction and reflection. Each of these four phases has four different areas for regulation: Cognition, motivation/affect, behavior, and context. That combination of phases and areas offers a holistic approach that includes key SRL processes (e.g., prior content knowledge activation, efficacy judgments, and self-observations of behavior).

Further, Pintrich (2000) discussed the "individual's attempts to control their own overt behavior" (p. 466) making Pintrich's model unique as no other SRL model has highlighted this domain. Additionally, Pintrich (2000) examined the regulation of context because it addresses those aspects of SRL in which the students attempt to "monitor, control, and regulate the (learning) context" (p. 469). Pintrich identified six different areas within the SRL domain: (1) A conceptual framework and model for SRL described in the previous section; (2) the role of motivation in SRL, with a special focus on goal orientation; (3) the relationship between SRL, motivation, and learning outcomes; (4) the role of classroom contexts in SRL and motivation; (5) the development of SRL through empirical studies; (6) the development of an instrument to measure SRL, which is the *Motivated Strategies for Learning Questionnaire* (MSLQ).

The MSLQ is the most used instrument in SRL measurement (Roth et al., 2016) and in self-efficacy measurement (Honicke & Broadbent, 2016), and it is considered as one of the major contributions to the SRL field (Pintrich et al., 1993b). The MSLQ is composed of 15 scales, divided into two sections: (1) Motivation, with 31 items;(2) learning strategies for SRL, with 50 items subdivided into three general types of scales; cognitive, metacognitive, and resource management (Duncan & McKeachie, 2005). One of the strengths of the MSLQ is its combination of SRL and motivation, which provides comprehensive information about students' use of learning strategies. According to Pintrich et al., (2000), research on the MSLQ with diverse populations and in diverse situations is needed.

Emergency Remote Teaching

One of the highly autonomous instructional contexts students could go through was ERT. ERT is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstance. The word "teaching" designates the "concerted sharing of knowledge and experience" with the fact that major tasks performed during emergency changes in delivery mode are those of teachers and instructors. (Hodges, Moore, Lockee,Trust & Bond, 2020). Different from educational experiences that are planned and designed to be online, ERT involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that mode after the end of crisis circumstances. The primary objective in these circumstances is to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis. Alsmadi, Almarashdeh, Alzaqebah, Jaradat, Alghamdi, Mohammad, Alshabanah, Alrajhi, Alkhaldi, Aldhafferi,

Alqahtani, Badawi & Tayfour (2021) stated that distance learning was effective in providing the required knowledge to the students during the outbreak of COVID-19.

However, the rapid transition to online learning is expected to be applied in staggered and unprecedented manner. Additionally, typical campus support such as course design support, professional development opportunities, and learning management system training and support are all services that are not equally provided to faculty members as in usual teaching and learning conditions (Alsaoud & Harisi, 2020),. This challenge consequently reflects on students' online learning experience and affects their SRL process. Further, academic support can be provided only through a limited number and level of services, and faculty and student try self-identified strategies for learning.

Means et al. (2014) identified nine dimensions of online learning design, each of which has numerous options, highlighting the complexity of the design and decision-making process. The nine dimensions are: Modality, pacing, student-instructor ratio, pedagogy, instructor role online, student role online, online communication synchrony, role of online assessments, and source of feedback. The rapid approach necessary for ERT impacts the quality of the courses delivered, and the success of distance and online learning experiences can be measured through students' achievement of learning outcomes including the knowledge, skills, and attitudes of the instructional experience as well as attitudinal outcomes. Indeed, factors such as interest, motivation, and engagement are critical success factors for students and can influence the effectiveness of distance and online learning experiences. Teaching online during emergency situations requires equipping faculty members with a special skill set including in-depth understanding of students' ability and skills to self-regulate their learning. The rapid shift to ERT requires that faculty take more control of the course design, development, and implementation. Similarly, it requires that students take full control of their learning, manage learning resources, and strategize the learning process. Indeed, students need to employ motivational and SRL strategies more extensively in order to succeed academically in distance and face-to-face instruction.

THE STUDY

Study Context

During schools' closure due to COVID-19 pandemic, many schools worldwide implemented their distance learning contingency plans and quickly transitioned from on-campus face-to-face learning to distance learning. In Saudi Arabia, all educational institutions were suspended and directed to implement distance learning through online platforms. The Ministry of Education (2020) reported that at least 1.4 million university students across the country were able to take over 223,000 exams remotely through various technical platforms and programs. According to the MOE's recent report, 1,897, 450 students were able to access online discussion forums, 535,090 were able to take online quizzes, 3,652,103 could access online educational content, 111,277 virtual classes of 105,891, 056 hours with 1,242,229 attendees took place. A total of 59 universities shifted to distance education and each university reported respectively its transition success story through detailed statistical data of the number of attendees of both synchronized and asynchronized sessions, online courses, online evaluations, number of files accessed, discussion forums, and number of users of online learning services (Ministry of Education, 2020).

