

## Knowledge, Perception and Attitude among Dental Students on the Use of Online Education in a Higher Institution of Learning (HEI)

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### ABSTRACT

This study aims to examine and identify the knowledge, perception, and attitude of dental students towards online education in higher institution of learning. Online education is an electronically supported learning that relies on the internet for teacher/student interaction and the distribution of class materials. Assessment of knowledge, perception, attitudes, and readiness of 3rd year to 6th year dental students at Lyceum Northwestern university toward the challenges of online learning in dental education was done through electronic questionnaires. Ethical approval was secure from the UREB of the university. The study found that the dental students who participated had a good understanding of online coursework and were proficient in computer skills. The success of e-learning is largely dependent on technological accessibility and having a stable internet connection. However, respondents expressed reservations about the quality of the learning process compared to traditional face-to-face classroom learning. The respondents felt that a combination of both traditional teaching methods and online tutorials would be more ideal than either method alone.

## **INTRODUCTION**

The deadly and infectious Covid-19 has deeply affected the global economy. This pandemic has also shaken up the education sector, and this fear is likely to resonate across the education sector globally. The global outbreak forced many schools and colleges to discontinue the traditional face-to-face teaching (“The Global Education Crisis – Even More Severe Than Previously Estimated”). As per the assessment of the researchers and while the vaccine is still unavailable, it is uncertain to get back to normal teaching anytime soon. As social distancing is preeminent at this stage, this will have negative effects on learning opportunities. This unfortunate event has made institutions to go from offline mode to online approach of teaching.

Online education is electronically supported learning that relies on the Internet for teacher/student interaction and the distribution of class materials. E-learning had become an important method in education for its efficiency in providing education with ease of accessibility anytime and anywhere. Most higher education institutions are moving to implement online education in their programs as online learning becomes more and more prevalent in post-secondary education and dental programs around the world. Several e-learning and online learning tools and methods have been explored in the literature as effective tools and methods to expand the possibilities of teaching and learning in the health profession fields, including dental education (Daniel et al.).

E-learner plays an important role and an E-learner is a person who uses the online material for learning purposes, he is independent, reads in his comfortable time and space. On the other hand, E-teaching is instructions given via an electronic media in virtual classrooms and E-teaching enable online interactions and online sharing of course material. E-learning can be used in medical education to improve the efficacy of academic deliverance and make the learning sessions more captivating and retainable. This study was conducted to assess the knowledge, perception, attitudes, and readiness of 3rd year to 6th year dental students in Lyceum-Northwestern University toward the challenges of online learning in dental education and to assess potential support needs for online learning implementation.

According to a study by Dhawan (2020) titled “Online Learning: A Panacea in the Time of COVID-19 Crisis” stated that Resistance to change will not help any educational unit across the world. They will be judged on their pace to adapt to the changes in such a short period and their ability to maintain the quality. The reputation of educational units is on stake and under scrutiny. How well they behave and how well they maintain their quality of education amidst this crisis shows their adapting capabilities. The shift from face-to-face lectures to online classes is the only possible solution. Indeed, academic institutions would not be able to transform all of their college curricula into and online resource overnight. Distance, scale, and personalized teaching and learning are the three biggest challenges for online teaching.

The problems associated with distance learning range from downloading errors, problems with audio and video, login problems, unstable internet connection and so on. Personal attention is also a huge issue facing online learning with many distractions. The learning process cannot reach its full potential until students practice what they learn. Sometimes, online content is all theoretical and does not let students practice and learn effectively.

## LITERATURE REVIEW

In behavior science the theory of "Social Learning Theory" emphasizes the value of social interaction and observation in the learning process. Albert Bandura, a psychologist, created the theory in the 1960s, and it has since grown to be a popular paradigm for comprehending how people learn. According to the Social Learning Theory, people pick up knowledge by watching others and copying their behavior. This may entail studying and modeling the actions of others in the surrounding context as well as keeping an eye on how they behave in the media, such as on television or social media. The Social Learning Theory emphasizes the value of reinforcement and feedback in the learning process in addition to observation and modeling. People are more likely to engage in particular actions themselves when they see others doing them and when they receive praise or positive feedback for them. In contrast, people are less likely to engage in particular activities themselves if they see others doing them and receive criticism or negative reinforcement for them.

