Optimizing Innovative Tools for Dissemination of Information in Nigerian Academic Libraries During Post-COVID Era

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ABSTRACT

In order to support the mission of the institution in which they are attached, academic libraries provide services in both manual and digital but COVID -19 pandemic that spanned between March and September, 2020 has changed the scenario. With particular reference to Nigeria, about 249,606 cases were confirmed and in order to curb the scourge of this deadly disease, physical academic activities were prevented by Nigeria Centre for Disease Control (NCDC). With this development, innovative tools became indispensable tools for successful delivery of library services in Nigerian academic libraries. Whether or not these tools are still in use for reformation of library service during post- Covid era remains unclear, hence, need for this study. This study examined librarians' use of innovative tools for information dissemination in Nigerian academic libraries during the post-Covid era using a descriptive survey design. Data were obtained both in quantitative and qualitative formats from one hundred and forty-four librarians as respondents. A total enumeration sampling technique was adopted because the population was minimal. Findings of the study revealed that innovative tools such as videoconferencing, WhatsApp, teleconferencing, Facebook, LinkedIn, and web-based learning applications are still in use by librarians for the dissemination of information during the post-Covid era. These tools are useful and beneficial to librarians during the post-COVID era, as they facilitate easy participation and engagement of library users in various discussions. Inadequate funding and lack of advanced technology skills were also identified as major impediments to the successful use of innovative tools for information dissemination. As a result, it was suggested that academic libraries throughout Nigeria prioritize staff training on the necessary digital skills needed to cope in this advanced technology era.

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1. Introduction

The COVID-19 pandemic without any doubt created a new reality for academic libraries. Initially, this reality came as a challenge but it later turned opportunities for academic libraries to explore the potential of innovative tools such as; Videoconferencing tool that is being used by librarians for dissemination of information, with this tool, librarians can transmit audio and video data to their users. Internet is the major driver for successful deployment of these tools. It is basically a network of networks that allows the connectivity of various computers. Internet provides the medium for communication using different online tools. Social Media platforms are not excluded from the list. Examples of such social media tools are Facebook, Twitter, Blogs, and so on. Most academic libraries in Nigeria resulted into the use of these platforms for dissemination of information and promotion of their resources & services during covid 19 when the imposition of lockdown was taking longer than expected. Basically, video referencing tools were the most used platforms by academic libraries during this period because the platform can be used for all sort of information dissemination, this is evident in the study of Amuda and Ajani (2021). Other innovative tools used for dissemination of information are RFID Technology, Closed-Circuit Television (CCTV), fax and Digital library.

It is not an exaggeration to say that the pandemic has heightened librarians' ability to be able to operate in a hybrid mode and how libraries provide services in online learning environmentAs a result of the pandemic, the ability to operate, work, and deliver library services in a hybrid environment has been cemented, and it is expected to see further developments and trends in this area in the post-pandemic era. Supporting this, Appleton (2020) and Carlson (2021) opined that some of the changes forced upon academic libraries during the pandemic such as digital-first policies, online teaching, hybrid information environments and so on would actually be beneficial in the longer term. To support this submission further, Ibenna and Okai (2020) stated that the digital hybrid environment in which academic libraries had to operate during the global Covid 19 pandemic has massively accelerated the digital shift which will continue to gain speed and it is critical that academic libraries keep up with this and bring all of their users along with them. Although, some authors such as Putri, Purwanto, Pramono, Asbari, Wijayanti and Hyun (2020) raised some concerns about innovative tools usage for library service delivery beyond Covid -19 era. These authors argued that personal or individual factors such as unwillingness to adapt to change, not being familiar with the applications, low skills, and limited technical support have always been the inhibitors to successful adoption and utilization of innovative tools. Hopkins (2020) also identified paucity of fund as a serious concern. He went on to say that most academic libraries experienced budget cut immediately the pandemic ended. Despite these challenges, it won't be wrong to say that innovative tools have come to take over the conventional ways of information dissemination and librarians should see them as their tool kits.

2. Statement of the Problem

Moreover, during the scourge of Covid 19 when the entire world was being affected by the virus, the president of IFLA in his report of March 23rd, (2020) charged all information professionals around the world to provide valuable and reliable information on coronavirus so as to curtail the spread of the viral disease. To fulfil this obligation, information professionals across the globe were left with no other options than to deploy the use of innovative tools for library service delivery. However, extant study (e.g. Amuda et al., 2021) reported that only private tertiary institutions in Nigeria maximized the potentials of these tools. Bearing this in mind, it is expected that, Federal and State tertiary institutions in Nigerian will see the need to optimize these tools during this post covid -era, the era when regular academic activities have returned to normal in academic institutions across the country.

