Teacher Performance in Online Learning during the COVID-19 Pandemic: A Systematic Literature Review

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Abstract— **Teacher performance during the COVID-19 pandemic is an issue in several countries. This article presents a systematic review of literature related to teachers' performance in facing the COVID-19 pandemic. Teachers' performance includes pre, process, and post-learning activities. The writing of this article was assisted by *Publish or Perish 7, Mendeley, VOSviewer,* and *NVIVO 12 Plus* applications. The search for articles in Scopus-indexed journals is limited to 2020-2022. From the search results on *Publish or Perish 7,* 200 Scopus-indexed articles were selected according to compatible themes into 50 articles. The findings of the theme/topic are *teaching performance, clinical competence, work engagement, schools, teacher attitude, covid-19, digital teaching, online activity, distance learning, distance teaching, online learning, education innovation, online exam, digital competence, teacher training, pedagogical practices,* etc. These 50 articles were analyzed according to the topic through the *NVIVO 12 Plus* application, and the results were described according to the research question. The findings of this article mention that teachers' performance is facing a pandemic determined by mastery of digital devices, digital competencies, digital management, and administration, and others realized through training in the use of digital technology. Further research is needed to determine what, how, and why teachers should perform well during and after the COVID-19 pandemic in learning in or outside the classroom.**

Keywords— **Teacher performance; online learning; COVID-19 pandemic.**

I. INTRODUCTION

The COVID-19 pandemic requires the teacher to convert manual learning to digital learning. Teachers' skills in teaching are required to adapt to the times, social conditions, health, and safety [1]–[3]. During the COVID-19 pandemic, online learning has become the solution chosen by schools and teachers almost worldwide [4] [5]. It impacted teacher performance because they learn manually in usual and a mixture of manual and digital. Still, during the pandemic, almost all learning has changed to digital [6]–[10]. Teacher performance is an activity in education starting from planning, implementing, and evaluating learning [11].

A study narrated that teachers' performance is average and poor during the pandemic [12]. This was assessed from five aspects: teaching ability, communication, initiative, punctuality, and quality of work. The aspects of teaching ability and initiative were good enough. However, this research concluded that teacher performance during the pandemic was not optimal because only two aspects of communication skills were achieved. These two aspects are the ability to communicate and the initiative of teachers [13]. A teacher's performance is not just seen from behavior in the teaching process and completing tasks. Teachers' performance must be strengthened to survive the challenges, threats, and demands in diverse learning conditions. So teachers must be innovative, creative, flexible, and always adapt to change [14]–[16].

Response to the COVID-19 pandemic requires learning to utilize digital technology [17]. Changing from manual to digital learning greatly affects teacher performance as they must adapt to online conditions [18]. Online learning provides new challenges for teachers and students. Teachers must master online teaching skills and create a coherent learning experience for students, providing interaction and motivation

for students to learn despite not being face-to-face [19]–[21].

The COVID-19 pandemic affects teachers' performance in school learning and socialization [22]. Teachers are required to innovate online-based learning during the COVID-19 pandemic. Learning during the pandemic is flexible because students' activity was at home [23]. Several studies say that students' learning activities at home during the COVID-19 pandemic include online learning with several digital media and platforms (Google Classroom, Zoom, online classes via android, television, WhatsApp, radio, satellite systems, and other digital devices), the parent handles all students' task, and children's are undisciplined in learning [24]–[27]. This resulted in an increased homework load, an increase in study time at home by two hours per day, and symptoms of academic stress in students [28]–[30].

A review of several pieces of literature states that the future of learning during the COVID-19 pandemic is determined by teacher adaptation in learning, maintaining health, and continuing to work professionally, even with online methods [31]. In their task, teachers are required to explore online learning that is active and fun [32]. Not all teachers and learners have a personal computer, internet connection, and digital devices that support online learning [33]. These are the simplest interpretations to understand teachers' performance during the COVID-19 pandemic by looking at online learning practices and teachers' performance during the pandemic through the current literature.

