Online learning perception among college students during COVID-19 pandemic around the world: Review

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ABSTRACT

The author conducted a systematic review of the perception of online learning among college students during the COVID-19 pandemic. The review included 21 studies from institutions in Asia (Saudi Arabia, United Arab Emirates, Pakistan, India, Sri Lanka, Nepal, Indonesia, and The Philippines), Europe (Romania and Poland), Africa (Ghana and Algeria), and South America (Chile). The results indicated that students from Asia and Africa overwhelmingly had an unfavorable view of online learning during the pandemic. More than 75% of students in Nepal, India, Indonesia, Pakistan, Algeria, and Ghana used mobile phones to access course material which brought challenges, such as the high cost of data bundles, unreliable network, and lack of adequate cellphone space to download the materials needed for class. Other than Poland, Romania, and United Arab Emirates, students from the rest of the countries reported unreliable internet access. Additional challenges reported include lack of prior experience with online learning, technical difficulties accessing materials online, high volume of assignments, poor communication between learners and educators, distractions from home environment, and lack of practical and clinical experience for students in medical schools. The findings from this systematic review could help administrators of higher education institutions acknowledge the online learning difficulties experienced by college students and prepare for future disruptions.

Keywords: Online learning, COVID-19 pandemic, college students, student perception.

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INTRODUCTION

The coronavirus (COVID-19) pandemic led to an unprecedented closure of schools, colleges, and universities around the globe in the spring of 2020. By April 2020, almost 1.5 million learners enrolled at pre-primary, primary, upper-secondary, and tertiary education levels were affected by the country-wide school closures in 172 countries due to COVID-19 (UNESCO, 2020). In China, where COVID-19 was first detected, the start of the spring semester was suspended for all colleges (Xiao, 2020); and face-to-face classes were canceled or shifted to online classes in almost all of the countries to help prevent the spread of the coronavirus (Aguilera-Hermida, 2020; Hodges et al., 2020). By the end of May 2020, in the United States, 4,234 higher education institutions were impacted, and 25,798,790 higher education students were affected by COVID-19 (Alexander, 2020).

To curtail the coronavirus spread and ensure the continuity of teaching and learning, colleges, universities, and learning institutions, without warning or preparation, hurriedly shifted their in-person courses to remote or online. Students, many of whom had little to no experience in learning fully online, were suddenly thrust into this new mode of learning.

At the minimum, for online learning to be successful, students need reliable internet access, computers or tablets, and familiarity with the online learning tools (Garcia and Weiss, 2020). Given the abrupt nature of the switch to online learning, many higher education institutions worldwide were not adequately prepared. Thus, the overarching aim of this review was to identify and synthesize empirical research findings on the perception of online learning during the COVID-19 pandemic among college students. The review

specifically sought to identify the barriers and challenges that students worldwide were experiencing while learning online.

MATERIALS AND METHODS

Search methodology and article selection

I followed the eight-step guide to conducting a systematic literature review proposed by Okoli (2015). First, I identified the purpose of the review (step 1), the review procedure (step 2), and the inclusion and exclusion criteria (step 3). Studies were eligible for inclusion if they 1) assessed the perception of online learning among college students during the COVID-19 pandemic; 2) followed cross-section study design with college students as the population of interest; 3) utilized descriptive surveys; 4) were written in the English language; 5) were peer-reviewed; 6) had full-text availability, and 7) were published between April 2020 and December 2020.

Step 4 consisted of the literature search. I utilized Google Scholar and EBSCO host databases to conduct the literature search. The search term used was "student perception of online learning during a pandemic." I screened all types of articles that were relevant to the subject of the review. Titles and abstracts of each publication were perused for relevance. Full-text articles were then accessed for eligibility after initial screening. The initial search yielded 35 abstracts across the two sources. A total of 10 articles did not meet the inclusion criteria following the initial review, and a further four were excluded after full-text review. The final number of articles included in the review was 21. Figure 1 shows the flow diagram of selecting publications for this systematic review.