However, with all these efforts paid to ensure education continuity, there were potential challenges related to online education prior to COVID-19 outbreak. First, distant online education is a completely new learning approach for students, as blended learning in Saudi Arabia is still in its infancy (Al-Hasan & Shukri, 2017). Further, many Saudi students do not take online instruction seriously, harbor misconceptions regarding the effectiveness of blended learning, and consider it inferior to traditional instruction. Students also lack experience and skills, show limited interaction, and have low motivation, which cause decreased involvement and responsiveness in their online courses (Aldosemani et al.,

2018). All these challenges students face during blended teaching are expected to be exacerbated with the rapid shift to unprepared emergency distance education.

Study Rationale

The rapid transition to distance education requires a better understanding of how students plan and self-regulate their learning online within extraordinary circumstances and how they evaluate the strategies they used to cope with unexpected study conditions. The experience gained will facilitate the design of inclusive and effective instructional design for emergency online learning, support the creation and curation of resources, facilitate providing effective distance online courses, and identify the best support for faculty and administrators. Generating data related to ERT will help in the acceleration and improvement within online learning platforms and pedagogies. Further, exploring students' learning motivation and SRL mechanisms when they have to quickly adapt to rapid distance online education and so deal with stressful and uncertain learning conditions will support maximizing the development of their SRL skills through the best training and motivational strategies.

RESEARCH QUESTIONS

This research is guided by the following research questions:

1. What are students' perceptions of their transition experience to ERT and emergency online learning during COVID-19 outbreak?
2. What are students' perceptions of their SRL skills during the period of rapid transition to distance education?
3. What are students' perceptions of the most effective SRL strategies implemented during the emergency transition to online learning that supported their SRL skills?

METHODOLOGY

In this research, the author used a mixed method, through a survey with open-ended questions, to measure students' attitudes towards the rapid transition to fully online classes and explore students' evaluation of their SRL skills during emergency learning circumstances. The author used the *Distance Education Learning Environment Survey* (DELE) to assess students' perceptions of their online learning experience. The DELE includes instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy (Fraser, 2002). For examining students' SRL skills, the author developed a survey based on Pintrich's (2000) MSLQ.

Setting

This mixed-method study depicts students' perceptions of SRL skills during ERT at one of the emerging universities in the central region of Saudi Arabia. Emerging universities in Saudi Arabia include 13 higher education institutions that were established during the past 10 years to serve communities in regions distant from major metropolitan areas and to decrease pressure on eight main universities.

The university has 19 colleges (including two community colleges) on seven campuses interspersed throughout the central region of Saudi Arabia. The university employs more than 1600 academic staff and enrolls more than 26,000 students. Blended learning was initiated (though not mandated) in 2011 with Blackboard as the LMS. Faculty members were expected to utilize Blackboard to post instructional materials, manage their courses, and implement follow-up class activities with discussions, quizzes, and group works. They were also expected to provide extra feedback on topics discussed during face-to-face instruction. One institutional goal was to support blended learning

through Blackboard and provide easily accessible and pedagogically sound materials. When the COVID-19 pandemic started, all courses were offered online as a precautionary measure to prevent the risk of infection. They survey was distributed in Business Administration college due to improved online teaching and learning practices prior to the Pandemic. The college of Business Administration consists of approximately 1000 male and female students.

Participants

The author received a total of 162 valid responses from undergraduate students who completed the questionnaire; their ages ranged from 20 to 30, with 92% from 20 to 25 years old. Most students were enrolled in the seventh undergraduate academic level (22.8%), fifth (21.0%), first (17.9%), sixth (13.6%), eighth (11.7%), third (8.6%), and second and fourth (1.9%) academic level. Only one student was in the post-graduate level (0.6%). Each academic level equals one semester to be completed.

Thirty-eight students (23.5%) were enrolled in Marketing studies and 38 (23.5%) in Economics, whereas 31 (19.1%) in Administration, 26 (16%) in Accounting, 9 (5.6%) in Management, and 20 (12.3%) in other fields of study. Most participants were females 159 (98.1%) and 3 were males (1.9%).

Instrument

The questionnaire consisted of two sections; the first section included questions on demographic information and the second section included three subsections. The first subsection measured students' perceptions after their rapid transition to emergency online learning during COVID-19 outbreak and included seven items from the DELE, which encompasses instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy (Fraser, 2002). The second subsection measured students' perceptions of their SRL skills during the rapid transition to distance learning.

