Information Technology
&
Digital World

Role of Artificial Intelligence in Remote Learning during COVID-19 Pandemic

B. Saravanan[1], Kalaiyarasi Shanmugam[2], N. Jeevarathinam[3]

[1]Guest Lecturer, Department of English, H. H. The Rajah's College, Pudukkottai, Tamil Nadu, India
[2]Guest Lecturer, Department of English, Sri Venkatesvara Polytechnic College, Kaikuruchi, Pudukkottai, Tamil Nadu, India
[3]Guest Lecturer, Department of English, Government Arts and Science College, Aranthangi, Tamil Nadu, India

E-mail: [1]drbshhrc@gmail.com, [2]kalaichana@gmail.com, [3]snj.rathinam@gmail.com

Abstract

This research paper offers the findings of a survey on much less researched regions of distance learning and studies during challenging situations for better schooling, all through the early COVID-19 pandemic (March-June 2020). The detailed assessment of Artificial Intelligence (AI) in education, the use of AI in education, typical learning in the pandemic era, and the role of artificial intelligence in disease outbreak learning, are all important for both current and future residents, according to the findings. In the week of May 28 to June 2, whilst many academic institutions throughout the United States had been in their term, 80% of parents residing with youngsters stated that their beginners had made the use of online assets while in lockdown. Prevailing situations and strain are associated with gaining knowledge during epidemics, in addition to a dyslexia prognosis. Results of the Household Pulse survey display that low-earning families now no longer get the right of entry to online instructional assets for distance learning on the equal fee as the better-earning families.

Keyword: Artificial Intelligence, dyslexia prognosis, COVID-19 pandemic, online instructional assets

1. Introduction

The reaction to the COVID-19 pandemic is heavily reliant on artificial intelligence (AI). Experts are examining the virus with all available techniques, diagnosing individuals, and analyzing the public health implications. This book is a compendium of some of the most innovative AI and COVID-19 initiatives aimed at determining how AI may aid in monitoring circumstances ranging from early warnings to rapid emergency reactions to important

decision-making. Figure 1 explores the way that AI assisted in diagnosing the COVID-19 diseases.
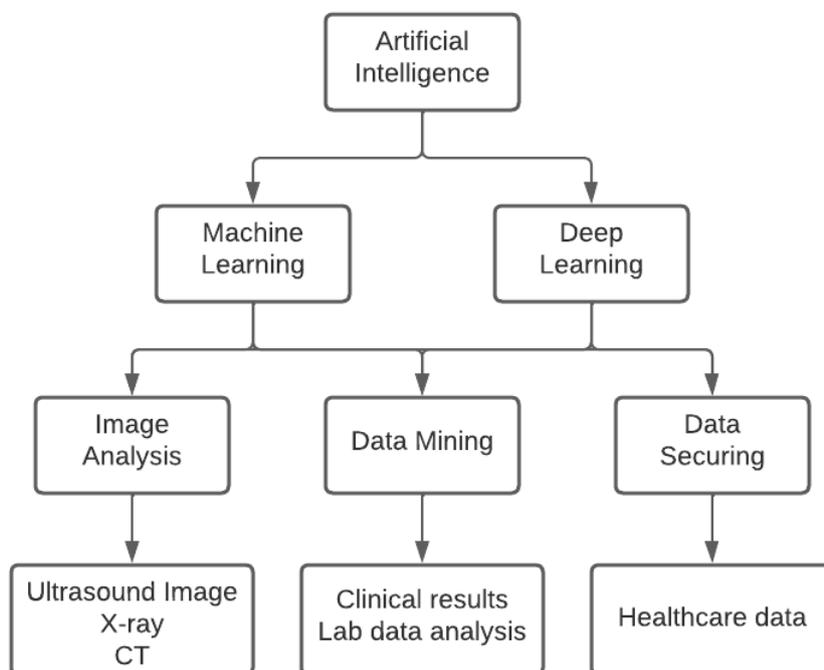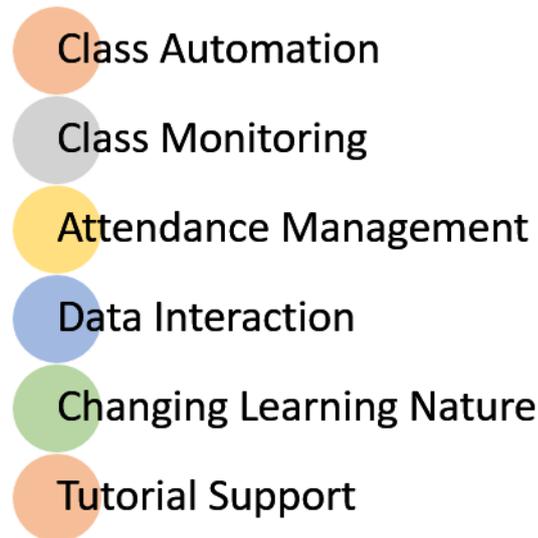