Additionally, a number of studies such as (Amuda & Ajani, 2021; Lo Iacono, Symonds, & Brown 2016; Horrell, Stephens, & Breheny, 2015) had investigated the use of innovative tools in the context of library service delivery. (e.g. However, only a few focused on the use of these tools in the context of service delivery in Nigerian library settings).

Against this backdrop, this study seeks to assess the use of innovative tools among information professionals in Nigerian academic libraries.

3. Objectives of the study

The study's main objective is to investigate librarians' use of innovative tools for information dissemination in Nigerian academic libraries. The specific objectives are to:

(i)   identify the types of innovative tools that are still in used by librarians at the selected academic libraries for information dissemination in the post-COVID era;
(ii) determine the frequency of innovative tools used for dissemination of information during the post-COVID era;
(iii) investigate the benefits and challenges to successful deployment of innovative tools during post COVID era.

Research Questions

(i)   what are the types of innovative tools that are still in use by librarians at the selected academic libraries for information dissemination in the post-COVID era?
(ii) How often are the innovative tools used by librarians for dissemination of information during the post-COVID era?
(iii) What are the benefits and challenges to successful deployment of innovative tools during post COVID era?

4. Literature Review

Innovative tools are the most powerful tools for library service delivery in post Covid- 19 era. Some studies have discussed innovative tools in the context of library service delivery during post COVID era. For instance, Janicke Hinch- life and Wolff Eisenberg (2020) examined whether American academic libraries have changed their mode of work and service provision during post COVID-era. The findings revealed that most of the newly deployed technology tools by the libraries during covid-19-era are still in use even after the end of the scourge of the Pandemic. The result of the study of Bakti (2020) who analyzed the use of social networking services in libraries based on Zoom webinar in Indonesia found that majority of the participants declared the importance of changing the role of libraries and librarians during post COVID-19. Additionally, they indicated the importance of innovation in creating new products by librarians to meet the needs of post-COVID-19 users.

Similarly, Gerber, A. (2020) reported in their study that some innovative tools were used to inform library users about the changes in the library's services; these were the library's website, social media, email and public announcement platforms for students and faculty. These technologies were also used to share information about, and promote open educational resources and commercial electronic resources freely provided by the library. Librarians also created multimedia tutorials and guides showing the patrons how to connect to, and use electronic resources. Communication technologies such as Zoom, Microsoft Teams, LibChat, or LibAnswer were commonly used to provide reference services and bibliographic instruction sessions.

It is also evident in the existing literature that these tools are very beneficial to academic libraries in the area of dissemination of information. Many academic libraries are using these tools to create awareness on the available e-resources on how to continue to stay safe during post covid-19 era. Supporting this, Ladan, Haruna and Madu (2020) stated that using social media such as Facebook, Twitter, Instagram and LinkedIn, librarians can provide and share information quickly, efficiently and as strategies in response to cope with COVID-19 precautions during post covid 19 era. To further reveal the potentials of innovative tools to academic libraries in the provision of information during post COVID- era, Chukwuyere and Agim (2020) reported that Facebook is now redesigned in such a way that users are directed to the websites of WHO as well as local health authorities where up-to-date information relating to post COVID- era are published by these agencies are easily accessible. These innovative services by social media founders can enable librarians to serve their users better as they can share the link to these sources with their clients.

A lot of factors had been identified in the extant literature as barriers to successful usage of innovative tools by information professional. These include but not limited to; power outages; this impediment has been identified as a major factor militating against the use of these tools in most developing countries. For instance, Asimah, Dzogbede, and Akaba, (2021) reported epileptic power supply as a major factor to successful usage of digital library in an academic library in a developing country. Another challenge as identified by Putri, Purwanto, Pramono, Asbari, Wijayanti, and Hyun (2020) is individual factors such as unwillingness to adapt to change which could slow than adoption and implementation of innovative tools in libraries. Other barriers as outlined in the study carried out by Putri et al. (2020) include, low skills, lack of needed facilities and interest, limited accessibility and network connection, limited technical support and lack of researcher's

competency. Amuda and Ajani (2021) also identified technical difficulties, network issue, cost of data subscription, low ICT knowledge and lack of training as the major impediments to usage of innovative tools.