Previous studies have explored teachers' performance during the COVID-19 pandemic [34], [35]. However, there has been a lack of effort in systematically reviewing these studies, especially since COVID-19 only emerged in early 2020 [36], [37] Before this study, systematic reviews on teachers' performance were lacking in procedures (such as database focus in Scopus, exclusion of studies, use of terms in searches) conducted and content found, which impacted the difficulty of other researchers to develop them. This study attempts to focus on teachers' performance in the face of the COVID-19 pandemic by identifying online learning and its impact during the COVID-19 pandemic.

This article aims to explore teachers' performance during the COVID-19 pandemic. Conceptually, the findings from this review article can serve as a theoretical framework for teachers to develop their performance. This study is driven by the main question: How do teachers' performance in facing the COVID-19 pandemic in the current literature? Specific research questions are as follows:

- How is online learning during the COVID-19 pandemic in the current literature?
- What is the impact of online learning during the COVID-19 pandemic in the current literature?

II. Materials and Methods

The research method in this article is a Systematic Literature Review, which is a method for identifying, evaluating, and interpreting the results of relevant research on research questions and certain topics or phenomena of concern [38], [39]. Researchers searched for relevant scientific articles with the keywords "Teachers' Performance in Pandemic COVID-19". Then sorted according to relevant themes. After finding articles according to the theme, researchers analyzed the data descriptively according to the

issues mapped through the *NVIVO 12 Plus* application and continued with concluding. The stages of this research adopt the Fink scheme presented in Figure 1 below [40], [41].
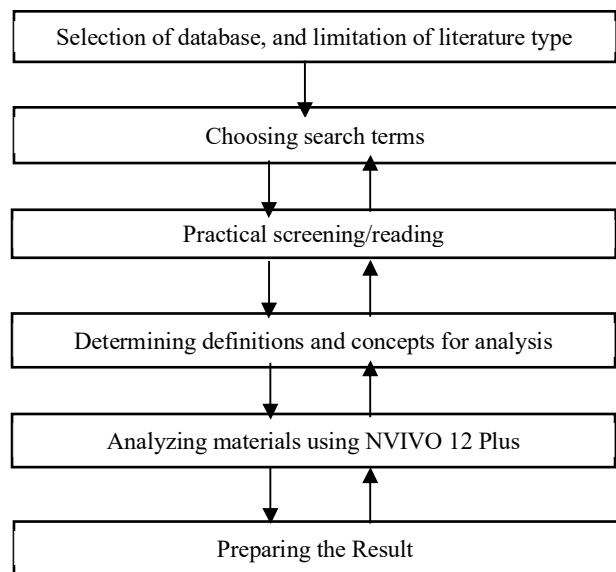

Fig. 1 Literature review process [40].

The application of the Fink scheme in this study begins with databased selection, namely choosing the Scopus databases, and limiting articles to journal articles, not proceedings, books, or book chapters. The next step is to choose a theme, namely teachers' performance during the COVID-19 pandemic, then read and screen. Then, determining definitions and concepts to analyze the article findings through the *NVIVO 12 Plus* application, and the last step is presenting the results of the analysis.

A. Data Sources

The database in this study is Scopus through the Publish or Perish 7 application. To access articles in Scopus through this application, you must enter the API Key. Then, the author searches for articles according to the keywords "Teachers' Performance in Pandemic COVID-19" through the application. The search for Scopus-indexed articles through the Publish or Perish 7 application is limited to the last 3 years, namely 2020-2022, carried out on March 20, 2022. These keywords are imperative because they get abundant sources, namely 200 articles.