Figure 1. Artificial Intelligence in COVID-19 diagnosis

Forteza's studies tested the mastering techniques of kids and kids with dyslexia in the course of the pandemic and schools, university lockdowns in March 2020. Only a small part of studies addressing the issues of college students with analyzing problems in better training mentions e-mastering, distance mastering, online mastering, and different kinds of online mastering amongst college students with dyslexia [1]. Because of Poland's diverse geographical characteristics, which include schools and universities, as well as certain locations that are remote from cities, students find it problematic to connect to the internet in rural areas of Poland. This learning model is thought to be a promising learning model in remote places during uncertain conditions, such as pandemics.

The focus of this research is to develop the practical learning agenda that may be used to promote virtual or online learning in Poland's rural districts.

This study provides a theoretical or practical structure for the community satellite-based blended learning model, which can be used as a viable alternative learning solution in rural areas [2]. Also the paper projects that how the AI was helpful in the education society during the pandemic.

To our knowledge, not one of the researches has appeared into any mastering demanding situations skilled with the aid of using dyslexic better training college students in distance mastering in the course of the COVID-19 pandemic [3]. This study wishes to bridge an observed void with the aid of using analyzing the fame of college students with analyzing demanding situations because of the COVID-19 pandemic's shift to distance mastering.

Figure 2. Artificial Intelligence in Distance Learning Support

Figure 2 indicates the places where the AI played a major role in COVID-19 distance learning platform. The AI was very much applied for student activity monitoring process through their webcam. In certain cases exams were also conducted through an AI based algorithm by detecting the malpractice activity of the students.

2. Literature Review

Dyslexic college students indicated an issue with educational abilities including note-taking, essay corporation, and expressing thoughts in writing. In addition, people with dyslexia may also require an extra own circle of relative's help and expert help for the duration of their faculty careers, as they war with greater than simply studying issues [4]. Secondary signs, which include multiplied tension and coffee self-esteem, are not unusual place in children and might persist into adulthood. Secondary signs, which include multiplied tension and coffee self-esteem, are not unusual place in children and might persist into adulthood.

According to the findings, college students with dyslexia had better tiers of hysteria than the ones without studying disabilities, in addition to worse self-esteem [5]. Co-

happening problems can have an effect on the diploma of dyslexic demanding situations over time, in addition to the signs of studying disabilities in dyslexic humans. Symptoms of personal dyslexia might not be as excessive as in formative years, however, they nevertheless affect someone's everyday existence and educational profession successes, lowering their probabilities of locating stable, highly professional paintings and accomplishing better instructional goals [6]. According to qualitative studies performed with the aid of using Wood fine and associates, college students with dyslexia lack self-belief and feature issue with textual content-primarily based synchronous studying sports including analyzing, spelling, sentence formation, transposition, memory, corporation, and time management [9].

Given this, it's far affordable to count on that kids with dyslexia could have a greater issue with online studying than non-dyslexic college students. However, students with and without dyslexia can benefit from active learning materials.

According to the participants, the outcomes of various computer-primarily based media in studying substances on studying results for humans with and without dyslexia were studied and determined a few blessings [7]. According to the findings of Taylor's studies, lively studying substances in preference to textual content or photographs assist humans to apprehend the topics better.