Then, I extracted the relevant data from the selected studies (step 5), did a final screening for exclusion of the studies (step 6), and finally synthesized the key findings from the 21 publications (step 7), and wrote this review (step 8).
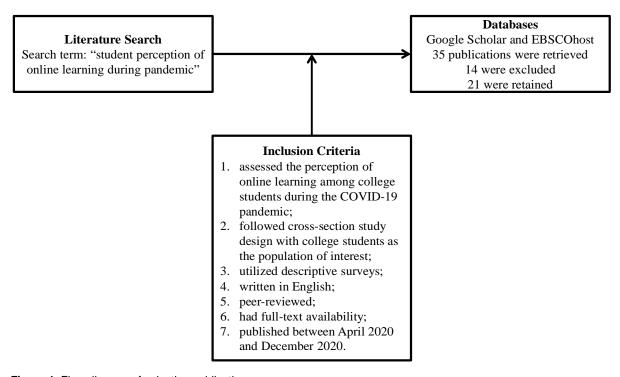
Literature Search		Databases
Search term: "student perception of online learning during pandemic"	→	Google Scholar and EBSCOhost 35 publications were retrieved 14 were excluded 21 were retained

Inclusion Criteria

1. assessed the perception of online learning among college students during the COVID-19 pandemic;
2. followed cross-section study design with college students as the population of interest;
3. utilized descriptive surveys;
4. written in English;
5. peer-reviewed;
6. had full-text availability;
7. published between April 2020 and December 2020.

Figure 1. Flow diagram of selecting publications.

RESULTS

Search results

Of the 21 included studies, four were conducted in Africa (Algeria and Ghana), one in South America (Chile), 14 in Asia (India, Indonesia, Malaysia, Nepal, Pakistan, Philippines, Saudi Arabia, United Arab Emirates, and Sri Lanka), and two in Europe (Poland, Romania). Table 1 summarizes the articles included in the review. It shows the author, country/region of the population studied, sample size, sample characteristics, and the main findings. The core themes that emerged are summarized below.

Table 1. Summary of key publications.

Author	Country	Sample size	Sample characteristics	Main findings
Abbasi et al. (2020)	Pakistan	382	College of Medicine and Dentistry students	Use the mobile phone for e-leaning (76%) Have a negative perception of online learning (77%) Quality of online learning inadequate (69%) Online learning is less appealing for practical subjects Decreased student-teacher interaction
Agormedah et al. (2020)	Ghana	467	Undergraduate students	Use mobile phone for e-leaning (76.7%) A negative perception of online learning (43.3%) WhatsApp is preferred for accessing online learning material No prior experience with online learning (91.9%) Unreliable internet access (85.2%) Unable to purchase internet data bundles for online learning (67.9%) Students not prepared for online learning Lack of concentration due to home distractions
Al-Nofaie (2020)	Saudi Arabia	25	Students majoring in English Language	Asynchronous preferred due to flexibility Unreliable internet connection (36%) Lack headphones and speakers for video conferencing (48%) Recorded synchronous class sessions so students can go back Lack of concentration due to home distractions Anxiety taking exams online Blackboard LMS is used
Al Rawashdeh et al. (2020)	United Arab Emirates	60	Students enrolled in Calculus I course	Confident learning online (73%) Sessions are more interactive than face-to-face (70%) Increased access to course material Had to put more effort (50%) Flexibility (87%) Technical problems (50%)
Amir et al. (2020)	Indonesia	301	Dentistry students	Problems during distance learning (66%) Experienced stress (35.5%) Unstable internet connection The financial burden for internet quota Students had more learning time

Table 1. Continues.