To strengthen the argument of compatible research, an initial analysis of thematic associations based on titles, abstracts, and co-occurrence of keywords related to teachers' performance in dealing with the COVID-19 pandemic through this systematic review literature review with the *VOSviewer* application is needed. The *VOSviewer* application facilitates the mapping of keywords relevant to teachers' performance during the COVID-19 pandemic. Based on the initial analysis of thematic associations in Fig. 2, it was shown that teachers' performance has a very complex pattern of associations. The distribution of articles based on keywords is presented in Fig. 3.
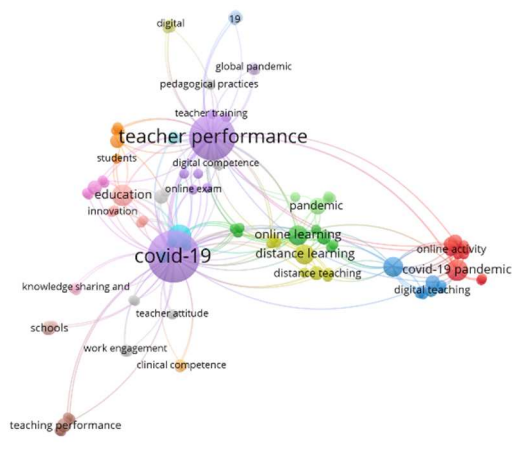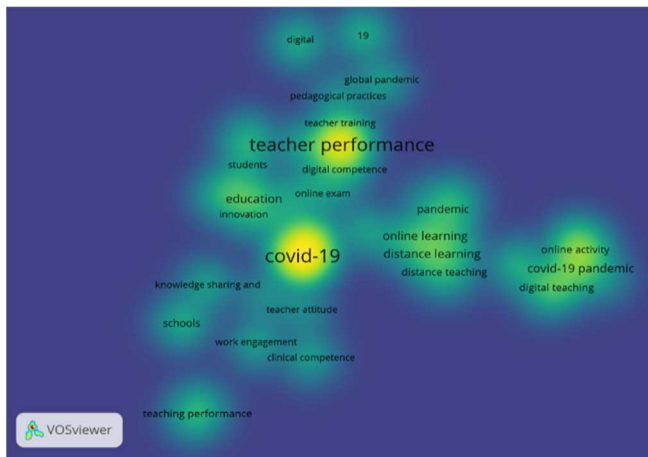
Fig. 2 Initial network visualization.

Fig. 3 Visualization of article distribution based on keywords.

Fig. 2 and Fig. 3 show that discussions and studies related to teachers' performance in facing the COVID-19 pandemic are very close to several other study themes such as *digital competence, schoolteachers, education, e-learning, pedagogical practices, online learning, distance learning, online activity*, and others. The relevance between the themes of teachers' performance and COVID-19 studies shows a direct relationship. Although the aspect of online learning has a distant relationship with the themes of teachers' performance and COVID-19

B. Inclusion and Exclusion criteria for Selection of Publications

The criteria in the database limit this study to determine if all included articles were appropriate to answer the research question "How do teachers' performance facing the COVID-19 pandemic in the current literature?" The reason is that the inclusion and exclusion criteria through the *Publish or Perish 7* application are more valid for finding Scopus-indexed articles. This study applied the following restrictions:

- Published between April 1, 2020, and July 20, 2022. The selection of this date range is based on the findings of empirical research on teacher performance in dealing with the COVID-19 pandemic, which began on April 1, 2020.
- Focus on teacher performance in the face of the COVID-19 pandemic.
- Articles published in Scopus-indexed scientific journals.
- Peer-reviewed
- Research locations in the article are from developed and developing countries.

There are several reasons for applying the limitation criteria. First, although teachers' performance in facing the COVID-19 pandemic is a new issue, articles containing discussions about *digital competence, schoolteachers, education, e-learning, pedagogical practices, online learning, distance learning, online activity*, and others are found abundantly in the Scopus database. Second, the selection of keywords for teachers' performance in the COVID-19 pandemic is found in Scopus more than other keywords. Third, teachers' performance in the COVID-19 pandemic can be part of a multidisciplinary study that provides theoretical contributions for future research.

C. Screening and Eligibility Assessment for Data Analysis

Several steps were taken in this study based on the inclusion criteria. First, all articles that met the criteria were screened. Second, the abstracts and keywords of the article sections were screened to ensure relevance to the research objectives. Third, the study conducted an in-depth reading of the full text of each article. Table 1 shows the articles that met the criteria, grouped under the following codes: year of publication, journal name, author, and relevance to the research question. The study developed theme codes for the articles after they were confirmed with the mentioned criteria. The review process was followed by a content analysis consisting of the following main findings [42]. This stage provides an overview of teachers' performance in dealing with the COVID-19 pandemic. Furthermore, this study explores the findings to answer research questions in line with highlighting teachers' performance in facing the COVID-19 pandemic.