This work advocates the subsequent speculation primarily based totally on the literature at the troubles of humans with dyslexia and the exploratory nature:

• Students with dyslexia have a tougher time managing the outcomes of the pandemic than college students who aren't dyslexic [8].

• Those with self-identified dyslexia experienced more difficulty with distance learning than the control group, but not as much as students with a professional diagnosis.

2.1 COVID-19 and its impact on Higher Education in Poland

All Polish universities started preserving static classes seven days later, and over the following 3 weeks, they step by step shifted to distance studying. A country of pandemic emergency becomes declared on March 20, 2020[11]. There is a lot that can be done using distant learning tactics, and the impact can at least be reduced. Teachers and parents in developed countries are more prepared to transition to online learning, but they must make significant efforts and confront several hurdles. The situation is mixed in both middle-income and low-income countries [10].

Many youngsters do not have desks, textbooks, Internet connection, or laptop computers at home, or their parents do not encourage them to do so. These problems also affect other youngsters. This gap must be prevented or reduced in the opportunity from widening further, causing the crisis to have a bigger detrimental impact on impoverished children's learning [13].

Middle-class households were less likely than upper-class households to report having access to a computer or the internet for educational purposes.

Internet connectivity and computer availability are less common in low-income homes than in higher-income households [14]. Many students, parents, and teachers' lives are drastically disrupted by delaying the start date or suspending schooling.

Table 1. Attainments of AI based Distance Learning Models

First Author & Citation	Proposed Year	Application	Attainments
Saha [15]	2021	Attendance monitoring	Student activity detected
Gavriell [16]	2021	Face attendance monitoring	Attendance marked through face recognition
Uddin [17]	2021	Face recognition on attendance monitoring	96.03% accuracy on ResNet34
Kabir [18]	2021	Student engagement detection	Face recognition on dark room images through R programming language
Anzar [19]	2021	Random class monitoring	99.38% accuracy on face recognition at regular intervals
Vinodha [20]	2021	Securing e-learning system	Developed a cyber security framework using AI
Wang [21]	2021	Securing edge connected e-learning devices	Detection of hardware detection attack with 98.7% accuracy

Motwani [22]	2021	Proctoring system on online tests	93.3% accuracy on multi person and phone detection
Soltane [23]	2021	Cheating detection on online exam	Face, sound and activeness detection using CNN
Masud [24]	2022	Cheating detection on online exam	97.7% of accuracy

2.2 Current Study

In the cutting-edge article, how college students with analyzing demanding situations address distance studying all through the pandemic has been examined. Students who said dyslexia troubles however did now no longer have a legit diagnosis, and college students who did know no longer document any analyzing difficulties [25]. Despite the ambiguity, there is a growing consensus that the school cancellations in the spring of 2020 had a negative influence on student learning.

As a result, the sample was carefully chosen, and every attempt was made to reach as many students as possible at the given university.

3. Method

3.1 Participants and Methodology

The study was done at the University of Warsaw, one of Poland's largest universities, in the form of a self-reported anonymous online survey between July 16 and July 31, 2020. This technology's strength is that all participants were subjected to the same university policy and distance learning methodologies.