Self-efficacy, or a person's confidence in their capacity to carry out a specific behavior or task, is also emphasized by the Social Learning Theory. The hypothesis contends that people are more likely to persist when they engage in behaviors they believe they can successfully complete. According to the Social Learning Theory, teamwork and social contact are crucial for optimal learning in the educational setting. Opportunities for group work, peer review, and discussion may be included in this. The notion contends that students might gain from imitating the actions and approaches of their teachers and peers in order to improve their own performance.

Overall, the Social Learning Theory offers a framework for comprehending how social contact and observation can have an impact on behavior and learning. The theory offers insights on how educators may create successful learning environments that encourage student success by highlighting the significance of reinforcement, feedback, and self-efficacy.

According to Wang, W. et al. (2020) entitled "Emotion Recognition of Students Based on Facial Expressions in Online Education Based on the Perspective of Computer Simulation" stated that online education has developed rapidly due to its irreplaceable convenience. Under the severe circumstances caused by COVID-19 recently, many schools around the world have delayed opening and adopted online education as one of the main teaching methods. However, the efficiency of online classes has long been questioned. Compared with traditional face-to-face classes, there is a lack of direct, timely, and effective communication and feedback between teachers and students in the online courses. Previous studies have shown that there is a close and stable relationship between a person's facial expressions and emotions

generally. From the perspective of computer simulation, a framework combining a face' expression recognition (FER) algorithm with online courses platforms is proposed in this work. The cameras in the devices are used to collect students' face images, and the facial expressions are analyzed and classified into 8 kinds of emotions by the FER algorithm. In an article written by Baloran, E. (2020) "Knowledge, Attitudes, Anxiety, and Coping Strategies of Students during COVID-19 Pandemic" it stated that COVID-19 is a global concern affecting Higher Education Institutions (HEIs). This pandemic led to a strong reaction among students who experiences anxiety. This cross-sectional study aimed to examine students' knowledge, attitudes, anxiety, and coping strategies during the COVID-19 pandemic.

Since the start of the COVID-19 pandemic, the psychological and emotional impact is also evident. Its emergence and spread create a lot of concern for people leading to increased levels of anxiety (Roy et al., 2020). COVID-19 crisis has also made an impact on the context of Philippine Education. Classes were postponed due to lockdown. The majority of colleges and universities also faced current challenges with virtual learning (Talidong & Toquero, 2020). In particular, Higher Education Institutions (HEIs) are prompted to establish management approaches regarding pandemics to encourage positive health behavior among students (Akan et al., 2010). Considering the relevance of all the above conditions, this study aimed to assess knowledge, attitudes, anxiety, and personal coping strategies of college students during the COVID-19 pandemic in Southern Philippines

The purpose of this study is to explore the knowledge, perception, and attitude of locale dental students towards online education in higher education institutions. Online education refers to electronically supported learning that relies on the internet for teacher-student interaction and distribution of course materials. The aim of this research is to identify the benefits and limitations of online education for dental students, teachers, and educational institutions. The results of the study are expected to inform educational administrators on how to improve student performance in both face-to-face and online learning environments. Additionally, this research will provide insight into critical areas for different educational methods and may help guide future research in the field.