III. RESULT AND DISCUSSION

The description of the results here provides the findings of a synthesized data evaluation to answer the research questions. Through the SLR technique on the 50 selected articles, the author then highlights the key constructs or theoretical frameworks applied by previous researchers. By the results of the initial analysis, the author then mapped the literature that has direct or indirect links to efforts to explore teachers' performance in facing with the COVID-19 pandemic, including: (1) teachers' performance in facing with the COVID-19 pandemic, (2) online learning during the COVID-19 pandemic, and (3) the impact of online learning during the COVID-19 pandemic. Articles that did not fall into the three categories were excluded, resulting in 50 articles selected from 200. The mapping results are presented in Table 1 below, comprising journal name, methodology, country of study, and relevance to the research question.

TABLE I
MAPPING RESULTS OF 50 ARTICLES BASED ON RELEVANCE TO THE RESEARCH QUESTION

No	Name of Journal	Methodology	Country	Research Question (RQ)
1	Higher Education Quarterly 2022 (76) [43]	Conceptual research	Poland	RQ 3
2	Environmental Science and Pollution Research (2022) [44]	Descriptive research	India	RQ 3
3	British Educational Research Association 2022 [45]	Case study	South Korea	RQ 2
4	Frontiers in Education (7) 2022 [46]	Quantitative	Austria	RQ 3
5	Medical Science Educator (2022) [47]	Experiment	Jordan	RQ 2
6	BMC Medical Education 73 (2022) [48]	Quasi-experimental	German	RQ 2
7	Sustainability 14 (3) 2022 [49]	Quantitative	China	RQ 2
8	Revista Venezolana de Gerencia (RVG) 27 (97) 2022 [50]	Descriptive analysis	Ecuador	RQ 1, RQ 2
9	Clinics 2021 [51]	Descriptive and inferential analyses	Brazil	RQ 1
10	Frontiers in Pediatrics 2021 [52]	Qualitative	Switzerland	RQ 3
11	International Journal of Environmental Research and Public Health 2021 [53]	Quantitative	Romanian	RQ 3
12	Brain Sciences 2021 [54]	Qualitative	Spain	RQ 3
13	JAMA Network Open (4) 9 2021 [55]	Survey - Quantitative	Nebraska	RQ 1
14	Journal of Computer Assisted Learning (1-13) 2021 [56]	Quantitative	Finland	RQ 3
15	Revista Venezolana de Gerencia (26) 5 2021 [57]	Survey - Quantitative	Colombia	RQ 3
16	IEEE Access (9) 2021 [58]	SEM-ANN Method	United Arab Emirates	RQ 1, RQ 2
17	Journal of Education and e-Learning Research (8) 2021 [59]	Quantitative	Malaysia	RQ 1, RQ 3
18	Sustainability (13) 2021 [60]	Quantitative	Brazil	RQ 2
19	Sustainability (13) 2021 [61]	Quantitative	Italian	RQ 2
20	BMJ Open (11) 2021 [62]	Cross-sectional questionnaire study	English	RQ 3
21	Webology (18) 2021 [63]	Quantitative	Indonesia	RQ 1
22	Journal of Education 2021 [64]	Quantitative	Vietnamese	RQ 2
23	Bundesgesundheitsblatt - Gesundheitsforschung-Gesundheitsschutz 2 Juni 2021[65]	Systematic review literature	Number of countries	RQ 3
24	Sustainability 13 (21) 2021 [66]	Quantitative	Germany	RQ 1
25	European Journal of Education (56) 2021 [67]	Survey design and data analysis approach	Spain	RQ 1, RQ 2, and RQ 3
26	Quality Assurance in Education (29) 4 2021 [68]	Quantitative	Jamaican	RQ 1
27	Annals of Medicine and Surgery (70) 2021 [69]	Quantitative	Jordan	RQ 2
28	International Journal of Instruction (14) 4 2021 [70]	Quantitative	Spain	RQ 1
29	PLOS One (16) 9 2021 [71]	Quantitative	Poland	RQ 1
30	Frontiers in Psychology (12) 2021 [72]	Quantitative	Norway	RQ 2 and RQ 3
31	Informatica (32) 3 2021 [73]	Quantitative	Lithuania	RQ 1
32	Frontiers in Psychology (12) 2021 [74]	Quantitative	Austria	RQ 1
33	PLoS ONE 16 (8) 2021 [75]	Survey-type investigation	Spain	RQ 2, RQ 3
34	Drustvena Istrazivanja (30) 2 2021 [76]	Quantitative	Croatian	RQ 3
35	Journal of Management Information and Decision Sciences 24 (6) 2021 [77]	Gap analysis	Indonesia	RQ 1
36	Educacao and Realidade (46) 2 2021 [78]	Content analysis and descriptive statistics	Brazil	RQ 3
37	IEEE Access (9) 2021 [79]	A Comprehensive Analysis	India	RQ 2, RQ 3
38	Australian Educational Researcher 2021 [80]	Critical Discourse Analysis (CDA)	Australian	RQ 1, RQ 3
39	Psychology Research and Behavior Management (14) 2021 [81]	A web-based cross-sectional survey	Ecuador	RQ 1, RQ 3
40	Journal of Physics: Conference Series 2021 [82]	Qualitative	Indonesia	RQ 3
41	Journal of Physics: Conference Series 2021 [83]	Survey Method	Indonesia	RQ 1
42	Medical Science Monitor (MSM) (26) 2020 [84]	Online surveys	China	RQ 2
43	EURASIA: Journal of Mathematics, Science and Technology Education (16) 9 2020 [85]	Mixed methods	Zambian	RQ 1
44	Sustainability 12 (23) 2020 [86]	Quantitative	Basque	RQ 3
45	Praxis Educativa (15) 1 2020 [87]	Narrative research	Brazil	RQ 1
46	Milli Egitim (49) 2020 [88]	Quantitative	Turkey	RQ 1
47	Journal of Information Technology Education: Research 19 2020 [89]	Survey method	USA	RQ 2
48	Indian Journal of Forensic Medicine and Toxicology (14) 4 2020 [90]	Qualitative	India	RQ 2
49	Praxis Educativa (15) 1 2020 [91]	Qualitative	Brazil	RQ 3
50	Advances in Science, Technology and Engineering Systems Journal (5) 6 2020 [92]	Systematic Literature Review	Several countries	RQ 1