3.2 Measure

A two-part questionnaire was utilized to collect data. Previously, researchers sought basic demographic data as well as information on factors such as increasing stress as a result of the COVID-19 epidemic and changes in distant learning. This is necessary for cognitive growth and well-being. Distance learning planning for schools is a difficult logistical and organizational task [27].
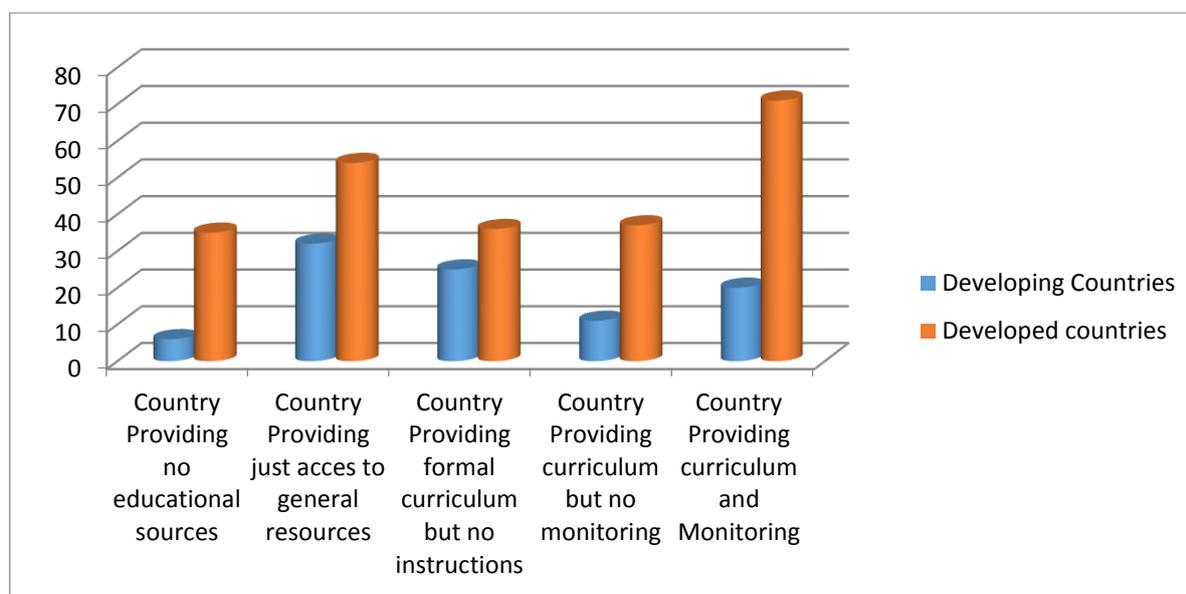
Figure 3. Teaching Resource provided by countries

Countries should, however, aim to use school buildings, community buildings, or networks to provide coordinated student lunches, which can also be provided directly to the families of COVID-19 affected [12].

4. Discussion

The results of this study indicate that the sudden shift to purely online alternatives poses considerable challenges for students who do not plan to leave the classroom. The research results also show that the current blended learning process that uses online learning as a face-to-face learning support mechanism faces considerable challenges, especially for unprepared students. Respondents are concerned about the impact of lock-in on their performance. The results of this study indicate that the sudden shift to purely online alternatives poses considerable challenges for students who do not plan to leave the classroom. The research results also show that the current blended learning process that uses online learning as a face-to-face learning support mechanism faces considerable challenges, especially for unprepared students. The mixed learning process of face-to-face learning support mechanism faces considerable challenges, especially for unprepared students. The mixed learning process of face-to-face learning support mechanism faces considerable challenges, especially for unprepared students [26].

Many students, parents, and teachers' lives are drastically disrupted by delaying the start date or suspending schooling. In the majority of countries, the best method is to use all

available teaching models based on existing infrastructure. It is hoped that these findings spur extra studies into the capability for enough dyslexia support, as children with studying problems locate it extra tough to study at some point of the pandemic. Moreover, the findings would aspire additional research into the potential for sufficient dyslexia support, as kids with reading difficulties find it more difficult to learn during the pandemic.

5. Limitations

The divide crew furnished extensive help and file education even earlier than the COVID-19 pandemic. As a result, the Education's officer of Poland principal assist through the media must additionally be aimed to parents. Youngsters can be offered guidelines and statistics, helping them take the way higher with the aid of using the use of radio, television, and textual content messaging.

While the epidemic pressured all interactions and publications to be dealt with remotely, on line publications have been handiest helping on-web website online lessons in faculties and university [28].

Similarly the attainments of the AI systems on the assistance of teachers during class engagement and exam monitoring system are not found satisfied same as like of the regular classes. The performances of the students are also found reducing at the time of online class environments. The experimental models using AI algorithm requires a huge set of training data for improving the performances of the detection and prediction processes.

