

Research Article

# Best practices in the implementation of pandemic era learning in non-formal education institution

A. Adityo <sup>a,1,\*</sup>, S. Sudiran <sup>a,2</sup>, Ayuningtyas Rachmayani <sup>b,3</sup>, Darioush Sharafie <sup>c,4</sup>

<sup>b</sup> Mayantara School, Jl. Puncak Mandala 40A Malang, East Java 65146, Indonesia

<sup>c</sup> Department of Chemistry, Faculty of Science, Farhangian University, Tarbiat Moallem Ave., Hashemi Rafsanjani Junction, Farahzadi Blvd. Tehran1939614464, I. R. of Iran

<sup>1</sup> adityo@umm.ac.id\*; <sup>2</sup> sudiran@umm.ac.id; <sup>3</sup> ayuningtyas@mayantara.sch.id; <sup>4</sup> d.sharafie@yahoo.com

\* Corresponding author

Abstract: During the COVID-19 pandemic, institutions were forced to shift their teaching from faceto-face classes to online classes. In non-formal education, this means that there are different styles and approaches to teaching that are being employed without proper training or guidance as they are not following the general curriculum provided by the government. The research intended to assist non-formal education by validating their teaching and learning process during the COVID-19 period. The study follows the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model to analyze and give an evaluation of the teaching practice. The research is a form of community service assistance in determining the best practices for teaching language during a pandemic in Mayantara School Malang. The result is proposed as a reference for other non-formal education. The research resulted in best practices in managerial and teaching applications. The result is divided into three principal best practices, teaching approaches, cooperation, and material development. The non-formal education should understand these aspects well and further implement their teaching and learning activities to prepare for situations that may occur.

Keywords: best practices; non-formal education; pandemic era learning

# 1. Introduction

During the COVID-19 pandemic, education institutions are forced to change their teaching method from offline to online learning. This disruptive behavior is caused by the spread of the virus upon close contact which is mostly a common behavior in conventional classrooms. During the pandemic, the government published a regulation on not conducting a class in close-contact behavior and resulting in new online learning (Dwivedi et al., 2020; Lynch, 2020; Simamora, 2020). In formal education, the educational institution is supported and regulated by the government through the Ministry of Education and Culture in terms of curriculum and regulations of schools and classes, but this kind of treatment is not happening for non-formal education. Non-formal education has certainly been impacted by the COVID-19 pandemic, just like formal education (Diduck et al., 2012; Gallardo & Ruiz-Mallén, 2023). Non-formal education refers to any learning that takes place outside the traditional classroom setting, such as through community centers, focused group discussions, specifically proposed class settings, libraries, museums, online platforms, and vocational training centers. Many non-formal education providers have had to adapt to the pandemic by transitioning their programs to online platforms, canceling in-person events, and implementing social distancing measures where possible. Some have also had to limit the number of participants or switch to smaller group settings. Many non-formal education providers have been following the same regulations as formal education institutions, such as guidelines for social distancing, mask-

Citation: Adityo, A., Sudiran, S., Rachmayani, A., & Sharafie, D. (2023). Best practices in the implementation of pandemic era learning in non-formal education institution. Research and Development in Education (RaDEn), 3(2), 100-111. https://doi.org/10.22219/raden.v3i2.2 5670

Received: 1 April 2023 Revised: 4 April 2023 Accepted: 11 April 2023 Published: 9 May 2023



Copyright © 2023, Adityo et al. This is an open access article under the CC-BY-SA license

<sup>&</sup>lt;sup>a</sup> English Language Education Department, Faculty of Teacher Training and Education, Universitas Muhammadiyah Malang, Jl. Raya Tlogomas 246 Malang, East Java 65144, Indonesia

wearing, and capacity limits. However, non-formal education providers often have fewer resources than formal education institutions (Nasir, 2020), which can make it more challenging to implement these measures effectively. Despite these challenges, many non-formal education providers have continued to play a vital role in providing learning opportunities during the pandemic. For example, many online learning platforms have seen a surge in demand as people look for ways to upskill and reskill from home (Mer & Virdi, 2023; Sawant et al., 2022). Non-profit organizations have also been working to provide access to educational resources for underserved communities, including those without reliable internet access. While the COVID-19 pandemic has certainly presented challenges for non-formal education providers, many have been able to adapt and continue to provide valuable learning opportunities during this time. In non-formal education, the treatment happens independently as it is not a part of formal education under the ministry. Therefore, non-formal education is facing the COVID-19 pandemic through their efforts following the same regulations from the government. This community service is intended to analyze the teaching and learning activity conducted by non-formal education and further find the best solution to the problem.