5. Methodology

5.1 Design

The study adopts descriptive research survey design because it gives room for the researcher to cover a substantial percentage of respondents (librarians) in the selected libraries; as well as to enable the generalization of the outcomes of the study.

5.2 Population and Sample

All librarians from the Federal Universities in the six geopolitical zones of Nigeria comprise the study population. One federal university was selected to represent each of the six geopolitical zones of Nigeria. The selection is as shown in Table 1.

Table 1. Population of the study

S/N	Federal University	States	Zones	Population
1.	University of Calabar	Cross-River	South-South	18
2.	University of Nigeria	Enugu State	South-East	24
3.	University of Ibadan	Oyo	South-West	25
4.	Ahmadu Bello University	Kaduna	North-West	28
5.	University of Ilorin	Kwara	North-Central	23
6.	University of Maiduguri	Bornu	North-East	26
7.	Total	6	6	144

All librarians of the selected universities, totaling one hundred and forty-four (144), were covered in the study. A sample was drawn by applying total enumeration, where all the respondents in the study population constituted the sample size.

5.3 Instruments

The questionnaire and interview that featured items on the objectives of the study were developed by the researchers. The questionnaire comprised of two major sections, which are presented as Section A that required the demographic information of the respondents and Section B that was designed to capture data on the objectives of the study. All Heads of the selected libraries (6) were interviewed in other to find answer to research question three.

Table 2. Population and Response Rate

S/N	Federal University	States	Zones	Population	Response Rate
1.	University of Calabar	Cross-River	South-South	18	15
2.	University of Nigeria	Enugu State	South-East	24	19
3.	University of Ibadan	Oyo	South-West	25	19
4.	Ahmadu Bello University	Kaduna	North-West	28	13
5.	University of Ilorin	Kwara	North-Central	23	17
6.	University of Maiduguri	Bornu	North-East	26	22
7.	Total	6	6	144	105 (73%)

5.4 Procedure of Administration

An online survey was developed and reviewed by experts in the field of Library and Information Science. The thoroughly reviewed instrument was piloted prior to implementation with a sample of the target audience. Pre-survey e-mail notes, invites, and survey confirmations were sent to all respondents. The survey was available on the internet for four weeks, giving the respondents ample time to respond and return their respective responses. By the end of the four weeks, a total of 105 copies of the questionnaire had been properly filled out and returned, giving a 73% response rate.

5.5 Data Analysis

Both quantitative and qualitative data were collected, and the collected data were given to a professional colleague of the researcher who was not part of the study population for a proper review to avoid subjective bias. After the confirmation of the data as being free of bias, the qualitative data collected was analyzed thematically, while the quantitative data collected was analyzed using percentages and frequency counts, and the results were presented in tables and charts.

Results:

- **Research Objective 1:** to identify the types of innovative tools that are still in use by librarians at the selected academic libraries for information dissemination in the post-COVID era;

The results show that all the respondents (105) strongly agreed that videoconferencing and WhatsApp are among the types of innovative tools that they use for information dissemination, with a percentage of 100%. The results also showed that teleconferencing and web-based learning applications were among the types of innovative tools that they use for information dissemination, with 87 respondents representing 83% of the study population. The results also show that 17 respondents (16.2%) strongly agreed that LinkedIn is another type of innovative tool used for information dissemination, while 88 respondents (83.9%) strongly disagreed. Additionally, the results show that the majority of the

respondents, with a frequency of 61, representing 58%, strongly agreed that prerecorded videos and Instagram live streams are types of innovative tools that they use for information dissemination, while 44 respondents, representing 42%, strongly disagreed. According to the findings, 12 respondents (11.4%) strongly agreed that the types of innovative tools they use for information dissemination are software programs. whereas 93 respondents (88.5%) strongly disagreed. It is also clear from the results that 84 respondents (80%) strongly agreed that they use Twitter to disseminate information, while 21 respondents (20%) disagreed. It was also found that 71 respondents (67.6%) strongly agreed that Facebook is an innovative tool being deployed by their libraries for information dissemination, while 34 respondents (32.4 percent) strongly disagreed.