6. Future Research Directions

It is recommended to further look into the effect of the pandemic on university teaching and learning using standardized questionnaires and surveys that are personalized to the specific pandemic circumstances in which students or teachers work in a given higher education institution which supports Poland's education system better in this pandemic [29].

After the COVID-19 epidemic, hybrid/mixed education is expected to become the norm in the educational sector. This represents a shift away from traditional instruction and toward a new e-learning technique. The authors emphasize the importance of the study on dyslexics, who suffer from life-long symptoms that are currently unknown.

Dyslexic students listed note-taking; essay structuring, and difficulty expressing ideas in writing as academic talents. Co-occurring disorders can affect the severity of dyslexia

issues and the symptoms of dyslexic learning disabilities over time. [32] Adult dyslexia symptoms may not be as severe as those experienced as a kid, but they nevertheless have an impact on students or college professors or teacher's daily life and educational career success, making it more difficult to find stable, high-skilled work and attain high educational goals. During the pandemic, robots were frequently used to offer services, disinfect public venues, and help health personnel in preventing the spread of the virus [31].

The epidemic is hastening the integration of robots into daily hospital operations and encouraging the development of apps that could aid in the more effective diagnosis, screening, and patient care in the healthcare business.

Poland's researchers, for example, are developing new robots that can take blood samples and do mouth swabs remotely.

Dyslexic students may struggle to coordinate a succession of steps when doing activities, have trouble automating processes, and have problems with implicit learning and working memory [33]. People with dyslexia may have trouble organizing their work as a result of the aforementioned deficiencies, and reading and completing written projects may take substantially longer.

Dyslexic pupils, according to qualitative research conducted by Woodfine and colleagues, lack confidence and struggle with distance learning based activities such as reading, spelling, sentence production, transposition. As a result, it's reasonable to expect dyslexic kids to have more difficulty with online learning than non-dyslexic students. According to Taylor's research, animated learning resources can benefit youngsters with and without dyslexia [30].

As a result, the possible benefits and drawbacks for staff and students, particularly for the most vulnerable students with learning difficulties must be assessed. Furthermore, future studies, should take a broader approach and make use of new technologies that have already been shown to help assist children with learning difficulties.

Most of the modules involved with AI algorithm requires a camera unit for capturing the source environment. Therefore it requires proper lighting at the source area for analyzing the image. A study [18] found in the literature that has the ability to observe the activity of the students even they are inside a darkroom. An efficient preprocessing algorithm will improve the accuracy of the activity detection algorithms with dark images.

7. Conclusion

The teaching and learning through the use of technical or modern questionnaires and the current methods, is to reduce the epidemic's harmful impact on learning during pandemic, and to return the track of distance learning or home learning impacts more quickly as a result of this pandemic education. The objective of all educational systems is the same: to overcome the current learning problem and to address the pandemic that is faced. Overall, the findings and conclusions of the many studies and research are consistent. Artificial Intelligence is demonstrated to play a significant impact in education in this study. Artificial Intelligence will become increasingly important, particularly in times of worldwide crisis, and digital lectures will be the norm in the future educational system. The research also suggests that Artificial Intelligence will not be able to completely replace educators and teachers.

References

[1] Zawadka, Joanna, Aneta Miękisz, Iwona Nowakowska, Joanna Plewko, Magdalena Kochańska, and Ewa Haman. "Remote learning among students with and without reading difficulties during the initial stages of the COVID-19 pandemic." Education and Information Technologies 26, no. 6 (2021): 6973-6994.

[2] Tilwani, Shouket Ahmad, Balachandran Vadivel, Yrene Cecilia Uribe-Hernández, Ismail Suardi Wekke, and Mir Mohammad Farooq Haidari. "The Impact of Using TED Talks as a Learning Instrument on Enhancing Indonesian EFL Learners' Listening Skill." Education Research International 2022 (2022).

[3] Kruszewska, Aleksandra, Stanisława Nazaruk, and Karolina Szewczyk. "Polish teachers of early education in the face of distance learning during the COVID-19 pandemic–the difficulties experienced and suggestions for the future." Education 3-13 50, no. 3 (2022): 304-315.