The community services are held in Mayantara School, a language school in Jl. Puncak Mandala No.40A Malang, East Java. The Mayantara School is a non-formal school that fits into the three categories. First, it is formally acknowledged by the government as a professional school in teaching language with a legal body. Second, the school conducted teaching and learning activities during the pandemic era of COVID-19 by regulating the standardized health matters issued by the government. The last is that the school has a professional curriculum and legal rights to certify its graduates. The participants involved in this research are 8 English teachers, two administration staff, and a manager.

Based on Netolicky (2020), education leadership during COVID-19 should see the situation from all aspects including the 'higher-ups' and the 'common'. The education practitioner must consider a range of impacts on individuals, organizations, well-being, learning, service provision, performance, staffing, financial implications, management of resources, and sustainability of business level while keeping all of their people in mind. Effective schooling must mind the aspects of 'responsibility' (Eren & Çetin, 2019) while maintaining 'freedom' (Houlden & Veletsianos, 2020) and self-direction (Loeng, 2020) in dealing with the situation related to the unpredictability condition which rapidly changing any policy (Stephens et al., 2020). Education managements have the 'responsibility' to teach knowledge and skills to the students similar to traditional teaching, as well as measuring the improvement of the students, giving treatment to students, providing education facilities, and doing administrative work. But, in parallel, education managements also have the 'freedom' to act according to the situation including bypassing the said 'responsibility'.

Closing the school and switching the policy to online learning seems to be a solution, but the efficacy is debatable as there is no measurement of this policy yet. The consequence is related to the family's ability to supervise their children's education. It also degrades the social skill of the children as they are close to their peers. On the other hand, the world might be maintained by using an adequate policy, as summarized by Esposito and Principi (2020). The schools have to maintain the education and socialization of the children. Some solutions to education during the pandemic and online schools are inadequate to do so while reopening a school closure is not yet taken into consideration. Therefore, there is a need for different teaching methods, such as door-to-door teaching.

During the 2009 influenza, scientifically described as the H1N1 influenza pandemic, Australian policymakers decided to close the school to stop the spread of the virus to the students, similar to the ongoing 2021 situation. According to Braunack-Mayer et al. (2013), there are considerable variations in ethical values and ethical processes. The schools have to show a strong ethical duty to continue their responsibility as educational institutions. The school communities had a broader view of the school's managerial policy rather than the officials. This kind of relationship between the higher-ups and the common seldom creates confusion on how education should be conducted. Therefore, it was concluded by Braunack-Mayer et al. (2013) that the best way of conducting teaching and learning activities as well as managing education should be conducted through trust between the elements involved in the practice of education.

In conclusion, effective schooling management during a pandemic requires careful planning and implementation of measures to ensure the safety of students, staff, and the wider community, while still providing high-quality education. The first key management is developing a comprehensive plan. Schools should develop a comprehensive plan which outlines the strategies for prevention, mitigation, and response to COVID-19 (Cuaton, 2020). The plan should be based on guidance from local health authorities and should be regularly updated as new information becomes available. The second is to implement well-being and workload (Melnick et al., 2020; Netolicky, 2020). Schools should implement a range of health and safety measures to prevent the spread of COVID-19. It includes measures such as mandatory mask-wearing, physical distancing, regular hand washing, and temperature checks as well as maintaining mental health. The third is enhanced cleaning and disinfection. Schools should ensure that all surfaces are regularly cleaned and disinfected and that high-touch areas such as door handles and light switches are cleaned more frequently (Rutala & Weber, 2019). The fourth is to provide remote learning options. Schools should provide remote learning options for students who are unable to attend school in person (Lynch, 2020) due to health concerns or other conditions. It includes live online classes or recorded lectures that students can access at their convenience. The fifth is to communicate regularly. Schools should communicate regularly with students, staff, and parents about the measures in place to prevent the spread of COVID-19 and any changes to the school's plan. Clear communication can help to reduce anxiety and promote compliance with the measures in place. The sixth is support staff and students (Druss, 2020). Schools should provide support to staff and students who may be experiencing stress or anxiety related to the pandemic. It includes access to counseling services or mental health resources. The last is monitoring and adapting. Schools should regularly monitor the effectiveness of their measures and adapt as necessary to ensure that they are meeting the needs of the school community and preventing the spread of COVID-19 (Carvalho et al., 2020).