For examining students' SRL skills, the author developed a survey based on Pintrich's (2000) MSLQ. The author further subdivided the two original sections of the MSLQ into 15 scales (Duncan & McKeachie, 2005; Garcia & Pintrich, 1996; Pintrich et al., 1991, 1993). All items have a 7-point rating scale (from 1 = *not at all true of me* to 7 = *very true of me*). The Motivation section consists of six scales: Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Control of Learning Beliefs, Self-Efficacy for Learning and Performance, and Test Anxiety. The Learning Strategies section consists of nine scales: Rehearsal, Elaboration, Organization, Critical Thinking, Metacognitive Self-Regulation, Time and Study Environment Management, Effort Regulation, Peer Learning, and Help Seeking.

The author tested this instrument for reliability; Cronbach's alpha coefficients were as follows:

- The instrument's internal reliability was high (α =0.93).
- The six scales of the Motivation section showed the following results: Intrinsic Goal Orientation 0.73, Extrinsic Goal Orientation 0.75, Task Value 0.86, Control of Learning Beliefs 0.76, Self-Efficacy for Learning and Performance 0.90, and Test Anxiety 0.75.
- The nine scales of the Learning Strategies section showed the following results: Rehearsal 0.73, Elaboration 0.74, Organization 0.72, Critical Thinking 0.77, Metacognitive Self-Regulation 0.83, Time and Study Environment Management 0.77, Effort Regulation 0.79, Peer Learning 0.71, and Help Seeking 0.73.
- For students' perceptions on the transition to distance education questionnaire, the reliability Cronbach's alpha coefficients was 0.95.

Reliability coefficients showed that the MSLQ has a sufficient level of reliability (Alpar, 2001; Kalaycı, 2006; Tezbaşaran, 1996).

The significance of adopting MSLQ in this study is that it combines SRL and motivation, which will offer detailed information related to students' learning strategies and the regulation of an unusual learning context which students attempt to "monitor, control, and regulate" (Roth et al., 2016, p. 469). The third subsection of the survey explored students' perceptions of their transition experience to ERT and emergency online learning during COVID-19 outbreak and the most effective SRL strategies implemented during that time through three open-ended questions. The first question is about students' evaluation of the most effective self-regulated strategy they used during the transition to emergency online learning. The second question was about evaluating their experience during emergency online teaching, and the third was about the most supportive factor in that helped students in transitioning to online learning during emergency time.

DATA COLLECTION

The author obtained ethics approval and permission for this study from the Deanship of Research in Saudi Arabia. The questionnaire was distributed to all students in the college of Business Administration via official e-mail invitations, in March 2021 (almost a year after schools had closed in Saudi Arabia due to COVID-19 pandemic). The researcher sent a reminder three weeks after the initial request. The author administered the full version of the DELE and the MSLQ (Pintrich et al., 1991) to the selected classes before midterm in the spring semester 2021.

DATA ANALYSIS

A total of 162 individuals completed the online survey. None of the cases had missing data. The researcher calculated frequencies and descriptives for items and subscales. In order to ascertain differences in responses based on individual characteristics, the researcher performed independent sample t tests. Internal reliability coefficients were calculated for the total scale and its three subscales, and generated Pearson correlation coefficients to evaluate the correlation of subscales. The researchers analyzed responses to open-ended questions for themes and frequencies (Creswell, 2014; Flick, 2006).

RESULTS

Students' Perceptions of the Rapid Transition to Distance Learning (Distance Education Learning Environment Survey)

Participants' perceptions regarding transition to distance education items were mostly positive (Table 1). Participants on this subscale expressed their agreement answering the statements on a scale of five starting from (Never or almost never true of me to Always or almost always true of me) (Table 1).

Table 1. Descriptives for Items on the Transition to Distance Education (N = 162)

Scale	Mean	SD
Instructor Support	3.93	1.03
Student interaction and collaboration	3.77	1.23
Personal relevance	3.74	1.22
Authentic learning	3.41	1.16
Active learning	3.41	1.62
Student autonomy	4.02	0.93

Note: [1]Five-point Likert scale was used (1: Never or almost never true of me; 2: Usually not true of me; 3: Somewhat true of me; 4: Usually true of me; and 5. Always or almost always true of me).