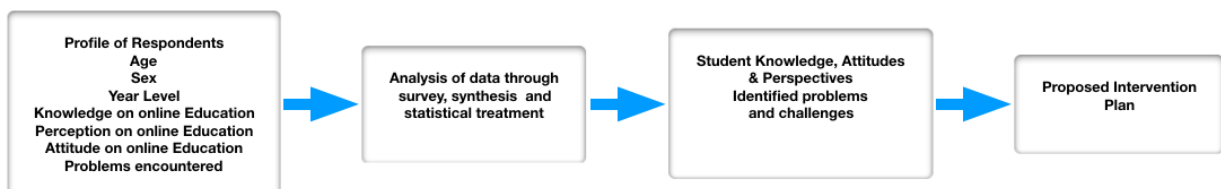


Figure 1. Conceptual Framework (P) Model

## **METHODOLOGY**

The research design makes the decision to combine the many study components in a logical and cohesive manner, guaranteeing that the research problem is addressed. It also serves as the guide for the collection, measurement, and analysis of data. The researchers used the quantitative descriptive survey technique of research employing an online Google document questionnaire to collect the necessary data for this investigation. The statistical techniques used above to get quantitative data from the research study are mostly employed in the social sciences when doing quantitative outcome research. The templates used in quantitative research are thorough, detailed, and frequently even investigative.

This study was conducted virtually through online survey questionnaire that was given to the 3rd to 6th year students of Lyceum- Northwestern University, Dagupan City Pangasinan. The researchers have secured approval from the University Ethics Review Board and have provided online questionnaires using Google form that contains 30 survey questions in total. These questions were divided into 3 categories; Knowledge of students in the use of online education, attitude of students in the use of online education and perception of students in the use of online education. All data collected by the researchers were kept secure and confidentially in the servers.

## **RESEARCH RESULT**

The survey looked into the Knowledge, Perception and Attitude among dental students on the use of online education in a higher institution of learning (HEI). The information gathered from the instrument were tabulated, presented, analyzed and interpreted as follows.

The research findings revealed the respondents' knowledge in the area of using online education. Regarding the question on learners with computer devices having easy access to the internet, dental students perceived it with uncertainty, indicated by an average weighted mean of 2.67. This uncertainty may stem from the fact that not all dental students reside in urban areas where computer devices and internet connections are readily available.

Regarding the inclination to use online education, dental students expressed agreement with an average weighted mean of 2.12. This agreement can be attributed to the recognition that e-learning systems play a vital role in university activities, with institutions investing increasingly in online systems and devices. However, when it comes to the feasibility of doing coursework anytime or anyplace, dental students perceived it with uncertainty, reflected by an average weighted mean of 2.69. This uncertainty may stem from the specific requirements of dentistry coursework, which often necessitate a strong internet connection for video link connections, limiting the flexibility of completing tasks at any time or place.

Interestingly, dental students expressed uncertainty regarding the usage of online systems for educational registration, as reflected by an average weighted mean of 2.65. This uncertainty stems from their preference for traditional enrollment methods, aiming to avoid any potential omissions or misinterpretations that may occur with online registration. Dental students

expressed agreement, with an average weighted mean of 2.24, regarding the use of Microsoft PowerPoint, Excel, and Word. This agreement can be attributed to the user-friendly applications produced by Microsoft, supported by its comprehensive programming language. Additionally, students find it easy to operate and upload documents through the online system. Furthermore, students perceived agreement, with an average weighted mean of 2.35, in utilizing Google Classroom as a platform. They appreciate how it simplifies the creation, distribution, and grading of assignments, as well as its effectiveness in engaging students in online or remote learning.

Respondents showed ample knowledge and skills in the operation and doing the online activity. Students perceived to agree with an average weighted mean of 2.33 since clinical instructors are very patient to give instructions, give feedback and offer various alternatives for face-to-face instruction. When it comes to browsing websites on Google and other search engines, dental students expressed uncertainty with an average weighted mean of 2.65. This uncertainty stems from the need for patience and verification while browsing each website to ensure reliability. Students recognize the importance of verifying the credibility of the websites they access, which requires careful evaluation and can be time-consuming.