A. Teachers' Performance in Facing the COVID-19 Pandemic

Teachers' performance during the COVID-19 pandemic is influenced by digital technology. The use of digital technology improves teachers' performance facilitates them from manual tasks [56]. Teachers' appreciation and job satisfaction were low according to the predictor (work value) and the contribution of work value to teachers' job satisfaction. It is concluded that school learning is dramatically affected as teachers lack appreciation and job satisfaction during the pandemic [49]. Teachers' achievements and welfare are strongly influenced by job satisfaction from teachers' performance. The shift from offline to online classes significantly impacts performance and job satisfaction. In this Chinese study of 2886 teachers, work value was strongly correlated with work engagement (r = 0.499, p < 0.01) and job satisfaction (r = 0.360, p < 0.01) [49].

Mastering ICT and digital tools to collaborate with students, parents, and colleagues determine teachers' performance during the pandemic. The reason is that digital tools integrate learning more effectively. Teachers' performance in teaching is determined by the principal's leadership in mastering digital tools. This has an impact on learning practices, management, and school administration. In addition to online learning, teachers are required to apply hybrid learning methods to facilitate collaboration, communication, and meetings with students. Principals are required to oversee teachers' performance and professionalism, increasing their confidence in applying digital methods and media [59], [63]. Research in Turkey suggests that digital-based leadership, management, and administration determine teachers' performance. This has an impact on teachers' performance in terms of psychological well-being, achievement, job satisfaction, and learning effectiveness [88]. This shows that the principal's role significantly impacts teachers' performance during the pandemic.

Research at Jamaican High School found that teachers' performance during the pandemic was good from 486 student respondents. A total of 486 students were satisfied with teachers' performance, responsiveness, assignments, feedback, and objective learning assessments [68]. Research in Poland found that teachers' performance in learning during the pandemic was poor. They experienced anxiety, depression, and stress due to isolation. The first phase of the study found 6% of stressed teachers to 47% of stressed teachers in the second phase of the study. For anxiety variation from 21% to 31%, for depression variation from 12% to 46% which shows an increase in poor performance due to the pandemic. Teachers' performance during the pandemic is not optimal because they experience stress, life dissatisfaction, and psychological pressure [61].