STUDENTS' PERCEPTIONS OF SELF-REGULATED LEARNING DURING EMERGENCY ONLINE LEARNING (*MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE*)

The original MSLQ consists of 81 items grouped into two sections: Section one focuses on motivation and consists of 31 items, while section two focuses on learning strategies and consists of 50 items. The MSLQ has been classified as an aptitude measure of SRL (Muis et al., 2007; Zimmerman, 2008); it assesses the tendency of students to engage in SRL in a specific context. Students report, retrospectively, how they behave in various types of situations. Consequently, students would likely be accessing long-term memory and making generalizations about what they believe they do in a particular situation (Pintrich et al., 2000). motivation, SRL, and academic achievement at college level (Al-Harthy et al., 2010; Kitsantas et al., 2008; Komarraju & Nadler, 2013; Lynch, 2006, 2010; Lynch & Trujillo, 2011; Vanderstoep et al., 1996; VanZile-Tamsen, 2001) see (Table 2).

Table 2. Descriptive statistics of motivated strategies for learning questionnaire (MSLQ)

Scale	Subscales	Mean	SD
Motivation	Intrinsic Goal Motivation	4.97	1.72
	Extrinsic Goal Orientation	5.32	1.65
	Task Value	5.11	1.66
	Control of learning beliefs	4.73	1.77
	Self-efficacy for learning and performance	4.99	1.71
	Test Anxiety	4.88	1.51
	Rehearsal	5.01	1.67
	Elaboration	4.89	1.65
	Organization	5.03	1.67
	Critical thinking	4.87	1.63

Table 2 continued

Scale	Subscales	Mean	SD
Learning strategy scales	Metacognitive self-regulation	4.87	1.72
	Time and study environment management	4.85	1.52
	Effort regulation	4.72	1.64
	Help Seeking	4.94	1.65
	Peer learning	4.72	1.74

Note: [1]Minimum and maximum scores are based on 7-point Likert scale (1: Not at all and 7: Very true of me).

In addition, in the open-ended question on students' self-regulated strategies, 42 participants reported that they highly depended on themselves after the transition to online learning during COVID-19 pandemic. Fifteen participants affirmed that they relied heavily on their search skills exploring different resources, including digital libraries, YouTube videos, recorded lectures, and accessing digital books related to the same subject matter. Nine students reported that they utilized content revision strategies, chunking the content, and improved their active notetaking during lectures. Students also indicated that they developed pre-lecture planning skills, such as revising content, preparing questions, dedicating a fixed daily time to studying, summarizing content, and writing daily reflections and journals. Nine students reported that they adopted brainstorming and analysis strategies, such as concept mapping techniques and software.

Further, 102 participants positively evaluated their transition experience as positive, smooth, and successful, as the following examples of students' comments show:

- "It made me depend more on myself and gave me more confidence in my skills and abilities."
- "It is a very good experience, and I get better prepared to depend on myself, plan my study time effectively, care about my daily schedule, and avoid procrastination."
- "I used the transportation time in studying and doing my assignments."
- "I felt this approach is more suitable for me; I was participating more and more open for sharing my ideas and more social with other classes groups."

"It was not easy, but the transition went smooth, and I see it as well-prepared as we were able to transfer immediately and successfully after the lockdown. Also, the university clearly explained the different functions of the e-learning ecosystem and provided effective support to bridge any gap that might be caused by the rapid transition."

However, 30 participants negatively rated their experience, as the following examples of students' comments show:

- "The transition was successful, but the experience was not because of the distractions at home from kids and family members. I could not organize my schedule and had accumulated assignments every week."
- "I evaluate my experience as the worst class modality. I hope for better cooperation from instructors and better technical support from the Information Technology staff. I was not able to attend many classes because of lack of support from them, and unfortunately I did not find the lectures recorded by the instructor."

"The instructor teaching quality is not as good as his face-to-face teaching. He is not giving us the same focus and individual support or one-on-one interaction as before during his face-to face instruction."

Regarding the question of the most supportive factor in transitioning to online learning, 81 participants mentioned that they improved their self-regulated study skills, 44 mentioned that they have good knowledge and skills in learning through virtual classrooms, and 85 expressed that they have good knowledge and skills in how to use the learning management system effectively for the class. In addition, 45 reported that they received good support from the Academic Support and Counseling Department and information technology teams, 55 mentioned that they received effective support from their peers, 50 participants stated the course instructor helped them, and 19 participants affirmed they received support from other resources.