Table 3. Types of Innovative tools used for disseminating information

S/N	ICT TOOLS	SA	A	D	SD
1.	Videoconferencing	65 (61.9%)	40 (38.1%)	0 (0%)	0 (0%)
2.	Teleconferencing	43 (41%)	44 (42%)	18 (17%)	0 (0%)
3.	LinkedIn	0 (0%)	17 (16.1%)	66 (62.9%)	22 (21%)
4.	software programs	0 (0%)	12 (11.4%)	44 (42%)	49 (46.6%)
5.	Prerecorded Videos	20 (19%)	41 (39%)	22 (21%)	22 (21%)
6.	Facebook Group	29 (27.6%)	42 (40%)	12 (11.4%)	22 (21%)
7.	WhatsApp	65 (61.9%)	40 (38.1%)	0 (0%)	0 (0%)
8.	Twitter	41 (39%)	43 (41%)	0 (0%)	21 (20%)
9.	Instagram live stream	20 (19%)	41 (39%)	22 (21%)	22 (21%)
10.	Web-based Learning Applications	44 (42%)	43 (41%)	18 (17%)	0 (0%)

Source: Authors' fieldwork 2021

- **Research Objective 2:** determine the frequency of innovative tools used for dissemination of information during the post-COVID era;

Table 4. Frequency of innovative tools used for dissemination of information

S/N	VARIABLE	Daily	Weekly	Fortnightly	Monthly
1.	How often do you use ICT tools for the dissemination of covid-19 information?	37 (35.2%)	28 (26.7%)	22 (21%)	18 (17.1%)

Source: Authors' fieldwork 2021

How often do you use INNOVATIVE tools for dissemination of information DURING POST-COVID ERA?

According to Table 4.2, 37 (35.2%) of respondents use innovative tools for information dissemination every day, 28 (26.7%) use the tools for information dissemination weekly, 22 (21%), use the tools for information dissemination fortnightly, while 18 (17.1%) use the tools for information dissemination monthly.

- **Research Objective 3:** investigate the benefits and challenges to successful deployment of innovative tools during post COVID era.

The respondents were asked to indicate the benefits as well as the challenges to successful deployment of innovative tools during post- COVID era. While justifying this;

a respondent indicated that 'Although, the early stage of the COVID-19 pandemic threw some librarians of balance as the outbreak was characterized by confusion in libraries. He recounted how librarians were able to pull back and become more creative in the delivery of their services by delivering books to their users using innovative tools such as mobile resources. He stated further that, Covid-19 outbreak came as a challenge for libraries but it turned out to be a blessing in disguise for librarians as they seized the opportunity to learn new things. As such, libraries still continue to provide online services even after the end of the scourge of Covid-19.

Talking about the constraints to the use of innovative tools, he identified paucity of funds as a serious concern to the use of innovative tools during covid-19 era. He gave an instance whereby a library's budget was cut when imposition of lockdown was lifted.

Some respondents also noted that 'Using innovative tools for information dissemination has helped libraries to work together and share information. They stated further that the trends continue, even after covid-19. Additionally, they reported that, library users have easy access to open materials during COVID -19, and this extends to post COVID-19 era because it is beneficial to our users. Other impediments identified by respondents are as given below;

According to the findings, a respondent said that: *"Most of these innovative tools are unfamiliar to us, and they present a challenge as we use them to disseminate information."* Why? Because the majority of these tools were not actively used by information professionals until the Covid-19 pandemic.

A respondent also said this, "Someone like me, I had never heard of video-conferencing tools such as Zoom and Skype before the Covid-19 pandemic brought it to the forefront." So using it now is causing a problem, and I am getting used to it. Moreover, *"my Institution is not helping matters; her inability to subscribe for internet connectivity has become a viral problem in which there is always*

complaint about will lack of funding in the university. Most of us rely on personal funds to subscribe to use these innovative tools to disseminate information to the University's students and staff." Thus, if things continue like this, usage of these tools during post COVID-era is not feasible.

6. Discussion of Finding

The study's findings established that innovative tools are still being used regularly by librarians for information dissemination during post-COVID era, indicating that the tools are now widely used among librarians in Nigerian academic libraries. Consistent with the findings of Asimah et al. and Amuda et al. (2021), who discovered in their studies that most libraries in developing countries have extended the use of a variety of innovative tools for providing library services and information dissemination into the post-COVID era.

Artemisa et al. (2020) discovered in their study that the deployment of innovative tools by academic libraries in Ghana runs from the Corona pandemic era to the post COVID era, which supports the finding of this study.