The COVID-19 pandemic has had a significant impact on education around the world, and schools have faced a range of challenges and concerns in teaching practice during this time (Osman & Keevy, 2021). The first impact is access to technology. One of the big challenges schools faced during the pandemic was ensuring that all students had access to the technology needed to participate in online learning (Selvaraj et al., 2021; Simamora, 2020). Many students lacked access to devices or reliable internet connections, making it difficult for them to participate in online classes. It has been a significant challenge for many schools during the pandemic. The shift to online learning has highlighted the digital divide which exists in many communities, where students from lower-income families or rural areas may not have access to the same technology (Barrot et al., 2021) and internet resources (Yan, 2021) as their peers. To address this issue, schools have implemented various strategies to ensure that all students have access to the technology needed for online learning. Some schools have distributed devices such as laptops or tablets to students, while others have created partnerships with local internet providers to provide free or discounted internet access to families in need. Some schools have also created mobile hotspots or Wi-Fi-enabled buses to provide internet access to students in areas with limited connectivity. However, despite these efforts, there are still many students who lack access to the technology and internet resources needed for online learning (Nartiningrum & Nugroho, 2020). This has highlighted the need for ongoing investment in digital infrastructure and technology access during and after the pandemic. Addressing the digital divide is crucial to ensuring that all students have access to quality education, regardless of socioeconomic status or geographic location. It requires ongoing collaboration and innovation from educators, policymakers, and community leaders to find sustainable solutions that ensure equal access to technology and internet resources for all students must be of the utmost importance.

The second impact is the learning loss. The disruption caused by the pandemic has led to significant learning loss for many students. The shift to online learning has been particularly challenging for students who struggle with self-directed learning or cannot access adequate support at home (Wai-Cook, 2020). While online learning offers certain benefits, such as flexibility and the ability to learn from anywhere, it also requires students to adapt to new routines and technologies, often without the support and structure provided by traditional classroom settings (Turnbull et al., 2021). Some of the most common challenges with online learning include a lack of social interaction (Ferri et al., 2020). Online learning can make students miss social interaction and connection with traditional in-person classes. It can impact their motivation and engagement (Ferrer et al., 2022). The other impact is difficulty staying focused. Without the structure and routine of a traditional classroom, some students may struggle with staying focused and productive during online classes. There are also technical issues. Technical issues such as internet connectivity problems or software glitches can disrupt online learning and make it difficult for students to participate fully (Azionya & Nhedzi, 2021). Another impact is time management. Online learning requires students to manage their time effectively and independently, which can be challenging for some students. The last impact is access to resources. Some students may not have access to the technology, internet, or other resources needed to participate fully in online learning. To address these challenges, educators and schools have implemented various strategies to support students in online learning. These may include providing additional support and resources for students, such as access to tutoring or online learning modules, creating opportunities for social interaction and connection through virtual group activities, and offering flexible scheduling and attendance policies that allow students to manage their time better. While online learning has presented several challenges for students, it has also provided opportunities for innovation and new approaches to teaching and learning. Addressing the challenges associated with online learning will require ongoing collaboration and innovation from educators, administrators, and policymakers.

The third impact is on mental health concerns. The pandemic has also impacted the mental health of students and teachers. The stress and uncertainty caused by the pandemic (Bakioğlu et al., 2021) also correlated with the isolation of remote learning and increased anxiety, depression, and other mental health issues. The fourth impact is related to the teacher's workload. Teachers have had to adapt quickly to the challenges of online teaching, which has often required significant amounts of time and effort (Rapanta et al., 2020). Many teachers have had to create new lesson plans, learn new technologies, and provide individual support to students, all while dealing with the challenges related to the pandemic. The fifth impact is related to the engagement and motivation of teachers and students. Online learning can be less engaging and motivating for students than traditional in-person classes (Jeffery & Bauer, 2020), which has led to a decline in student motivation and participation. Teachers have had to find new ways to keep students engaged and motivated, such as using interactive tools or gamification techniques.

The final impact is related to the assessment and evaluation of the learning activities itself. The shift to online learning has also raised concerns about fairly assessing and evaluating the learning process (Martín et al., 2021). Traditional assessment methods, such as exams and tests, may not be as effective as online, and new assessment techniques may need to be developed.

#### 2. Materials and Methods

This community service applied to a narrative inquiry for Language Instructors and administrators in Mayantara School Malang-East Java who conducted teaching and learning processes during the pandemic. Then, describe the reflection on the result and comprehension of their conduct. The research employed ADDIE (Analyze, Design, Develop, Implement, Evaluate) model to investigate the problems and concerns in teaching practice during the pandemic of COVID-19. The ADDIE model is a commonly used instructional design framework consisting of five phases: Analyze, Design, Develop, Implement, and Evaluate (Shakeel et al., 2022). These phases represent a systematic approach to proposing the most suitable training and learning programs.