Angung et al. (2020)	Indonesia	66	Students enrolled in the English Language Education Program	A negative perception of online learning (66.7%) Use mobile phones for online learning (84.8%) Costly data bundles Unstable signal (66.7%) - Poor or no signal at all (9.1%) Incompatible mobile device downloading the learning apps (75.8%) Too many assignments (57.5%) Limited cell phone memory space for installing the apps
Bączek et al. (2020)	Poland	804	Medical students	No prior experience with e-learning (60%) Enjoyable (73%) Ability to stay at home (69%) Continuous access to online materials (69%) Learning at your own pace (64%) Comfortable surroundings (54%) Lack of interactions with patients (70%) Technical problems with IT equipment (54%)
Baticulon et al. (2020)	Philippines	3670	Medical students	Ready for online learning (41%) Technological problems Difficulty adjusting learning styles Having to perform responsibilities at home Poor communication between educators and learners
Blizak et al. (2020)	Algeria	380	Undergraduate Chemistry students	Mostly negative perception Use smartphones for e-learning (78.7%) Technical problems accessing Moodle LMS platform (66%) Unreliable internet access A high volume of homework assignments Lack of communication with teachers Lack of computers
Coman et al. (2020)	Romania	762	Students from two universities	Technical problems with the LMS platforms (69.4%) A high volume of homework assignments Courses held using different platforms Poor access to LMS platforms (14.8%) Difficulty processing information Presenting seminar projects online is more complex (60.5%)

Table 1. Continues.

Demuyakor (2020)	Ghana	360	Ghanaian students studying in Chinese Universities	High cost of internet and slow internet for those students who went back home to Ghana Difficulty with synchronous classes due to different time zones for a student who went back home to Ghana Slow internet for those in China
Figueroa et al. (2020)	Chile	100	Orthopedic surgery residents	Slow internet connection, audio problems (42%) Absence of practical education in surgical training (13%) Lack of concentration due to home distractions (9%), Difficulties with scheduling Overload of seminars/presentations (9%)
Gupta et al. (2020)	Nepal	769	College of Medicine students	Use a smartphone to access online material No prior experience with online learning (89.2%) Unreliable internet access (31.2%) Distracting Faculty not trained for online Practical and simulation are not good
Henaku (2020)	Ghana	10	College of Education students	Live lessons conducted via WhatsApp where professor sends note in Pdf follows with audio Students download the audio, listen, and ask questions Unreliable internet access Unable to download Google Meet due to limited space on the smartphone The poor audio quality for zoom lectures Purchasing internet bundle draining financially Lack of no smartphone or laptop Lack of concentration due to home distractions Students want online learning suspended
Khalil et al. (2020)	Saudi Arabia	60	College of Medicine students	Prefer online for theoretical subjects and case discussions only Can go back and view recorded lectures Lectures containing x-rays do not clear in online sessions Absence of clinical practice Save commuting time Self-paced for asynchronous Long lecture durations Lack of direct discussions with instructors and classmates Slow internet Lack of concentration due to home distractions

Table 1. Continues.

Nafrees et al. (2020)	Sri Lanka	310	A random sample of undergraduate students	Online content met expectations (56.5%) Workload increased Students happy with the supportive environment Inadequate learning facilities (20%) Students get prompt feedback from professors (59.8%)
Nugroho et al. (2020)	Indonesia	100	Students enrolled in an English course	Negative attitude towards the course being online (82%) Disliked the lecture online (83%) Recorded lectures are helpful students can re-watch Difficulty interacting directly with lectures Class used Google Classroom
Pangam (2020)	India	300	Students in non-professional colleges	Use Smartphone for access (60%), laptop 35(%), 5% tablet Use mobile data to connect to the internet (80%) Less effective for student-instruction interaction (60%) Flexible schedule and convenience Can re-watch recorded lectures Unreliable internet access Use WhatsApp (65%)
Rifiyanti (2020)	Indonesia	108	Students enrolled in English Language	Unreliable internet access (41.7%) Incompatible gadget Online not effective (37%) Use Moodle system
Shawaqfeh et al. (2020)	Saudi Arabia	309	Pharmacy students	No prior experience with online learning (51.5%) Identified barriers (34%) Lack of motivation, connection issues, Engagement lacking Too many assignments and information overload
Susilana et al. (2020)	Indonesia	206	Students from 10 different universities	Learning quality is worse online (75.93%) Online learning is more difficult than face-to-face (71.6%) Hard mastering subjects that involve practicals Too many assignments with inadequate and unclear directions High data plan consumption More workload

Table 1. Continues.