Additionally, this study identified Videoconferencing, WhatsApp, Teleconferencing, Web-based Learning Applications, LinkedIn, Instagram, Software programmes and Facebook as the innovative tools being used by librarians in Nigerian academic libraries for dissemination of information during post COVID era. Out these tools, videoconferencing tools such as Zoom and Skype are the most commonly used tool. This finding is in agreement with Anjusha's (2020) study who found Zoom as the most commonly used innovative tools for dissemination of information.

Moreover, it was found in this study that innovative tools are of great benefits to librarians as it enhances easy participation and engagement of library users, it facilitates easy education of students about the precautions and basic hygiene they need to adhere to during post COVID era. The above point agrees with the finding of Ladan, Haruna, and Madu (2020)'s study who found that with innovative tools specifically social media such as Twitter, Facebook, Blog and Instagram, librarians were able to efficiently and quickly share information among the library users in response to their information needs.

Lastly, the study found inadequate funding and low level of advanced technology skills as the major impediments to successful usage of innovative tools for dissemination of information during the post-COVID era. This is in line with the researcher's observations during the COVID-19 lockdown, which spanned between March and September 2020. Using Zoom, students were taught "The Use of Libraries" during this time period. During the course of teaching the course at home, the students' inability to deploy Zoom effectively caused numerous issues, and as a result, most lecture periods were rescheduled.

The importance of the study's findings to the field of information management research cannot be overstated. First, investigating innovative tools for information dissemination in Nigerian academic libraries in the post-COVID era is regarded as a novel contribution to information research. This is because limited studies are available on the subject matter. Furthermore, the majority of the available literature on innovative tools for information dissemination, particularly in developing

countries and Nigeria in particular, does not extend beyond the COVID-19 era. In order to fill this gap, this study has established that innovative tools are still being used by academic librarians for the reformation of library service during the post-Covid era. Additionally, decision makers in libraries can use the findings of this study as a road map to develop and improve the current design and utilization of innovative tools. Using the findings as a road map will also help library decision-makers understand the potentials of innovative tools in the delivery of 21st-century library services.

7. Conclusion

In addition to the available empirical evidence, the study's findings affirmed that innovative tools are beneficial to libraries in a variety of ways; thus, academic librarians have no choice but to disseminate information using these tools because that is the new normal. The sooner they recognize that the tools have arrived and will continue to be significant parts of our future as information providers, the better.

Recommendations

Based on the above findings, the following recommendations were made

(1) Libraries across Nigeria should prioritize training of their staff on the required digital skills they need to be able to cope in this advanced technology era.
(2) Libraries in Nigeria should consider alternative source of funding other than relying solely on their parent institutions as there are several library services that can fetch libraries money.
(3) LIS curriculum in Nigerian Library schools should be reviewed to accommodate more of ICT related courses as this will result in producing more digital librarians.

Limitations for Further Research

Like other previous research, this study also has some limitations that could be addressed in future research. First, this study investigated innovative tools from the librarians' perspective. However, the investigation could be carried out from several other perspectives. For instance, future research can investigate innovative tools utilization from the point of view of the library users and other information professionals. Moreover, this study can be strengthened by increasing the sample size and including participants in other geographical areas. In terms of scope, this study is limited to academic libraries, future research could include other types of libraries.

References

Amuda H. O., & Yusuf, A. A. (2021). Optimizing Zoom Application for Virtual Research Presentation:

Awareness and Experience of Researchers in Nigerian Library School. Paper presented at International Conference on Information-communication Technologies enhanced Social Sciences and Humanities - ICTeSSH held between 28th and 30th of June, 2021.

Arkorful, V., Barfi, K. A., & Aboagye, I. K. (2021). Integration of information and communication technology in teaching: Initial perspectives of senior high school teachers in Ghana. *Education and Information Technologies,* 1-17.

Asimah, A. P. A., Dzogbede, O. E., & Akaba, S. (2021). Digital Library Usage during the Covid-19 Pandemic. *Library Philosophy and Practice,* 0_1-15.

Bakti, L. A. et al. (2020). Innovations and Adaptability in Response to the COVID-19 Pandemic : The Role of Library and Information Science (LIS) Professionals in Bangladesh. In 3rd International Conference on Documentation and Information, Indonasia, Jakarta, 7-8 October 2020.

Bhoi, N. K. (2017). Use of Information Communication Technology (ICT) and Library Operation: An Overview. Proceedings of International Conference on Future Libraries: From Promises to Practices 2017.