[4] Vadivel, Balachandran, V. Porkodi, and Saravana Balaji. "Developing Listening and Vocabulary Skills of Undergraduate Students through English Movies with the Standard Subtitles-A Study." In 2019 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE), pp. 593-596. IEEE, 2019.

[5] Luik, Piret, and Marina Lepp. "Changes in activity and content of messages of an Estonian Facebook group during transition to distance learning at the beginning of the COVID- 19 pandemic." Journal of Computer Assisted Learning 37, no. 6 (2021): 1629-1639.

[6] Vadivel, Balachandran, and P. V. Beena. "The Impact of Multimedia in English Language Classroom of Undergraduate Students in Engineering Colleges." International Journal of Advanced Science and Technology 28, no. 2 (2019): 194-197.

[7] Bergdahl, Nina, and Jalal Nouri. "Covid-19 and crisis-prompted distance education in Sweden." Technology, Knowledge and Learning 26, no. 3 (2021): 443-459.

[8] Oliveira, Gabriella, Jorge Grenha Teixeira, Ana Torres, and Carla Morais. "An exploratory study on the emergency remote education experience of higher education students and teachers during the COVID- 19 pandemic." British Journal of Educational Technology 52, no. 4 (2021): 1357-1376.

[9] Johnson, Nicole, George Veletsianos, and Jeff Seaman. "US Faculty and Administrators' Experiences and Approaches in the Early Weeks of the COVID-19 Pandemic." Online Learning 24, no. 2 (2020): 6-21.

[10] Vadivel, Balachandran, Nawroz Ramadan Khalil, Shouket Ahmad Tilwani, and Gurudas Mandal. "The Educational and Psychological Need for Learning the English Language and Understanding the Different Anxieties." Education Research International 2022 (2022).

[11] Le Huong Hoa, Dinh Tran Ngoc. "Further Discussion on Teaching Vocabulary for Student with English Collocation and Several Educational Methods." Specialusis Ugdymas 1, no. 43 (2022): 177-188.

[12] Liu, Fei, Balachandran Vadivel, Farhad Mazaheri, Ehsan Rezvani, and Ehsan Namaziandost. "Using Games to Promote EFL Learners' Willingness to Communicate (WTC): Potential Effects and Teachers' Attitude in Focus." Frontiers in psychology (2021): 4526.

[13] Steed, Elizabeth A., Ngoc Phan, Nancy Leech, and Renee Charlifue-Smith. "Remote delivery of services for young children with disabilities during the early stages of the COVID-19 pandemic in the United States." Journal of Early Intervention (2021): 10538151211037673.

[14] Vadivel, Balachandran, M. Mathuranjali, and Nawroz Ramadan Khalil. "Online teaching: Insufficient application of technology." Materials Today: Proceedings (2021).

[15] Saha, Dwaipayan, Indrani Mukherjee, Jesmin Roy, Bikramjit Sarkar, and Rupak Bhattacharjee. "Attendance and attention monitoring-a perspective in digital pedagogy."

In Journal of Physics: Conference Series, vol. 1797, no. 1, p. 012067. IOP Publishing, 2021.

[16] Gavriell, Bryan, Felix Fauzan, Nelsen Ardian, and Kristien Margi Suryaningrum. "Implementation of Face Recognition Method for Attendance in Class." In 2021 1st International Conference on Computer Science and Artificial Intelligence (ICCSAI), vol. 1, pp. 148-153. IEEE, 2021.

[17] Uddin, Khandaker Mohammad Mohi, Aditta Chakraborty, Md Abdul Hadi, Md Ashraf Uddin, and Samrat Kumar Dey. "Artificial Intelligence Based Real-Time Attendance System Using Face Recognition." In 2021 5th International Conference on Electrical Engineering and Information & Communication Technology (ICEEICT), pp. 1-6. IEEE, 2021.