Insufficient mobile data availability (46.3%)
Lack of tools to facilitate learning (27.9%)
Use WhatsApp to access online course materials
Video conferencing tools used include Zoom, WebEx

Themes

Suitability of devices

Proper devices that support online learning are crucial. Online learning requires students to have computers, laptops, tablets, or smartphones with internet access. Over three-quarters of students in Algeria (78.9%) (Blizak et al., 2020), India (80%) (Pangam, 2020), Pakistan (76%) (Abbasi et al., 2020), Indonesia (84.8%) (Agung et al., 2020), Ghana (76.7%) (Agormedah et al., 2020) reported using smartphones for online learning. Students from Nepal (Gupta et al., 2020) also reported that they mainly use mobile phones for online learning. Smartphones, in large part, were not suitable for online learning because they were incompatible with technology that the students were required to use (Rifiyanti, 2020) and had limited cell phone memory space for installing and downloading learning apps and materials (Agung et al., 2020). Furthermore, in Ghana, online synchronous learning was conducted using WhatsApp, where the professor would send notes in Pdf format and follow with an audio lecture, and students would download the notes, listen to the audio, and ask questions in real-time. WhatsApp presented challenges to those students who lacked smartphones or those who had simple smartphones that were incompatible with WhatsApp as they could not participate in online learning (Henaku, 2020). Students in Indonesia (Susilana et al., 2020) and Algeria (Blizak et al.,

2020) also reported a lack of computers for accessing online material.

Cost of access

Online learning involves browsing, uploading, editing, and sending files to various e-platforms. With smartphones being the most prevalent way of accessing online content among the students included in this review, the added cost of purchasing data bundles was a significant burden. Students reported that the financial cost was burdensome (Agormedah et al., 2020; Amir et al., 2020; Demuyakor, 2020; Henaku, 2020; Susilana et al., 2020). In Ghana, 67.9% (Agormedah et al., 2020) of the students were unable to purchase internet data bundles for online learning and were unable to attend all scheduled classes regularly.

Unreliable internet access

Accessing learning materials online or attending synchronous classes require stable and reliable internet access. Unstable, slow, and unreliable internet connection was reported by students in Indonesia (Agung et al., 2020; Amir et al., 2020; Rifiyanti, 2020; Shawaqfeh et al., 2020; Susilana et al., 2020), Saudi Arabia (Shawaqfeh et al., 2020; Khalil et al., 2020; Al-Nofaie, 2020), Nepal (Gupta et al., 2020), India (Pangam, 2020), Chile (Figueroa et al., 2020), Algeria (Blizak et

al.,2020), and Ghana (Agormedah et al., 2020; Demuyakor, 2020; Henaku, 2020). Moreover, students from remote villages who went back home reported having to hike some hills to get hold of internet signals (Gupta et al., 2020; Pangam, 2020).

Technical problems accessing Learning Management Systems

Students encountered technical problems accessing content from the LMS platforms for the universities with established Learning Management Systems (LMS). Technical problems were reported by students in Romania (69.4%) (Coman et al., 2020), Algeria (66%) (Blizak et al., 2020), the Philippines (Baticulon et al., 2020), Poland (54%) (Bączek et al., 2020), United Arab Emirates (50%) (Al Rawashdeh et al., 2020), and Saudi Arabia (Shawaqfeh et al., 2020).

Prior experience with online learning

Online learning has been growing steadily in the past 20 years, and many universities worldwide have some form of online learning; however, there is not a situation in recent memory where all students who had been receiving in-person instruction were abruptly mandated to switch to online learning. For many students, COVID-19 provided the first experience with online learning.

The percentage of students with no prior experience with learning online was 51.5% in Saudi Arabia (Shawaqfeh et al., 2020), 89.2% in Nepal (Gupta et al., 2020), 60% in Poland (Bączek et al., 2020), 59% in the Philippines (Baticulon et al., 2020), and (91.9% in Ghana (Agormedah et al., 2020). This lack of experience made it harder to navigate online learning. Students in (Gupta et al., 2020) also report that their faculty lacked training in online learning.