DISCUSSION

These results highlight students' perceptions of their experience after the rapid transition to distance education. The results evidence that the transition was not an easy or smooth experience for most of the participating students. However, 61 (37%) of the respondents agreed that they were motivated towards learning during the pandemic time, and this could be attributed to the comfort of studying from home. This align with Alsmadi, Almarashdeh, Alzaqebah, Jaradat, Alghamdi, Mohammad, Alshabanah, Alrajhi, Alkhaldi, Aldhafferi, Alqahtani, Badawi & Tayfour (2021) who showed that 63% of students were satisfied with learning management systems, 75% of students found it easy to understand course materials, and 67% of students found it easy to understand assignments and could deal with them comfortably during ERT. Sadeghi (2019) argued that distance learning allows students to study from anywhere at any time and enjoy the flexibility to choose the course of learning. The participants' input to the open-ended questions confirmed these points. However, this conclusion does not align with Alsaoud and Harisi (2020), who reported that students lacked motivation to attend synchronous online classes during the pandemic and recommended that universities should develop and innovate their distance education system through interactive asynchronous activities, in order to improve the process of online teaching and learning (Alsaoud & Harisi, 2020).

In addition, the results show that 67 of the participants agreed that they were able to overcome technical challenges without external assistance. This indicates that students are increasingly becoming technology savvy, thus this digital competency could mitigate resistance to online learning and enhances self-motivation. The challenges related to technology could be from other reasons, in alignment with Alsaoud and Harisi (2020), who stated that, although a significant proportion of students are used to digital learning tools, many of them face immense online learning challenges related to Internet connectivity issues, having dedicated space for studying, a personal device for attending online classes, and screen time anxieties. Huckins et al. (2020) reported that depression and anxiety symptoms were particularly common during the pandemic among students who reported difficulty adapting to remote education. However, this is because the majority of the surveyed students had never or partially attended online courses before the pandemic- This result contrasts Kuczynski et al. (2020), who reported indications of resilience and adaptability and no rises in self-reported anxiety, depression or loneliness during the pandemic. This shows the impact of prior experience of learning through online courses in enhancing students' motivation to move to distance education. The students in this study used to take classes in blended learning, so the transition to distance courses was less challenging for them. Some studies suggest that problem-focused strategies (i.e., active coping techniques such as seeking advice or cognitive reappraisal) may protect against the deleterious effects of COVID-related stress (Alsaoud & Harisi, 2020).

The students in this study also agreed that they were able to employ SRL strategies. Additionally, 74 of the participants agreed that they were able to overcome the difficulties of accessing e-courses. This highlights the importance of remote immediate and direct support, as the university provided

tutorials, training materials, and instructional aids for students in a clear and easy to navigate orientation course. Besides, the university launched a supportive raising awareness campaign to assist the transition and changes in teaching and learning models and schedules through the institution's social media accounts, official website, and instant short messages to students' registered numbers. The task value shows the effectiveness of linking course subject matter to course materials and resources.

Regarding intrinsic goal motivation in distance education during the pandemic, the participants agreed on the significance of challenging course materials, learning new things, the thorough understanding of content, and choosing assignments from which they can learn. This highlights the importance of giving students options to choose learning resources and materials to enhance their lifelong learning skills, in addition to the extrinsic goal orientation that can be enhanced by course grades. Students expressed the agreement with the importance of study skills, and specifically study strategies, that included writing summaries, relating materials to prior knowledge, synthesizing information from different resources, as well as reading strategies. Students emphasized the relevant role of critical thinking. These items referred to students' thinking skills, including self-generated ideas related to the course, critical thinking of other ideas, and thinking of alternatives. Regarding time and study environment, the participants referred to their choice of study place, class attendance, and following up readings and assignments. They also mentioned the importance of learning with peer students and colleagues. They missed collaborative learning and work during the transition to distance education; they had difficulty in carrying out group projects due to the lack of on-campus socialization and this aligns with Hebebci et al.'s (2020) results.

RECOMMENDATIONS

The results of this research show that emergency online learning affected the students' learning experience when it comes to accessing research and study materials (e.g., students' ability to access textbooks and resources they need to review can be hampered by a lack of copyright limitations and exceptions). This highlights the importance of providing open educational resources for students and faculty to support the creation of a resilient online education system during emergency conditions and of a sustainable educational ecosystem. Outreach consulting and counselling channels with scheduled support sessions should be in place for students' online education portal, in order to provide them continuous academic, psychological, and technology support. Rather than relying on a one-size-fits-all approach for supporting students who are participating in college remotely, it is important to tailor interventions to maintain students' engagement and class interactivity. Such skills training should be tailored to the students' specific contexts and individual needs, and to the tools that are woven into their social and academic lives. In order to help students develop effective coping skills, dedicated training programs on how to employ problem-focused strategies (i.e., active coping techniques such as seeking advice or cognitive reappraisal) may protect against the deleterious effects of COVID-related stress and should be offered to all students.