Moreover, it was observed that online tutorial links can be easily uploaded through social media. In this regard, dental students expressed uncertainty with an average weighted mean of 2.53. Additionally, students were not well oriented in applying online tutorials, resulting in an uncertain perception with an average weighted mean of 2.69. While online programs offer significant strengths and provide greater accessibility to quality education, there are inherent weaknesses in this medium that can potentially jeopardize the success of any online course. Students recognize the potential threats and challenges associated with online learning, which contribute to their uncertainty in effectively utilizing online tutorials.

Table 1. Knowledge of Dental Students in the Use of Online Education

Knowledge of Dental Students in the Use of Online Education		
	AWM	Interpretation*
Learners with computer device have an easy access on the internet	2.67	Uncertain
Students nowadays are inclined to use online education	2.12	Agree
Doing coursework through online can be done anytime or anyplace	2.69	Uncertain
Online system of education is seldom used in taking up the course	2.65	Uncertain

Learner is well-acquainted in the use of Microsoft PowerPoint, Excel and Word.	2.24	Agree
Students can easily operate and upload documents through online system	2.35	Agree
Have an ample knowledge and skills in the operation and doing the online activity	2.33	Agree
Feel at ease in browsing websites on Google and other search engines	2.65	Uncertain
Online tutorial links can easily be uploaded through social media	2.53	Uncertain
Student is not well oriented in applying online tutorials	2.69	Uncertain
<b>Overall</b>	<b>2.49</b>	<b>Agree</b>

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\*LEGEND: 1.00 – 1.50: Strongly Agree 1.51 – 2.50: Agree 2.51 – 3.50: Uncertain 3.51 – 4.50: Disagree 4.51 – 5.00: Strongly Disagree

In terms of effectively managing their studies on time, dental students expressed agreement with an average weighted mean of 2.49. This perception can be attributed to the numerous benefits associated with online learning, such as enhanced flexibility, broader perspectives, and improved collaboration. The appeal of virtual classes lies in the advantages they offer, making it understandable why many students are attracted to this mode of education. Dental students perceived agreement with an average weighted mean of 2.20 regarding their ability to join group work during internet activities. This perception stems from the ease with which they can connect and communicate with their classmates, both online and offline, at any time. The flexibility of online platforms allows for effective collaboration and interaction, enabling students to actively participate in group work whenever necessary.

Respondents expressed uncertainty with an average weighted mean of 2.53 regarding their self-motivation and ability to independently complete tasks. This perception arises from the recognition that online learning demands a considerable level of self-discipline and strong time-management skills. Students acknowledge the need to stay motivated and organized to effectively navigate the challenges of online education and successfully accomplish their academic responsibilities. Dental students agree with an average weighted mean of 2.49 that they can easily allocate leisure time to concentrate on homework and other school activities. They recognize the importance of motivation in this regard and emphasize the need to create a dedicated work environment free from distractions. They also stress the importance of staying focused and reminding themselves how these activities contribute to achieving their goals. By prioritizing their tasks and maintaining a clear mindset, they are able to effectively manage their time and make the most of their leisure hours for academic pursuits. Respondents agree with an average weighted mean of

2.22 that they can easily monitor their daily or weekly activities through online platforms. They highlight the advantages offered by platforms like Google Classroom, which allow teachers to track student engagement by monitoring their logins, participation in pre-recorded lessons, and submission of assignments. Moreover, students themselves receive timely notifications through email whenever their teachers post new activities or updates. This streamlined communication and monitoring system enhances accountability and keeps students informed about their learning progress and upcoming tasks.

Dental students expressed uncertainty with an average weighted mean of 2.96 regarding their willingness to communicate with classmates and instructors online. This hesitation stems from the varying internet connection speeds among students, particularly during online meetings conducted through platforms like Google Meet. The students recognize that unreliable internet connections can hinder effective communication, leading to potential disruptions and difficulties in participating in online discussions or collaborative activities. Moreover, respondents have an average weighted mean of 2.67, indicating their uncertainty regarding online learning's ability to foster the acquisition of new knowledge and skills. This uncertainty stems from their preference for the traditional method of learning. They believe that face-to-face instruction and direct interaction with teachers and peers in a physical classroom setting are more effective for their learning experience. They may feel that the online format lacks the same level of engagement, personal connection, and immediate feedback that they value in traditional learning environments.