# 2.1 Analyze

In this phase, the researchers gather information about the learners, the subject matter, and the learning environment. It includes analyzing the needs of the learners, identifying the learning goals and objectives, and determining the resources needed to support the learning.

# 2.2 Design

In the design phase, the researchers use the information gathered in the analysis phase to develop a blueprint for the learning program. It includes creating a plan for the instructional materials, selecting the appropriate instructional strategies, and developing assessments to measure the learners' progress.

## 2.3 Develop

In this phase, the researchers create the instructional materials, such as presentations, videos, or e-learning modules, and develop the assessments and evaluation tools. This phase involves a lot of content creation and refinement. 2.4 Implement

In the implementation phase, the learning program (plan) is delivered to the learners. It can involve delivering the program in a classroom, through e-learning, or a combination of both. The implementation phase also involves monitoring the learners' progress and adjusting the learning program as needed.

## 2.5 Evaluate

The final phase is the evaluation phase to find the effectiveness of the learning program. It can involve collecting feedback from learners, analyzing the results of assessments, and assessing the impact of the learning program on the organization's performance. The evaluation results are used to improve the learning program and inform future instructional design efforts.

The ADDIE model provides a structured approach to creating effective training and learning programs (Jonnalagadda et al., 2022). It ensures the program is grounded in sound instructional design principles and proves its effectiveness. The expected outcomes are in the form of best practices in managerial and prospective teaching strategies. Instructors and administrators of Mayantara School were appointed by the local stakeholders to provide non-formal education services to the general public. These instructors and administrators are well-equipped and trained in teaching and managing non-formal education as professionals. The problems lie with little to no support from the government in terms of guidance. For the data collection, the research employed survey questionnaires in the form of narrative inquiry through Google form to find insight from the managerial level, administration level, and teachers' level of the conduct of teaching and learning activities during the pandemic. The questions were delivered in the findings section following the result of the research.

# 3. Results

#### 3.1 Analyze

In analyzing stage, the researcher and the institution were preparing for designing the community services by conducting thorough discussions following the condition of teaching and learning during the pandemic COVID-19 by considering aspects such as the teaching and learning activities during the pandemic, the healthcare of the teachers and students, the regulation from the government, and the policy of the institution. *3.2 Design* 

In the design stage, the researchers designed a type of survey that is best to comprehend the process during the COVID-19 pandemic. The design was analyzed by the researchers, including the quality and quantity of the questions. This stage is crucial because the participants involved are still at the age of consent, the parents' condition, and also related to the policy in a private institution.

#### 3.3 Develop

In the development stage, the researcher developed the survey based on the design stage. The survey was continued to the trial-and-error stage to get a quality survey related to the purpose of the community service concerning the secrecy of the participants' identity, research consent, and agreement with the institution. The survey was then revised accordingly. The survey consists of 11 questions for the teachers and nine for the management and administration staff.

# 3.4 Implement

In the implementation stage, the survey was sent to the participant's email for further implementation. The survey which consists of 11 questions was given to the teachers, while the other nine questions were given to the managers and administrator. The survey related to the learning models, students' responses, materials, facilities, and well-being of the participants during the teaching-learning process. The details of the survey result are explained in the evaluation stage.

# 3.5 Evaluate

The result and evaluation of the survey from teachers to find the teachers' perspective toward the teaching-learning process during the COVID-19 pandemic are presented in Table 1.

No.	Indicators of questions	The evaluation of survey results
1.	Learning models during the pandemics	In learning models, seven of eight teachers agreed on the benefit of using online teaching based on Google Class- room. The other teacher used offline class due to the stu- dent's condition.
2.	Students' response to the learning models	In the students' response, six of eight agreed that an online learning model such as Google Classroom was not enough to motivate students in learning. Most of the time, the stu- dents are joining the class only because it was required. 2 of 8 teachers agreed that the online model is good enough for teaching and learning activities during the pandemic.
3.	Effective learning models for developing students' skills	In learning models, all teachers agreed that online learning was not motivating students in the teaching and learning process. However, it is necessary to keep the student learn- ing while keeping the distance for health safety.
4.	Delivery of material follow- ing the learning models	In material delivery, each of the teachers had different methods including using video on YouTube, playing an online interactive game, using attractive PowerPoint, using google docs for interactive writing, and using E-Book. All the teachers were related to their approach to improving the students' motivation.
5.	Assessment of students' development	In assessing students' development, the teachers were using individual assessments depending on the skills that were measured. The assessment included: activity in Google Classroom, filling out Google forms, and using online try- outs.
6.	Online teaching media	In online teaching media, all teachers were using interactive media such as Google form, drive or cloud services, social media applications such as WhatsApp and Classroom, and Jamboard.
7.	Facility on online teaching media	In the facility of online teaching media, all teachers agreed that gadgets supported by the internet are the best way to teach during the COVID-19 pandemic.
8.	Teachers' role in pandemic era teaching and learning	The role of the teachers is varied, including as teachers, fa- cilitators, assessors, advisors, and motivators.
9.	Parents' role in pandemic era teaching and learning	The parents are important to support the learning of the early learners' students as they need to help with the facili- ties and motivate the children. The parent's role is not that