Interactivity is a key success factor for distance online classes, especially during emergency situations. Disengagement forms of coping are often characterized as avoidance, distraction, suppression, and procrastination. Students need to be engaged through diverse learner-based activities, moving between synchronous and asynchronous assignments and meetings, such as adopting gamification principles in course design and implement interactive videos followed by short quizzes and activities. Instructors can also develop engaging discussion threads assigning activities through breakout groups to reduce fatigue from staring at a screen for long periods. Further, the experience and motivation towards online learning depends on the subject matter as well, with some topics and formats translating to an online format better than others. Lab classes became abstract and much less informative in their online versions, therefore, engaging students in virtual labs and providing resources for interactive content will enhance students' knowledge and motivation in such classes.

ENCOURAGE BUILDING AND SUSTAINING PEER RELATIONSHIPS

Most participants described a weakening of relationships with new or potential friends from college. This theme appeared in students' rating due to the lack of shared direct experiences and shared physical spaces with their classmates. The lack of interaction with peers also made it harder to establish study partners. They found it harder to assess compatibility without seeing how engaged peers were in class. Therefore, communication among students and faculty should be leveraged through informing students of communication channels, scheduling virtual meetings for students with their peers, supervised by the instructor, and increasing group projects and course group tools that can enhance students' interaction with each other to build sustainable online learning community. Remote study groups can also offer support for their peers through various video and voice communication platforms (e.g., Zoom, Discord, and FaceTime).

ACTIVATE SELF-LEARNING AND ACTIVATION

Instructors should support and encourage students' self-directed learning, rather than relying exclusively on lectures and assigned materials. They should also enrich the course with activities that can immerse students in creative or self-learning pursuits and extra-curricular activities.

STRUCTURING ROUTINES AND ENVIRONMENT IN THE ONLINE COURSES

Structuring time and activities deliberately instituted routines such as time-blocking specific activities, online calendars and reminders to mark assignments, and timelines supporting students with blocking tools for other notifications not related to class. Instructors can coach students so that their behaviors (i.e., self-regulation skills) align with their academic goals.

CONCLUSION

Indeed, the rapid transition to distance education requires a comprehensive understanding of how students plan and self-regulate their learning online within extraordinary circumstances and how they evaluate the strategies they used to cope with unexpected study conditions. The experience gained will facilitate the design of inclusive and effective instructional design for emergency online learning, support the creation and curation of resources, facilitate providing effective distance online courses, and identify the best support faculty and administrators need to ensure.

CONFLICT OF INTEREST

The authors of this publication declare there is no conflict of interest.

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REFERENCES

Al-Harthy, I. S., Was, C. A., & Isaacson, R. M. (2010). Goals, efficacy and metacognitive self-regulation a path analysis. *International Journal of Education*, *2*(1). Advance online publication. doi:10.5296/ije.v2i1.357

Al-Hasan, S., & Shukri, N. (2017). The effect of blended learning in enhancing female students' satisfaction in the Saudi context. *English Language Teaching*, *10*(6), 190. doi:10.5539/elt.v10n6p190

Aldosemani, T., Shepherd, C. E., & Bolliger, D. U. (2018). Perceptions of Instructors Teaching in Saudi Blended Learning Environments. *TechTrends*, 1–12. doi:10.1007/s11528-018-0342-1

Alsmadi, M., Almarashdeh, I., Alzaqebah, M., Jaradat, G., Alghamdi, F., Mohammad, R., Alshabanah, M., Alrajhi, D., Alkhaldi, H., Aldhafferi, N., Alqahtani, A., Badawi, U., & Tayfour, M. (2021). *Digitalization of learning in Saudi Arabia during the COVID-19 outbreak: A survey*. Informatics in Medicine. doi:10.1016/j.imu.2021.100632

Alsoud, A. R., & Harasis, A. A. (2021). The Impact of COVID-19 Pandemic on Student's E-Learning Experience in Jordan. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(5), 1404–1414. doi:10.3390/jtaer16050079

Boekaerts, M. (1988). Motivated learning: Bias in appraisals. *International Journal of Educational Research*, *12*(3), 267–280. doi:10.1016/0883-0355(88)90005-5

Boekaerts, M. (2011). Emotions, emotion regulation, and self-regulation of learning. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of Self-Regulation of Learning and Performance* (pp. 408–425). Routledge.

Creswell, J. W. (2007). *Qualitative inquiry and research design: choosing among five traditions* (2nd ed.). Sage.

Duncan, T. G., & McKeachie, W. J. (2005). The making of the motivated strategies for learning questionnaire. *Educ. Psychol.*, *40*(2), 117–128. doi:10.1207/s15326985ep4002_6

Flick, U. (2006). *An introduction to qualitative research* (3rd ed.). Sage.