In terms of, adoption of online education is more encouraging and motivating nowadays. Dental students perceived it as uncertain with an average weighted mean of 3.43 because of the lack of access, whether it be for economic or logistic reasons, will exclude otherwise eligible students from the course. This is a significant issue in rural and lower socioeconomic neighborhoods. Furthermore, speaking from an administrative point of view, if students cannot afford the technology the institution employs, they are lost as customers. As far as Internet accessibility is concerned, it is not universal, and in some areas of our country, Internet access poses a significant cost to the user. Some users pay a fixed monthly rate for their Internet connection, while others are charged for the time they spend online. If the participants' time online is limited by the amount of Internet access they can afford, then instruction and participation in the online program will not be equitable for all students in the course. Also regularly using a computer device may cause side effect on the part of the learners. Dental students perceived to agree with an average weighted mean of 1.88 because mobile and computer devices may lead to psychological and physical issues, such as eyestrain and difficulty focusing on important tasks. They may also contribute to more serious health conditions, such as depression.

Respondents have an average weighted mean of 3.04, reflecting their uncertainty regarding the quality of learning that can be achieved without face-to-face interaction. While they acknowledge that online platforms allow teachers to provide information and resources, they believe that face-to-face



classes offer distinct advantages. They value the ability to freely share information, express difficulties, and receive personalized feedback in real-time during traditional classroom settings. They perceive these interactive elements as crucial for an effective learning process, which they feel may be lacking in online learning environments.

Table 2. Attitude of Dental Students in the Use of Online Education

Attitude of Dental Students in the Use of Online Education		
	AWM	Interpretation*
I can easily and effectively manage my study on due time.	2.49	Agree
I can join the group in doing the work whenever there is an internet activity.	2.20	Agree
Self-motivated and have accessed to do the task independently.	2.53	Uncertain
Can easily set aside leisure time to focus in performing homework and any other school activity.	2.49	Agree
Can easily check the daily or weekly activity through online	2.22	Agree
Willing to use communication with my classmates and instructors through online.	2.96	Uncertain
Online learning bestows upon learners in inquiring new knowledge and skills.	2.67	Uncertain
Adoption of online education is more encouraging and motivating nowadays.	3.43	Uncertain
Regularly using a computer device may cause side effect on the part of the learners.	1.88	Agree
Quality learning process may take place even without face-to-face interaction.	3.04	Uncertain
<b>Overall</b>	<b>2.59</b>	<b>Uncertain</b>

\*LEGEND: 1.00 – 1.50: Strongly Agree 1.51 – 2.50: Agree 2.51 – 3.50: Uncertain 3.51 – 4.50: Disagree 4.51 – 5.00: Strongly Disagree

In terms of the adoption of online learning being more effective than traditional learning, the average weighted mean is 3.69, indicating that most of the respondents disagreed with this notion. The education landscape has undergone significant changes, particularly with the emergence of e-learning, which involves remote teaching on digital platforms. The shift away from

traditional classrooms, especially during the pandemic, has raised questions about the future of online learning and its impact on the global education market. Moreover, online tutorials definitely need computer devices to cope up with excellent learning. Dental students agreed with an average weighted mean of 1.86, emphasizing the necessity of computer devices. They recognize that computer devices are essential for incorporating real-world problem solving into classroom curricula, supporting students' learning progression, facilitating feedback, reflection, and revision, fostering local and global learning communities, and expanding opportunities for teachers' professional growth.

Respondents agreed that procedural videos are more suitable to millennial generation with an average weighted mean of 2.43, dental students perceived to share same perception on this statement because millennial is the most computer literate generation to enter the workforce. Their learning and communication style is through multi-media. Learning has even moved into online courses like procedural videos that are provided by their instructors together with online journals.