Table 1. The evaluation of survey results from the teachers.

106	of	12
-----	----	----

No.	Indicators of questions	The evaluation of survey results
		significant in adult learners as they can facilitate and moti- vate themselves.
10.	Weakness of learning in the pandemic era	The weaknesses of learning in the pandemic era were re- lated to the internet connection as all media were connected to the internet. A strong internet connection is recom- mended as the key point during the pandemic-era teaching and learning process.
11.	Teachers' suggestions on pandemic-era teaching and learning activities	The teacher suggested that: first, there should be an online website in the form of an independent LMS (Learning Man- agement System) specially made by the institution as LMS is useful as infrastructure capital in anticipation of facing learning challenges in the future. Second, there should be a routine evaluation of teachers and students from Mayantara management on the effectiveness and quality of implement- ing online learning. Some things might need to be improved or changed according to certain conditions. Third, there should be training for teachers because of the different ages of teachers and also different levels of mastery of technol- ogy. Training is needed to introduce new features or over- come technical problems that often occur during online learning. Fourth, there should be a modernization of learn- ing resources considering that the needs of students in online learning are different compared with conventional teaching.

Furthermore, the result and evaluations survey from managers and administrative staff on the teaching-learning process during the COVID-19 pandemic are presented in Table 2.

No.	Indicators of questions	The evaluation of survey results
1.	Learning models during	In learning models, the institution depended on the benefit
	the pandemics	of using online teaching based on Google Classroom.
2.	Parents' response to learn-	The parents were supporting the institution in conducting
	ing models	online teaching and learning process
3.	Effective online learning	During the pandemic, online teaching through Google
	model	Classroom has been deemed the best way to conduct learn-
		ing while still maintaining health precautions.
4.	Managerial problems dur-	As the parents supported the learning, the only condition
	ing the pandemic	that matter was the connection problem that was heavily
		loaded during the pandemic.
5.	Institution support for pan-	The support consisted of online training on interactive
	demic	learning activities during the pandemic.
6.	Non-formal education	The student's motivation for learning declined during the
	struggle during the pan-	pandemic, as many students decided to not continue learn-
	demic	ing before the pandemic was eradicated.
7.	Facility of learning during	The facility included the official learning management sys-
	the pandemic	tem and the Internet.
8.	Institution support for	The institution supported the health of the teachers and stu-
	health	dents by giving consultation on health precautions from the
		government.
9.	Manager suggestion on	It was suggested that first, there is a need for setting up a
	pandemic-era teaching and	good internet connection. Second, there is a need to Set and
	learning activities	manage the right study time. Third, there is a need to pre-
		pare tools and teaching materials that are adequate and ef-
		fective. Fourth, choose the optimal distance learning sys-
		tem.

Table 2. The evaluation of survey results from the managers and administrative staff.

#### 4. Discussion

During the implementation of ADDIE, it was revealed that non-formal education has been struggling in maintaining quality education during the COVID-19 pandemic. In the analysis stage, it is found that the non-formal education institution had been surviving to maintain their institution by their conduct without further support from the government while being bound by the regulation. In the design stage, the researchers understood the different needs of formal and non-formal education institutions related to the method, material, and well-being of the teachers (Azionya & Nhedzi, 2021; Barrot et al., 2021; Dwivedi et al., 2020). Therefore, a design survey to comprehend the inquiry was prepared to get detailed information while maintaining the limited time and ability of the institution. In the development stage, the researchers develop the survey that has been agreed upon and revised to get the inquiry in an adequate way following the policy, the consent, and the well-being of the participants. The survey is then further implemented within two weeks to give the time for the participant to recall their experience most comprehensively.