Fraser, B. J. (2002). Learning environments research: Yesterday, today and tomorrow. In S. C. Goh & M. S. Khine (Eds.), *Studies in educational learning environments: An international perspective* (pp. 1–25). World Scientific. doi:10.1142/9789812777133_0001

Garrison, R. (2000). Theoretical challenges for Distance Education in the 21st century: A swift from structural to transactional issues. *International Review of Research in Open and Distance Learning*, *1*(1). Advance online publication. doi:10.19173/irrodl.v1i1.2

Giossos, Y., Koutsouba, M., Lionarakis, A., & Skavantzos, K. (2009). Reconsidering Moore's transactional distance theory. *European Journal of Open Distance and ELearning*, *2009*(2). http://www.eurodl.org/?p=archives&year=2009&halfyear=2&article=374

Hebebci, M. T., Bertiz, Y., & Alan, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) Pandemic. *Int. J. Technol. Educ. Sci.*, *4*(4), 267–282. doi:10.46328/ijtes.v4i4.113

Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The Difference Between Emergency Remote Teaching and Online Learning. *Educausereview*. Retrieved online: https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. doi:10.1016/j.edurev.2015.11.002

Huckins, J. F., da Silva, A. W., Wang, W., Hedlund, E., Rogers, C., Nepal, S. K., Wu, J., Obuchi, M., Murphy, E. I., Meyer, M. L., Wagner, D. D., Holtzheimer, P. E., & Campbell, A. T. (2020, June 1). Mental health and behavior of college students during the early phases of the COVID-19 pandemic: Longitudinal smartphone and ecological momentary assessment study. *Journal of Medical Internet Research*, *22*(6), e20185. Advance online publication. doi:10.2196/20185 PMID:32519963

Kanuka, H., Collet, D., & Caswell, C. (2002). University instructor perceptions of use of asynchronous text-based discussion in distance courses. *American Journal of Distance Education*, *16*(3), 151–167. doi:10.1207/S15389286AJDE1603_3

Kitsantas, A., Winsler, A., & Huie, F. (2008). Self-regulation and ability predictors of academic success during college: A preditive validity study. *Journal of Advanced Academics*, *20*(1), 42–68. doi:10.4219/jaa-2008-867

Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*, *25*, 67–72. doi:10.1016/j.lindif.2013.01.005

Kuczynski, A. M., Kanter, J. W., Wetterneck, C. T., Olaz, F. O., Singh, R. S., Lee, E. B., Stowe, T. J., Mazzucchelli, T. G., Mier-Chairez, J., Maitland, D. W. M., Manbeck, K. E., & Corey, M. D. (2020). Measuring intimacy as a contextual behavioral process: Psychometric development and evaluation of the Awareness, Courage, and Responsiveness Scale. *Journal of Contextual Behavioral Science*, *16*, 199–208. doi:10.1016/j.jcbs.2019.02.004

Lynch, D. J. (2006). Motivational factors, learning strategies and resource management as predictors of course grades. *College Student Journal*, *40*(2), 423–429.

Lynch, D. J., & Trujillo, H. (2011). Motivational beliefs and learn- ing strategies in organic chemistry. *International Journal of Science and Mathematics Education*, *9*(6), 1351–1365. doi:10.1007/s10763-010-9264-x

Means, B., Bakia, M., & Murphy, R. (2014). *Learning Online: What Research Tells Us about Whether, When and How*. Routledge Taylor & Frances. doi:10.4324/9780203095959

Ministry of Education. (2020). *Report on Distance Education Statistics in Higher Education during COVID19 Outbreak*. https://iite.unesco.org/wp-content/uploads/2020/10/The-Saudi-MOE-Leading-Efforts-to-Combat-Coronavirus-Pandemic-COVID-19.pdf

Moore, M. G. (1991). Editorial: Distance education theory. *American Journal of Distance Education*, *5*(3), 1–6. doi:10.1080/08923649109526758

Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical Principles of Distance Education* (pp. 22–38). Routledge.