Dental students agreed with an average weighted mean of 2.12, indicating that they find the combination of traditional teaching methods and online tutorials to be an ideal approach. Traditional teaching methods often rely on memorization and instruction, requiring teachers to employ various teaching strategies based on student needs. On the other hand, online learning methods emphasize understanding and exploration, putting students at the center of the learning process. The results suggest that a combination of both traditional and modern methods is considered most effective by the dental students.

With an average weighted mean of 2.67, respondents expressed uncertainty regarding their comfort level in exploring online activities. Despite the increasing number of students participating in online learning experiences, there is still uncertainty surrounding the transition for both teachers and students to this new learning environment. While new technologies are anticipated to simplify tasks, they also require the development of new skills and competencies. This change can evoke emotional responses and, importantly, emotions may influence the overall experience of online learning.

Students had perceived agreement with an average weighted mean of 2.12 regarding the use of Google Moderator as a tool to facilitate exploration and research in the teaching-learning process. It has been observed that various online teaching tools, such as blogs, discussion boards, wikis, and 3D virtual worlds, have effectively engaged students in their learning. Specifically, Google Moderator has been utilized by instructors to create a series of topics for an entire course, enabling different topics to be covered in each module or class session. These online teaching tools have proven to enhance student engagement and presence, contributing to effective learning experiences.

Dental students perceived agreement with an average weighted mean of 2.20 regarding the difficulty of implementing online learning without proper familiarity with the correct steps and procedures. They acknowledge that online learning can be challenging if individuals are not well-acquainted with the

necessary processes and protocols. This highlights the importance of providing adequate guidance and training to ensure that students are equipped with the knowledge and skills needed to navigate and effectively participate in online learning environments.

Dental students expressed agreement with an average weighted mean of 1.78 in favor of personally attending classes over online learning. They acknowledge that while online courses offer the convenience of accessing assignments at any time and completing them at one's own pace, they believe that traditional classrooms provide more exciting and interactive experiences. In-person classes foster face-to-face interactions with classmates and teachers, allowing for the development of crucial interpersonal skills that may be lacking in online learning environments.

Respondents expressed uncertainty with an average weighted mean of 3.12 when asked whether online learning makes learners more engaged. While it is tempting to adapt our learning style to embrace available technology, researchers have reservations about the overall effectiveness of online courses compared to traditional classroom learning. They highlight several reasons, including the potential lack of development in interpersonal skills, memory, and student motivation, which they believe are better nurtured in a traditional-style classroom setting.

Lastly, dental students perceived agreement with an average weighted mean of 2.35 when asked whether poor internet connections affect the online learning process. They acknowledge that inadequate internet connectivity remains a hindrance to distance learning, particularly in light of the ongoing pandemic.

Table 3. Perception of Dental Students in the Use of Online Education

Perception of Dental Students in the Use of Online Education		
	AWM	Interpretation*
Adoption of online learning is more effective than the traditional learning.	3.69	Strongly Disagree
Online tutorials definitely need computer devices to cope up with excellent learning.	1.86	Agree
Procedural videos are more suitable to millennial generation.	2.43	Agree
Combination of traditional method of teaching and online tutorial is ideally chosen.	2.12	Agree
Experiencing more comfortable in exploring online activities.	2.67	Uncertain
Google moderator is a tool to help learners explore and make a research in the teaching	2.12	Agree

learning process.