During the pandemic, teachers are required to have digital competencies [73] which facilitate distance learning. Teachers' performance during the pandemic is still low, as they are far from professional in the aspects of blended learning and online learning [86]. To improve teachers' performance in facing the pandemic, training is needed, which provides basic skills in implementing digital learning.

Training provides concepts, regulations, skills, and attitudes to improve teachers' performance [63]. Poor academic performance of teachers has resulted in students in West Bengal, India experiencing anxiety, stress, and depression because the signal at home is difficult and not conducive. Realizing maximum teachers' performance is not easy in online learning. Teachers must have confidence and the ability to facilitate learning according to students' needs [54].

As a result of the pandemic, the teacher paradigm from "teaching students" has changed to "students learn independently" without having to meet face-to-face. Teachers must prepare attractive multimedia designs such as animated videos, recordings, material demonstrations, and contextual learning that students can use independently at home. The goal is to reduce online learning time and use learning more with family and the environment [84]. Due to the pandemic, teachers are forced to do digital work through e-learning. Adaptation to e-learning takes a long time. This affects teacher motivation and performance, which is not maximized [43]. A study in Quito found that teachers' performance during the pandemic was affected by permanent pedagogical assistance. Teachers who receive pedagogical assistance have maximum performance levels and have an impact on their welfare. In contrast, teachers who did not receive pedagogical assistance had poor performance levels [50].

Smartphone utilization in a sample of 50 teachers in Toledo City, Norte de Santander Department, Colombia, during the 2020 pandemic had a positive impact with a score of 55.3% on teachers' performance and online learning [57]. Teachers' performance in online learning during the pandemic is affected by technical aspects such as digital device constraints, weak internet connection, and lack of parental support [60], [74]. A study of 550 teachers in Lithuania found teachers' performance poorly during the pandemic. This was due to technical mastery, anxiety, social influence, and weak trust [73]. A study among junior high school teachers in Bandung, Indonesia, found a gap between teachers' performance and quality of life during the pandemic. From the analysis, the gap averages 4.31% to 4.47% [77]. In COVID-19, teachers are preoccupied with the management and techniques of utilizing digital devices for learning. Strengthening teachers' knowledge and skills in utilizing digital technology effectively and efficiently have become an important agenda for governments worldwide [80]. Therefore, digital-based teachers' performance is a priority for the government in realizing quality learning.

B. Online Learning During the COVID-19 Pandemic

During the COVID-19 pandemic, learning was based on online and e-learning (both in synchronous and asynchronous forms). Initially, many students were not maximized in online learning. However, after a year they found online learning more flexible and convenient [43]. In addition to materials from the curriculum, online learning requires strengthening potential, digital skills, and digital citizenship [59]. The application of ICT in online learning is an option because it is flexible, equitable, easily accessible, fair, demands teacher creativity, and can be done anytime and anywhere [75]. In online learning, most schools use Learning Management System (LMS). However, teachers' performance using the LMS is less than optimal except for experienced teachers. On

average, teachers using LMS have optimism about utilizing learning technology [93]. The use of the LMS is not maximized, as research shows that only 2 percent of experienced teachers and learners are satisfied with online learning through the LMS [56].

During the pandemic teachers are forced to implement online learning [60] [61] and are required to present more varied visual content, interaction with websites, interactive videos, and graphics according to student learning needs because it is carried out remotely [53] [46]. Most educational institutions during the pandemic implemented blended learning with several steps, namely (1) mixed methods between online and offline; (2) enrichment of materials, values, methods, techniques, and learning technology tools; (3) increasing teacher competence in mastering digital devices; (4) internet, digital technology and computer support; (5) flexibility of learning from manual to digital learning [79].

Research related to the implementation of blended learning at the University of Petroleum and Energy Studies, India, and Jaypee Institute of Information Technology, Noida, India reported that blended learning impacts the nature of meaningful learning. Through ICT, meaningful learning in blended learning can be reinforced through offline activities. Blended learning during the pandemic and after the pandemic is beneficial because it is flexible and minimizes children's attendance in full and crowded classrooms [79]. This means that even though the learning is online, it must still maintain the substance of learning.