[18] Kabir, Ahmed Imran, Suraya Akter, and Sriman Mitra. "Students Engagement Detection in Online Learning During Covid-19 Pandemic Using R Programming Language." Informatica Economica 25, no. 3 (2021): 26-37.

[19] Anzar, S. M., N. P. Subheesh, Alavikunhu Panthakkan, Shanid Malayil, and Hussain Al Ahmad. "Random Interval Attendance Management System (RIAMS): A Novel Multimodal Approach for Post-COVID Virtual Learning." Ieee Access 9 (2021): 91001-91016.

[20] Vinodha, K., Vaishali M. Deshmukh, and Subhashree Rath. "Secured Online Learning in COVID-19 Pandemic using Deep Learning Methods." In 2021 IEEE International Conference on Mobile Networks and Wireless Communications (ICMNWC), pp. 1-5. IEEE, 2021.

[21] Wang, Han, Hossein Sayadi, Sai Manoj Pudukotai Dinakarrao, Avesta Sasan, Setareh Rafatirad, and Houman Homayoun. "Enabling Micro AI for Securing Edge Devices at Hardware Level." IEEE Journal on Emerging and Selected Topics in Circuits and Systems 11, no. 4 (2021): 803-815.

[22] Motwani, Sahil, Chirag Nagpal, Manav Motwani, Nikhil Nagdev, and Anjali Yeole. "AI-Based Proctoring System for Online Tests." Available at SSRN 3866446 (2021).

[23] Soltane, Merzoug, and Mohamed Ridda Laouar. "A Smart System to Detect Cheating in the Online Exam." In 2021 International Conference on Information Systems and Advanced Technologies (ICISAT), pp. 1-5. IEEE, 2021.

[24] Masud, Mohammad M., Kadhim Hayawi, Sujith Samuel Mathew, Temesgen Michael, and Mai El Barachi. "Smart Online Exam Proctoring Assist for Cheating Detection." In

International Conference on Advanced Data Mining and Applications, pp. 118-132. Springer, Cham, 2022.

[25] Jacques, Sebastien, Abdeldjalil Ouahabi, and Thierry Lequeu. "Remote Knowledge Acquisition and Assessment During the COVID-19 Pandemic." Int. J. Eng. Pedagog. 10, no. 6 (2020): 120-138.

[26] Vadivel, B., E. Namaziandost, and A. Saeedian. "Progress in English Language Teaching Through Continuous Professional Development—Teachers' Self-Awareness, Perception, and Feedback." Front. Educ. 6: 757285. doi: 10.3389/feduc (2021).

[27] Daniel, Sir John. "Education and the COVID-19 pandemic." Prospects 49, no. 1 (2020): 91-96.

[28] Elfirdoussi, Selwa, Mohamed Lachgar, Hind Kabaili, Abdelali Rochdi, Driss Goujdami, and Larbi El Firdoussi. "Assessing distance learning in higher education during the COVID-19 pandemic." Education Research International 2020 (2020).

[29] Vadivel, Balachandran, M. Sivaram, and Ahmed Najat Ahmed. "English Language Significance from Ancient to the Modern-A Cram." In 2019 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE), pp. 587-592. IEEE, 2019.

[30] Luik, Piret, and Marina Lepp. "Changes in activity and content of messages of an Estonian Facebook group during transition to distance learning at the beginning of the COVID‐19 pandemic." Journal of Computer Assisted Learning 37, no. 6 (2021): 1629-1639.

[31] Vadivel, Balachandran. "Using Music for Developing Language Skills in the English Language Classroom." Turkish Journal of Computer and Mathematics Education (TURCOMAT) 12, no. 12 (2021): 501-507.

[32] Lischer, Suzanne, Netkey Safi, and Cheryl Dickson. "Remote learning and students' mental health during the Covid-19 pandemic: A mixed-method enquiry." Prospects (2021): 1-11.

[33] Khalil, Nawroz Ramadan, Shireen Jamal Mohammed, Nahida Abdo Naser, and Balachandran Vadivel. "Flipped Classroom Model and Understanding Student's Mind-set in English Language Classroom."