According to the evaluation, the best practices for non-formal education teaching and learning activities during a pandemic can be described as follow. First, distance learning such as online teaching through LMS can be the best option for teaching during a pandemic due to the contactless activity that protected both the students and teachers (Chai et al., 2022; Chan et al., 2022; Heo et al., 2021; Turnbull et al., 2021; Zainuddin et al., 2020) while maintaining a quality education. This practice is showing a good result based on the teacher's experience as the teaching and learning process can be well-maintained even under the lockdown period (Shentova et al., 2022). Second, quality online teaching can only be achieved through support and agreement from institutions, teachers, parents, and students (Duraku & Hoxha, 2021) as the teaching and learning activities are conducted at three different locations: institution, teachers' residence, and students' residence. Therefore, the cooperation between the three parties is of the utmost importance as each of the elements must be synchronized in the teaching and learning process. Third, the evolution of material from physical to digital (Jæger & Blaabæk, 2020) and the close distance to distance approach (Danchikov et al., 2021) should be the priority. In post COVID-19 education, institutions should prepare the material in both approaches to prepare the education to survive any future condition.

## 5. Conclusions

The non-formal education can survive the pandemic era COVID-19 by maintaining education through 3 main areas: distanced quality education, cooperation from the elements of learning, and evolution of materials. The research is a form of community service assistance in determining the best practices for teaching language during a pandemic in Mayantara School Malang. The result is proposed as a reference for other non-formal education. The research resulted in best practices in managerial and teaching applications. The result is divided into three principal best practices, teaching approaches, cooperation, and material development. The non-formal education should understand these aspects well and further implement their teaching and learning activities to prepare for situations that may occur.

Author Contributions: Adityo, A., research design and writing article; Sudiran, S., research coordinating and survey; Rachmayani, A. data collection and research liaison.

Acknowledgements: The research acknowledged the funding support from the Directorate of Research and Community Services, Universitas Muhammadiyah Malang; and the data support from Mayantara School Malang.

**Conflicts of Interest:** The authors declared that there is no conflict of interest in designing the community service, conduct of the research, and publication of the article.

## 6. References

Azionya, C. M., & Nhedzi, A. (2021). The digital divide and higher education challenge with emergency online learning: Analysis of tweets in the wake of the COVID-19 lockdown. *Turkish Online Journal of Distance Education*, 22(4), 164–182. https://doi.org/10.17718/tojde.1002822

Bakioğlu, F., Korkmaz, O., & Ercan, H. (2021). Fear of COVID-19 and positivity: Mediating role of intolerance of uncertainty, depression, anxiety, and stress. *International Journal of Mental Health and Addiction*, 19, 2369–2382.

```
https://doi.org/10.31577/SP.2021.03.828
```

Barrot, J. S., Llenares, I. I., & del Rosario, L. S. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies*, 26(6), 7321–7338. https://doi.org/10.1007/s10639-021-10589-x

Braunack-Mayer, A., Tooher, R., Collins, J. E., Street, J. M., & Marshall, H. (2013). Understanding the school community's response to school closures during the H1N1 2009 influenza pandemic. *BMC Public Health*, *13*(1). https://doi.org/10.1186/1471-2458-13-344

Carvalho, S., Rossiter, J., Angrist, N., Hares, S., & Silverman, R. (2020). Planning for school reopening and recovery after COVID-19. *Center for Global Development*, 26. https://www.cgdev.org/sites/default/files/planning-school-reopening-and-recovery-aftercovid-19.pdf

Chai, J., Sun, Z., Zhang, S., Zhou, Q., & Xu, J. (2022). An indirect approach for reference intervals establishment of immunoglobulin A, G and M: the combination of laboratory database and statistics. *Scandinavian Journal of Clinical and Laboratory Investigation*, *8*2(4), 311–322. https://doi.org/10.1080/00365513.2022.2092897

Chan, K. L., Song, X., Kwok, C. Y. T., Kam, R., Chan, B. S. B., Liu, C. H., Wong, F. K. K., & Wong, M. S. (2022). COVID-19 and contactless learning and teaching: The impact of active participation and user acceptance. *Lecture Notes in Educational Technology*, 439–460. https://doi.org/10.1007/978-981-16-9812-5\_24

Cuaton, G. P. (2020). Philippines Higher Education Institutions in the time of COVID-19 Pandemic. *Revista Romaneasca Pentru Educatie Multidimensionala*, 12(1), 61–70. https://doi.org/10.18662/rrem/12.1sup2/247

Danchikov, E. A., Prodanova, N. A., Kovalenko, Y. N., & Bondarenko, T. G. (2021). Using different approaches to organizing distance learning during the COVID-19 pandemic: opportunities and disadvantages. *Linguistics and Culture Review*, *5*(S1), 587–595. https://doi.org/10.21744/lingcure.v5ns1.1444