Online learning is quite difficult to apply without getting acquainted and use with the correct proper steps and procedures.	2.20	Agree
It would be more exciting to personally attend classes than online learning.	1.78	Agree
Online learning makes learners more engaged	3.12	Uncertain
Poor internet connections affect the online learning process.	2.35	Agree
<b>Overall</b>	<b>2.43</b>	<b>Agree</b>

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\*LEGEND: 1.00 – 1.50: Strongly Agree 1.51 – 2.50: Agree 2.51 – 3.50: Uncertain 3.51 – 4.50: Disagree 4.51 – 5.00: Strongly Disagree

## CONCLUSIONS

This study concluded that 3rd year to 6th year dentistry students from lyceum-Northwestern University reported a high level of knowledge in computer skills and have an adequate academic work online learning experience. And that the success of e-learning adaption is highly dependent on technological accessibility and having a good internet connection. Thus, students in said school are ready for e-learning adaption. However, it requires a lot of responsibility and patience when it comes to online education. And the overall attitude of students towards online

## RECOMMENDATIONS

The focused of the study is to survey the Knowledge, Perception, and Attitude of Dental Students towards Online Education in Higher Institution of Learning of Dental clinicians of L-NU College of Dentistry and it shows that most of the students was finding difficult in transition from traditional learning to virtual type of education. Most of them has just a little knowledge in software or apps that can be possibly used and some of the students has no stable internet connection which would be a big challenge for them to cope up. These things are one of the major challenges for the students that we should look upon to help them for the transition to online learning.

Based on the findings of this study, it is recommended in a proposed plan to address the identified issues by enhancing accessibility, providing orientation and training, adopting a balanced approach of traditional and online teaching methods, addressing technical challenges, fostering engagement and interaction, and continually evaluating and improving online learning initiatives. To enhance accessibility, efforts should be made to provide necessary resources and improve internet connectivity for dental students.

Orientation and training sessions should be conducted to familiarize students with online tutorials and platforms.

A blended approach that integrates traditional and online teaching methods can be adopted to maximize the benefits of both approaches. Technical challenges, such as poor internet connections, should be addressed through collaboration with service providers and provision of technical support. To foster engagement and interaction, interactive elements can be incorporated into the online environment, simulating the collaborative aspects of traditional classrooms. Regular evaluation and feedback from students and educators can guide improvements in online learning experiences. By implementing these recommendations, educational institutions can create a more effective and inclusive online learning environment for dental students.

## REFERENCES

- "Albert Bandura's Social Learning Theory." *Simply Psychology*, 3 Nov. 2022, [www.simplypsychology.org/bandura.html](http://www.simplypsychology.org/bandura.html).
- "The Global Education Crisis – Even More Severe Than Previously Estimated." *World Bank Blogs*, 4 Jan. 2022, [blogs.worldbank.org/education/global-education-crisis-even-more-severe-previously-estimated](https://blogs.worldbank.org/education/global-education-crisis-even-more-severe-previously-estimated).
- Daniel, et al. "E-Learning in Dental Schools in the Times of COVID-19: A Review and Analysis of an Educational Resource in Times of the COVID-19 Pandemic." *E-Learning in Dental Schools in the Times of COVID-19: A Review and Analysis of an Educational Resource in Times of the COVID-19 Pandemic*, [www.redalyc.org/journal/4995/499566200011/html](http://www.redalyc.org/journal/4995/499566200011/html).
- Dhawan, Shivangi. "Online Learning: A Panacea in the Time of COVID-19 Crisis." *Journal of Educational Technology Systems*, vol. 49, no. 1, SAGE Publications, June 2020, pp. 5-22. Crossref, <https://doi.org/10.1177/0047239520934018>.
- Hindawi, et al. "Emotion Recognition of Students Based on Facial Expressions in Online Education Based on the Perspective of Computer Simulation." *Emotion Recognition of Students Based on Facial Expressions in Online Education Based on the Perspective of Computer Simulation*, 11 Sept. 2020, <https://doi.org/10.1155/2020/4065207>.
- Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of Knowledge, Attitude, Anxiety & Perceived Mental Healthcare Need in Indian Population during COVID-19 Pandemic. *Asian Journal of Psychiatry*, 51, 102083. <https://doi.org/10.1016/j.ajp.2020.102083>
- Talidong, K. D., & Toquero, C. M. (2020). The Impact of COVID-19 on Philippine Education: Challenges, Responses, and Opportunities. *Journal of Educational and Social Research*, 10(4), 15-25.