A high volume of assignments

Students from Indonesia (Susilana et al., 2020), Saudi Arabia (Khalil et al., 2020), Sri Lanka (Nafrees et al., 2020), Chile (Figueroa et al., 2020), Romania (Coman et al., 2020), and Algeria (Blizak et al., 2020), all reported increased volume of assignments while learning online during the pandemic compared to when they had in-person learning. Furthermore, students lamented that the high volume of assignments often came with inadequate and unclear directions (Susilana et al., 2020).

Practical subjects for medical students

Medical school students reported that online learning was unsuitable for practical subjects or subjects that involved direct patient interaction. Students lamented the absence of clinical practice and surgical training in Poland (Bączek et al., 2020), Nepal (Gupta et al., 2020), Indonesia (Susilana et al., 2020), Chile (Figueroa et al., 2020), and Pakistan (Abbasi et al., 2020). Furthermore, students in Saudi Arabia reported that lectures containing X-rays were not clear in online sessions (Khalil et al., 2020) and preferred online for theoretical subjects and case discussions only.

Home environment distractions

Distractions from home were reported as a significant impediment to online learning during the pandemic by students in Saudi Arabia (Al-Nofaie, 2020; Khalil et al., 2020), Chile (Figueroa et al., 2020), the Philippines (Baticulon et al., 2020) and Ghana (Agormedah et al., 2020; Henaku, 2020). For Ghana in particular, where online learning primarily took place via WhatsApp, parents and family members expected the students to help with chores at home and failed to comprehend why the students were constantly on the phone the whole day.

Poor student-teacher communication

For online learning to be successful, there needs to be adequate communication between students and teachers regarding course expectations and timely feedback on assignments. Students in Saudi Arabia (Khalil et al., 2020), Pakistan (Abbasi et al., 2020), Algeria (Blizak et al., 2020), the Philippines (Baticulon et al., 2020), and Indonesia (Nugroho et al., 2020) all reported poor or lack of communication between students and professors, and lack of interaction among the students.

Other challenges

Other challenges reported by students included lack of motivation (Shawaqfeh et al., 2020), stress (Amir et al., 2020), anxiety taking exams online (Al-Nofaie, 2020), difficulty with synchronous classes due to different time zones (Demuyakor, 2020), and courses held using different platforms (Coman et al., 2020).

Advantages

For students who had the necessary resources to learn online, the main advantages of online learning cited were flexibility and convenience (Al-Nofaie, 2020; Al Rawashdeh et al., 2020; Khalil et al., 2020; Nugroho et al., 2020; Pangam, 2020), ability to go back and re-watch prerecorded lectures and more learning time (Amir et al., 2020), saved commuting time (Khalil et al., 2020), and ability to stay home and study at own pace in a comfortable surrounding (Bączek et al., 2020).

Overall perception

Of the countries examined, students from Asia and Africa reported an increasingly negative perception of online learning during the pandemic. In Indonesia, 66% of the students (Amir et al., 2020) reported encountering problems with online learning, and 75.93% reported that learning quality was worse online, more complicated than face-to-face (71.6%) (Susilana et al., 2020), ineffective (37%) (Rifiyanti, 2020), and 83% disliked the online lectures (Nugroho et al., 2020). About two-thirds of students in Ghana reported negative perceptions (Agormedah et al., 2020; Agung et al., 2020) and expressed a desire to have online learning suspended (Henaku, 2020). In Pakistan, 77% of the students reported a negative perception of online learning, and 69% indicated that online learning was inadequate (Abbasi et al., 2020). The negative perception was also echoed by students in Algeria (Blizak et al., 2020), the Philippines (Baticulon et al., 2020), and Sri Lanka (Nafrees et al., 2020).

DISCUSSION

As of July 2021, COVID-19 vaccines were readily available in the United States of America and some

developed countries. Forty-eight percent of the adults in the USA were fully vaccinated as of July 2021. However, the vaccination rate in Asia and African countries included in this study remained low (under 5%). Thus, we could expect disruptions in education as a result of COVID-19 to last beyond 2021. It is therefore essential for institutions of higher learning and the governments to address at the minimum the challenges of cost of internet connectivity, unreliable internet access, and accessible devices that are conducive for online learning.