Diduck, A., Sinclair, A. J., Hostetler, G., & Fitzpatrick, P. (2012). Transformative learning theory, public involvement, and natural resource and environmental management. *Journal of Environmental Planning and Management*, *55*(10), 1311–1330. https://doi.org/10.1080/09640568.2011.645718

Druss, B. G. (2020). Addressing the COVID-19 pandemic in populations with serious mental illness. *JAMA Psychiatry*, 77(9), 891–892. https://doi.org/10.1001/jama.2020.3413 Duraku, Z. H., & Hoxha, L. (2021). The impact of COVID-19 on education and on the well-being of teachers, parents, and students: Challenges related to remote (online)

learning and opportunities for advancing the quality of education. In *Impact of the Covid-19 Pandemic on Education and wellbeing*.

https://www.researchgate.net/publication/341297812\_The\_impact\_of\_COVID-19\_on\_education\_and\_on\_the\_well-

being\_of\_teachers\_parents\_and\_students\_Challenges\_related\_to\_remote\_online\_learnin g\_and\_opportunities\_for\_advancing\_the\_quality\_of\_education

Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., Raman, R., Rana, N. P., Sharma, S. K., & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55, 102211. https://doi.org/10.1016/j.ijinfomgt.2020.102211 Eren, A., & Çetin, G. (2019). Pre-service teachers' beliefs about the teaching profession, curriculum orientations, and personal responsibility. *Curriculum Perspectives*, 39(1), 19–32. https://doi.org/10.1007/S41297-018-00061-1

Esposito, S., & Principi, N. (2020). School closure during the Coronavirus Disease 2019 (COVID-19) pandemic: An effective intervention at the global level? *JAMA Pediatrics*, 174(10), 921–922. https://doi.org/10.1001/jamapediatrics.2020.1892

Ferrer, J., Ringer, A., Saville, K., A Parris, M., & Kashi, K. (2022). Students' motivation and engagement in higher education: the importance of attitude to online learning. *Higher Education*, *83*(2), 317–338. https://doi.org/10.1007/S10734-020-00657-5

Ferri, F., Grifoni, P., & Guzzo, T. (2020). Online learning and emergency remote teaching: opportunities and challenges in emergency situations. *Societies 2020, Vol. 10, Page 86, 10*(4), 86. https://doi.org/10.3390/soc10040086

Gallardo, A. del C. C., & Ruiz-Mallén, I. (2023). Digital technologies and the COVID-19 pandemic: Opportunities and challenges for environmental educators in Barcelona. *The Journal of Environmental Education*, 54(1), 8–19.

https://doi.org/10.1080/00958964.2022.2152409

Heo, H., Bonk, C. J., & Doo, M. Y. (2021). Enhancing learning engagement during COVID-19 pandemic: Self-efficacy in time management, technology use, and online learning environments. *Journal of Computer Assisted Learning*, 37(6), 1640–1652. https://doi.org/10.1111/jcal.12603

Houlden, S., & Veletsianos, G. (2020). The problem with flexible learning: neoliberalism, freedom, and learner subjectivities. *Learning, Media and Technology*, *46*(2), 144–155. https://doi.org/10.1080/17439884.2020.1833920

Jæger, M. M., & Blaabæk, E. H. (2020). Inequality in learning opportunities during COVID-19: Evidence from library takeout. *Research in Social Stratification and Mobility*, 68. https://doi.org/10.1016/j.rssm.2020.100524

Jeffery, K. A., & Bauer, C. F. (2020). Students' responses to emergency remote online teaching reveal critical factors for all teaching. *Journal of Chemical Education*, 97(9), 2472–2485. https://doi.org/10.1021/acs.jchemed.0c00736

Jonnalagadda, R., Singh, P., Gogineni, A., Reddy, R. R. S., & Reddy, H. B. (2022). Developing, implementing and evaluating training for online graduate teaching assistants based on ADDIE model. *Asian Journal of Education and Social Studies, April*, 1–10. https://doi.org/10.9734/ajess/2022/v28i130664 Loeng, S. (2020). Self-directed learning: A core concept in adult education. *Education Research International*, 2020. https://doi.org/10.1155/2020/3816132

Lynch, M. (2020). E-Learning during a global pandemic. *Asian Journal of Distance Education*, *15*(1), 189–195. http://www.asianjde.org

Martín, C. T., Acal, C., Honrani, M. El, & Estrada, Á. C. M. (2021). Impact on the virtual learning environment due to COVID-19. *Sustainability* 2021, *Vol.* 13, *Page* 582, 13(2), 582. https://doi.org/10.3390/su13020582