Morris, M. E., Kuehn, K. S., Brown, J., Nurius, P. S., Zhang, H., Sefidgar, Y. S., Xu, X., Riskin, E. A., Dey, A. K., Consolvo, S., & Mankoff, J. C. (2021). College from home during COVID-19: A mixed-methods study of heterogeneous experiences. *PLoS One*, *16*(6), e0251580. doi:10.1371/journal.pone.0251580 PMID:34181650

Panadero, E., Klug, J., & Järvelä, S. (2015). Third wave of measurement in the self-regulated learning field: When measurement and intervention come hand in hand. *Scandinavian Journal of Educational Research*, *60*(6), 723–735. doi:10.1080/00313831.2015.1066436

Pérez-Álvarez, R., Maldonado-Mahauad, J., & Pérez-Sanagustín, M. (2018). Tools to support self-regulated learning in online environments: literature review. *Proceedings of the EC-TEL 2018: Lifelong Technology-Enhanced Learning: European Conference on Technology Enhanced Learning*. doi:10.1007/978-3-319-98572-5_2

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 451–502). Academic Press. doi:10.1016/B978-012109890-2/50043-3

Pintrich, P. R., & de Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *J. Educ. Psychol.*, *82*(1), 33–40. doi:10.1037/0022-0663.82.1.33

Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. National Center for Research to Improve Postsecondary Teaching and Learning.

Pintrich, P. R., Smith, D. A. F., Garcia, T., & Mckeachie, W. J. (1993). Reliability and predictive validity of the motivated strategies for learning questionnaire (MSLQ). *Educational and Psychological Measurement*, *53*(3), 801–813. doi:10.1177/0013164493053003024

Quesada-Pallarès, C., Sánchez-Martí, A., Ciraso-Calí, A., & Pineda-Herrero, P. (2019). Online vs. Classroom Learning: Examining Motivational and Self-Regulated Learning Strategies Among Vocational Education and Training Students. *Frontiers in Psychology*, *10*, 2795. doi:10.3389/fpsyg.2019.02795 PMID:31920839

Roth, A., Ogrin, S., & Schmitz, B. (2016). Assessing self-regulated learning in higher education: A systematic literature review of self-report instruments. *Educational Assessment, Evaluation and Accountability*, *28*(3), 225–250. doi:10.1007/s11092-015-9229-2

Sadeghi, M. (2019). A Shift from Classroom to Distance Learning: Advantages and Limitations. *International Journal of Research in English Education. 4*, 80–88. https://www.semanticscholar.org/paper/A-Shift-from-Classroom-to-Distance-Learning%3A-and-Sadeghi/fbb35033ffc875118449b07c5e602a2e660e59fc

Sitzmann, T., & Ely, K. (2011). A meta-analysis of self-regulated learning in work-related training and educational attainment: What we know and where we need to go. *Psychological Bulletin*, *137*(3), 421–442. doi:10.1037/a0022777 PMID:21401218

UNESCO, UNICEF, World Bank, & OECD. (2021). *What's Next? Lessons on Education Recovery: Findings from a Survey of Ministries of Education amid the COVID-19 Pandemic*. World Bank. https://openknowledge.worldbank. org/handle/10986/36393

Vanderstoep, S. W., Pintrich, P. R., & Fagerlin, A. (1996). Disciplinary differences in self-regulated learning in college students. *Contemporary Educational Psychology*, *21*(4), 345–362. doi:10.1006/ceps.1996.0026 PMID:8979869

VanZile-Tamsen, C. (2001). The predictive power of expectancy of success and task value for college students' self-regulated strategy use. *Journal of College Student Development*, *42*(3), 233–241.

Winne, P. H., & Hadwin, A. F. (2008). The weave of motivation and self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and Self-Regulated Learning: Theory, Research and Applications* (pp. 297–314). Lawrence Erlbaum Associates.

Zimmerman, B. J. (1986). Becoming a self-regulated learner: Which are the key subprocesses? *Contemporary Educational Psychology*, *11*(4), 307–313. doi:10.1016/0361-476X(86)90027-5

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *J. Educ. Psychol.*, *81*(3), 329–339. doi:10.1037/0022-0663.81.3.329

Zimmerman, B. J. (1990). A social cognitive view of self-regulated academic learning. *J. Educ. Psychol.*, *81*(3), 329–339. doi:10.1037/0022-0663.81.3.329

Zimmerman, B. J. (2000). Attaining self-regulation: a social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of Self-Regulation* (pp. 13–40). Academic Press. doi:10.1016/B978-012109890-2/50031-7

Zimmerman, B. J., & Campillo, M. (2003). Motivating self-regulated problem solvers. In J. E. Davidson & R. J. Sternberg (Eds.), *The Nature of Problem Solving* (pp. 233–262). Cambridge University Press.

Zimmerman, B. J., & Martinez-Pons, M. (1988). Construct validation of a strategy model of student self-regulated learning. *J. Educ. Psychol.*, *80*(3), 284–290. doi:10.1037/0022-0663.80.3.284

Zimmerman, B. J., & Schunk, D. H. (2011). *Handbook of Self-Regulation of Learning and Performance*. Routledge.

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