CONCLUSION AND LIMITATIONS

In this literature review, we summarized research on the perception of online learning among college students during the COVID-19 pandemic. The review included 21 studies from institutions in Asia (Saudi Arabia, United Arab Emirates, Pakistan, India, Sri Lanka, Nepal, Indonesia, the Philippines), Europe (Romania, Poland), Africa (Ghana, Algeria), and South America (Chile). The results indicate that students from Asia and Africa overwhelmingly had an unfavorable view of online learning. More than three-quarters of students from Nepal, India, Indonesia, Pakistan, Algeria, Ghana, included in this review used mobile phones to access course material which brought with it challenges such as high cost of data bundles, unreliable network, and lack of adequate cellphone space to download the materials needed for class. Other than Poland, Romania, and United Arab Emirates, students from the rest of the countries reported unreliable internet access. Other challenges reported include lack of prior experience with online learning, technical difficulties accessing materials online, high volume of assignments, poor communication between learners and educators, distractions from home environment, and lack of practical and clinical experience for students in medical schools.

The articles included in this review were limited to those available in EBSCOhost and Google Scholar, and the search term used. Furthermore, the students from the countries included do not necessarily constitute a random sample of students from all those countries. Another notable shortcoming is the unavailability of some studies that were not written in the English language. Nevertheless, this study should be sufficient in portraying the perception of online learning among college students around the world during the COVID-19 pandemic.

Competing interest statement

The authors have declared no competing interests.

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REFERENCES

Abbasi, S., Ayoob, T., Malik, A., and Memon, S. I. (**2020**). Perceptions of students regarding E-learning during COVID-19 at a private medical college. Pakistan Journal of Medical Sciences, 36(COVID19-S4).

Agormedah, E. K., Henaku, E. A., Ayite, D. M. K., and Ansah, E. A. (**2020**). Online learning in higher education during COVID-19 pandemic: A case of Ghana. Journal of Educational Technology and Online Learning, 3(3): 183-210.

Agung, A. S. N., Surtikanti, M. W., and Quinones, C. A. (**2020**). Students' perception of online learning during COVID-19 pandemic: A case study on the English students of STKIP Pamane Talino. Soshum: Jurnal Sosial dan Humaniora, 10(2): 225-235.

Al Rawashdeh, A., Syam, M., and Serhan, D. (**2020**). Transitioning from face-to-face to online learning: Students' achievements and perceptions Of learning calculus during COVID-19 pandemic. In I. Sahin & M. Shelley (Eds.), *Educational Practices during the COVID-19 Viral Outbreak: International Perspectives* (pp. 221-238). ISTES Organization.

Alexander, B. (**2020**). COVID-19: Higher education research center. Entangled Solutions. http://www.entangled.solutions/coronavirus-he/.

Al-Nofaie, H. (**2020**). Saudi university students' perceptions towards virtual education during COVID-19 pandemic: A case study of language learning via Blackboard. Arab World English Journal, 11(3): 4-20.

Amir, L. R., Tanti, I., Maharani, D. A., Wimardhani, Y. S., Julia, V., Sulijaya, B., and Puspitawati, R. (**2020**). Student perspective of classroom and distance learning during COVID-19 pandemic in the undergraduate dental study program Universitas Indonesia. BMC Medical Education, 20(1): 1-8.

Bączek, M., Zagańczyk-Bączek, M., Szpringer, M., Jaroszyński, A., and Wożakowska-Kapłon, B. (**2020**). Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-41178/v1].

Baticulon, R. E., Alberto, N. R. I., Baron, M. B. C., Mabulay, R. E. C., Rizada, L. G. T., Sy, J. J., Tiu, C. J. S., Clarion, C. A., and Reyes, J. C. B. (**2020**). Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. *medRxiv* 2020.07.16.20155747;
doi: https://doi.org/10.1101/2020.07.16.20155747.