Brindha, D., Jayaseelan, R., & Kadeswara, S. (2020). *Social Media Reigned by Information or Misinformation about COVID-19: A Phenomenological Study.* Retrieved from https://ssrn.com/abstract=3596058

Chukwuyere and Agim Elieze. Librarians' use of social media in disseminating health information on COVID-19. *International Journal of Research and Review* 7.7 (2020), 443-454.

Guan, W. J., Ni, Z. Y., Hu, Y., Liang, W. H., Ou, C. Q., He, J. X., ... & Zhong, N. S. (2020). Clinical characteristics of coronavirus disease 2019 in China. *New England journal of medicine, 382*(18), 1708-1720.

IFLA (2020). *COVID-19 and the Global Library Field.* Retrieved from https://www.ifla.org/covid-19-and-libraries

IFLA (2020). *COVID-19 and the Global Library Field.* Retrieved from https://www.ifla.org/covid-19and-libraries.

Igwe, K. N. (2010). Resource Sharing in the ICT Era: The Case of Nigerian University Libraries. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve, 20*(3), 173-187. https://doi.org/10.1080/1072303X.2010.491016

Ishtiaq, S. Sehar, N., & Shahid, A. (2020). Information Dissemination during Covid-19 and Lockdown: The Role of University libraries of Sindh, Pakistan. *Library Philosophy and Practice (ejournal).* 4280. https://digitalcommons.unl.edu/libphilprac/4280

Janicke Hinch- life and Wolff-Eisenberg (2020). The Use of Information and Communication Technologies in Academic Libraries in a Crisis Situation. *Zagadnienia Informacji Naukowej- Studia Informacyjne* 58.2A (116A), 44-60.

Ladan, A., Haruna, B., & Madu, A. U. (2020). COVID-19 Pandemic and Social Media News in Nigeria: The Role of Libraries and Library Associations in Information Dissemination. *International Journal of Innovation and Research in Educational Sciences, 7*(2), 125-133.

Nigeria Centre for Disease Control (2020). COVID-19 Outbreak In Nigeria Situation Report S/N 65. Abuja. Retrieved from

https://ncdc.gov.ng/diseases/sitreps/?cat=14&name=An%20update%20of%20COVID-19%20 outbreak%20in%20Nigeria.

Nigeria Centre for Disease Control (2020). COVID-19 Outbreak In Nigeria Situation Report S/N 65. Abuja. Retrieved from
https://ncdc.gov.ng/diseases/sitreps/?cat=14&name=An%20update%20of%20COVID-19%20 outbreak%20in%20Nigeria

Nigeria Centre for Disease Control. First Case of Corona virus Disease Confirmed in Nigeria Retrieved from https://ncdc.gov.ng/news/227/first-caseof-corona-virus-disease-confirmed-in-nigeria

Pandey, Rajesh Kumar (2017). Academic Libraries in India: Opportunities and Future Challenges University News. *A Weekly Journal of Higher Education, 55*(22), 14-17.

Purwanto, A., Pramono, R., Asbari, M., Hyun, C. C., Wijayanti, L. M., & Putri, R. S. (2020). Studi eksploratif dampak pandemi COVID-19 terhadap proses pembelajaran online di sekolah dasar. *EduPsy Couns: Journal of Education, Psychology and Counseling, 2*(1), 1-12.

Putri, M., Oktriono, K., Sidupa, C., & Willyarto, M. (2020, December). Portraying Students' Challenges and Expectations toward Online Learning in Embracing Industrial Revolution 4.0 Era: A case in ELT in the COVID-19 Outbreak. In *2020 3rd International Conference on Education Technology Management* (pp. 36-40).

Putri, R. S., Purwanto, A., Pramono, R., Asbari, M., Wijayanti, L. M., & Hyun, C. C. (2020). Impact of the COVID-19 pandemic on online home learning: An explorative study of primary schools in Indonesia. *International Journal of Advanced Science and Technology, 29*(5), 4809-4818.

Wei, W., Li, Z., Chiew, C., Yong, S., Toh, M., Lee, V. (2020). Presymptomatic Transmission of SARS-CoV-2 - Singapore, January 23-March 16, 2020. *MMWR Morbidity and Mortality Weekly Report 2020; 69*(14), 411-415.

Wilson, C., & Jumbert, M. G. (2018). The new informatics of pandemic response: Humanitarian technology, efficiency, and the subtle retreat of national agency. *Journal of International Humanitarian Action, 3*(1), 8. https://doi.org/10.1186/s41018- 018-0036-5

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