Melnick, H., Darling-Hammond, L., Leung, M., Yun, C., Schachner, A., Plasencia, S., & Ondrasek, N. (2020). Reopening schools in the context of COVID-19: Health and safety guidelines from other countries. *Learning Policy Institute, May*, 1–13. https://eric.ed.gov/?id=ed606555

Mer, A., & Virdi, A. S. (2023). Navigating the paradigm shift in HRM practices through the lens of artificial intelligence: A post-pandemic perspective. *The Adoption and Effect of Artificial Intelligence on Human Resources Management, Part A*, 123–154. https://doi.org/10.1108/978-1-80382-027-920231007

Nartiningrum, N., & Nugroho, A. (2020). Online learning amidst global pandemic: efl students' challenges, suggestions, and needed materials. *ENGLISH FRANCA : Academic Journal of English Language and Education*, 4(2), 115–140.

https://doi.org/10.29240/ef.v4i2.1494

Nasir, M. (2020). Impact of the 2019 – 20 coronavirus pandemic on education. *International Journal of Health Preferences Research, April,* 1–36. https://doi.org/10.13140/rg.2.2.27946.98245

Netolicky, D. M. (2020). School leadership during a pandemic: Navigating tensions. *Journal of Professional Capital and Community*, *5*(3–4), 391–395. https://doi.org/10.1108/jpcc-05-2020-0017

Osman, A., & Keevy, J. (2021). *The impact of COVID-19 on education systems in the commonwealth*. https://books.thecommonwealth.org/

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, 2(3), 923–945. https://doi.org/10.1007/s42438-020-00155-y

Rutala, W. A., & Weber, D. J. (2019). Best practices for disinfection of noncritical environmental surfaces and equipment in health care facilities: A bundle approach. *American Journal of Infection Control*, *47S*, A96–A105. https://doi.org/10.1016/j.ajic.2019.01.014

https://doi.org/10.1016/j.ajic.2019.01.014

Sawant, R., Thomas, B., & Kadlag, S. (2022). Reskilling and upskilling: To stay relevant in today's industry. *International Review of Business and Economics*, 7(1). https://doi.org/10.56902/irbe.2022.7.1.4

Selvaraj, A., Radhin, V., KA, N., Benson, N., & Mathew, A. J. (2021). Effect of pandemic based online education on teaching and learning system. *International Journal of Educational Development*, *85*, 102444. https://doi.org/10.1016/j.ijedudev.2021.102444 Shakeel, S. I., Al Mamun, M. A., & Haolader, M. F. A. (2022). Instructional design with ADDIE and rapid prototyping for blended learning: Validation and its acceptance in the context of TVET Bangladesh. *Education and Information Technologies*, 1–30.

## https://doi.org/10.1007/s10639-022-11471-0

Shentova, R., de Vries, S., & Verboom, J. (2022). Well-being in the time of corona: Associations of nearby greenery with mental well-being during COVID-19 in the Netherlands. *Sustainability* 2022, *14*(16), 10256. https://doi.org/10.3390/su141610256 Simamora, R. M. (2020). The challenges of online learning during the COVID-19 pandemic: An essay analysis of performing arts education students. *Studies in Learning and Teaching*, *1*(2), 86–103. https://doi.org/10.46627/silet.v1i2.38

Stephens, K. K., Jahn, J. L. S., Fox, S., Charoensap-Kelly, P., Mitra, R., Sutton, J., Waters, E. D., Xie, B., & Meisenbach, R. J. (2020). Collective sensemaking around COVID-19:
Experiences, concerns, and agendas for our rapidly changing organizational lives. *Management Communication Quarterly*, 34(3), 426–457.
https://doi.org/10.1177/0893318920934890

Turnbull, D., Chugh, R., & Luck, J. (2021). Transitioning to e-learning during the COVID-19 pandemic: How have higher education institutions responded to the challenge? *Education and Information Technologies*, 26(5), 6401–6419. https://doi.org/10.1007/s10639-021-10633-w

Wai-Cook, M. S. S. (2020). The reality of home-based learning during COVID-19: Roles of parents, teachers, and school administration in promoting self-directed learning. *Journal of School Administration Research and Development*, 5(S2), 86–92. https://eric.ed.gov/?id=EJ1301332

Yan, S. (2021). COVID-19 and technology use by teenagers: A case study. *Human Behavior and Emerging Technologies*, 3(1), 185–193. https://doi.org/10.1002/hbe2.236

Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified equizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers and Education*, 145. https://doi.org/10.1016/j.compedu.2019.103729