Blizak, D., Blizak, S., Bouchenak, O., and Yahiaoui, K. (**2020**). Students' perceptions regarding the abrupt transition to online learning during the COVID-19 pandemic: Case of Faculty of Chemistry and Hydrocarbons at the University of Boumerdes-Algeria. Journal of Chemical Education, 97(9): 2466-2471.

Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., and Bularca, M. C. (**2020**). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. Sustainability, 12(24): 10367.

Demuyakor, J. (**2020**). Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. Online Journal of Communication and Media Technologies, 10(3): e202018.

Figueroa, F., Figueroa, D., Calvo-Mena, R., Narvaez, F., Medina, N., and Prieto, J. (**2020**). Orthopedic surgery residents' perception of online education in their programs during the COVID-19 pandemic: Should it be maintained after the crisis? Acta Orthopaedica, 91(5): 543-546.

Garcia, E., and **Weiss**, E. (**2020***)*. COVID-19 and student performance, equity, and U.S. education policy: Lessons from pre-pandemic research to inform relief, recovery, and rebuilding. Economic Policy Institute. https://files.epi.org/pdf/205622.pdf.

Gupta, A., Shrestha, R. M., Shrestha, S., Acharya, A., and Pandey, N. (**2020**). Perception of BDS students of Kathmandu University on online learning during COVID-19 pandemic. Orthodontic Journal of Nepal, 10(2): 20-28.

Henaku, E. A. (**2020**). COVID-19: Online learning experience of college students: The case of Ghana. International Journal of Multidisciplinary Sciences and Advanced Technology, 1(2): 54-62.

Hodges, C., Moore, S., Lockee, B., Trust, T., and Bond, A. (**2020**). The difference between emergency remote teaching and online learning. EDUCAUSE Review. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning#fn3.

Khalil, R., Mansour, A. E., Fadda, W. A., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., Alkhalifah, A., and Al-Wutayd, O. (**2020**). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: A qualitative study exploring medical students' perspectives. BMC medical education, 20(1): 1-10.

Nafrees, A. C. M., Roshan, A. M. F., Baanu, A. N., Shibly, F. H. A., Maury, R., and Kariapper, R. A. R. (**2020**). An Investigation of Sri Lankan University undergraduates' perception about online learning during COVID-19: With superior references to South Eastern University. Solid State Technology, 63(6): 8829-8840.

Nugroho, R. A., Basari, A., Suryaningtyas, V. W., and Cahyono, S. P. (**2020**, September). University students' perception of online learning in COVID-19 pandemic: A case study in a translation course. In: 2020 International Seminar on Application for Technology of Information and Communication (iSemantic) (pp. 225-231). IEEE.

Okoli, C. (**2015**). A guide to conducting a standalone systematic literature review. Communications of the Association for the Information Systems, 37. https://aisel.aisnet.org/cgi/viewcontent.cgi?article=3908&context=cais.

Pangam, M. S. (**2020**). A study of students' perception for online teaching in Goa during COVID-19 pandemic. International Journal of Advance and Innovative Research, 7(3): 1-4.

Rifiyanti, H. (**2020**). Learners' perceptions of online English learning during COVID-19 pandemic. Scope: Journal of English Language Teaching, 5(1): 31-35.

Shawaqfeh, M. S., Al Bekairy, A. M., Al-Azayzih, A., Alkatheri, A. A., Qandil, A. M., Obaidat, A. A., Al Harbi, S., and Muflih, S. M. (**2020**). Pharmacy students perceptions of their distance online learning experience during the COVID-19 pandemic: A cross-sectional survey study. Journal of Medical Education and Curricular Development, 7: 1-9.

Susilana, R., Hutagalung, F., and Sutisna, M. R. (**2020**). Students' perceptions toward online learning in higher education in Indonesia during COVID-19 pandemic. Elementary Education Online, 19(4): 9-19.

UNESCO (**2020**). COVID-19 impact on education. https://en.unesco.org/covid19/educationresponse.

Xiao, H. (**2020**). China's State Council extends Spring Festival holiday. China Daily. https://www.chinadaily.com.cn/a/202001/27/WS5e2e0f0ea31012821727356b.html.