During the pandemic, several educational institutions in South Korea developed online exam monitoring technology. In addition to learning, the purpose of this technology is to minimize student cheating [45]. Research conducted by the Baixada Fluminense, Rio de Janeiro, Brazil teaching network found that online learning is effective through partnerships with parents. This partnership effectively reinforces school and family's synergy in dealing with the pandemic [91]. This suggests that family-based pedagogical practices should be implemented in online learning.

Online learning can be done with e-learning and video-based learning as it leads to increased knowledge. This model is more cost-effective as traditional learning is more expensive [69]. Online learning can be implemented through Technological Pedagogic Content Knowledge (TPACK). The findings of this research mention that TPACK applies four levels in utilizing ICT, starting from substitution, augmentation, modification, and redefinition [70]. E-learning is the main option to prevent academic losses during the pandemic. It requires synergy between elements including systems, resource management, financial support, paradigm shift, and e-learning training [90].

Online learning during the pandemic has its advantages and disadvantages. The advantages are that learning can be done at home. The disadvantages are that students experience internet addiction symptoms, resulting in low achievement and learning motivation [75]. Online learning will be important in the future after the pandemic. Research findings suggest that technology is closely related to humans. During the pandemic, schools must be the center of innovation and technology utilization in online learning. The future of schools depends on technology, especially in learning [78].

After the pandemic, schools must become more active and innovative in developing online learning technologies.

C. The Impact of Online Learning During the COVID-19 Pandemic

Due to the COVID-19 pandemic, 194 countries worldwide have closed schools in favor of online learning [57]. The COVID-19 pandemic has turned manual (face-to-face) learning into online learning by utilizing ICT [44] [52] [53] [46] [45] [92] [64] [47]. In one article, based on the survey results, the effect of wearing masks in learning impacts the concentration level of teachers and students. Two studies mentioned psychological symptoms such as anxiety, stress, and learning concentration due to wearing masks during the pandemic [65]. As a result of online learning, students experience a decline in cognitive learning outcomes and an impact on socio-emotional aspects. The reason is that both are determined by academic success in normal learning [68]. The impact of online learning on students is the tendency of learning lost, because they lose the material, and the intensity of learning due to lockdown [67].

Disabled school cannot implement online learning to its full potential. This is because the students are different from normal children. One of the innovations is through project studies for special school students and other methods that suit the learning objectives [82]. The impact of COVID-19 has resulted in learning being uprooted from its roots. Students and teachers are affected by different social communications and lifestyles. Teachers must adjust learning, education administration, and school culture to shift to digital media [43]. Online learning forces education in the future to expand technology. However, online learning during the pandemic or post-pandemic will create academic stress for students and teachers if not managed well. Gradually, if not addressed, it will change the paradigm of students regarding the academic climate [44]. The impact of online learning is not always bad. Research shows that school dropouts continue their education through online learning [89].

Online learning has the effect of creating economic and social inequalities within schools. These inequalities limit the conditions of access to technology and the online education process proposed by the school [91]. Learning during the pandemic makes students learn in groups with a remote scheme. Teachers must be good at innovating because learning must be tailored to students' potential, learning styles, and personalities [72]. Pandemic reinforces the importance of developing teacher professionalism in blended and online learning [86]. A paradigm shift in technology model acceptance can improve teachers' performance in online learning [69].

The lockdown makes learning not optimal. As a result, theories are the company limits difficult to understand, and practical or internship materials. The 167 apprentices in Germany in this research were said to experience poor performance. The reason is that tools in online learning constrain students, there is never a face-to-face meeting with the teacher, and students are left to work on their projects [66]. This shows that the COVID-19 pandemic has hurt learning, although not 100 percent, as school dropouts can continue their education through the online system.

IV. Conclusion

Teachers' performance in facing the pandemic is determined by mastery of digital devices, digital competence, the role of the principal, digital management and administration, and synergy with parents, students, and colleagues at school. Training in digital technology is needed to realize good teachers' performance in online learning. Many studies have called for improving teachers' performance through training and adaptation to digital technology for learning. Teachers must be literate in digital technology, always updated, and innovate in online learning both during and after the COVID-19 pandemic. Future research needs to explore teachers' performance during and after the COVID-19 pandemic in-depth.

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