Technology Pedagogy Content Knowledge in Early Childhood Education
(Teachers: Analysis of the Impacts of Covid-19 Pandemic)

Indah Sukmawati[1,] W Andriani[2,] M Fikri[3,] Afdal Afdal[4,] Zikra Zikra[5,]

Denia Syapitri[6]

[1]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
[2]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
[3]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
[4]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
[5]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
[6]*Department Guidance and Counseling, Faculty of Education, Universitas Negeri Padang*
Email: i.watsan@gmail.com

ABSTRACT

The fast improvement of data innovation in the current decade has developed the knowledge, technology and science rapidly. The Coronavirus pandemic has rolled out the spread of various types in the COVID-19 pandemic and has made various changes in the sectors of human life. One of them is changing the Early Childhood Education curriculum through a new learning model by integrating innovative information, instructional method information, and content information (TPACK) to deliver successful picking up utilizing innovation in learning, especially for ECE teachers in order to develop aspects of early childhood development. The focus of the study in this article is TPACK Competencies for early childhood education (ECE) teachers in the Coronavirus pandemic. The consequences of the investigation discovered that there are 6 (six) sub-competencies that must be possessed as part of the overall competence of TPACK, namely Innovation information, Content information, educational information, Academic substance information, Mechanical substance information and Innovative instructive information. The discussion is related to the role of parents, teachers or educators and BK teachers or counselors.

Keywords: TPACK; PAUD; Covid-19

1.   INTRODUCTION

TPACK is a framework for designing new learning models by integrating technological knowledge, learning method information and content information related to learning. TPACK was originally developed by Shulman on education and content (PCK) and describes how instructors understand innovation to deliver successful learning. This model has three intersection points that are equally significant, in particular the convergence between information communicated as PCK (pedagogical content knowledge), TCK (technological content knowledge), TPK (technological pedagogical knowledge), and TPACK (technology, pedagogy, and content knowledge) [1], [2]. In this case, TPACK manages the information needed by instructors to coordinate innovation into educating certain substances which become an effective tool and way to explore teachers' abilities in terms of mastering technology and their ability to use technology in learning [3]. Professional teachers must have satisfactory TPACK skills, reminding that TPACK is in the realm of the four main abilities of an educator which include academic abilities, character abilities, social skills and expert skills obtained through proficient schools [4], especially for early childhood education teachers.

The role of teachers in ECE is very important in fostering the six parts of youth progress which include parts of strict and policy, physical-motor point of

view, intellectual point of view, language point of view, enthusiastic social point of view and creative perspective. How an instructor can complete a learning system by making students feel happy [5]. In addition, ECE teachers must have good abilities in providing stimulation to children, directing and coordinating children as well as possible [6]. However, in reality until recently some teachers did not understand the unprecedented expectations that children at that age had. Limited information transferred by instructors makes children's abilities not develop [7] combined with various instructors who are not proficient in innovation [8] such as learning to choose to use YouTube, google homeroom applications and so on who enjoy the benefits of fulfilling various qualities of ECE students [9].

With the proper and wise use of technology, the quality of education can increase because of access to knowledge and open communication in general through the role of educational technology. Through this educational technology, everything can be reached [10]. The rapid development of information technology is an indication that educators must dominate innovation and then use it as a supporting medium in learning activities. In this case, TPACK is very important for an educator to predict the preparation of teachers to teach effectively and innovatively [11] which is needed in the learning system [12] especially for ECE teachers. Currently, the ECE cycle norms are highly adapted to the state of the coronavirus pandemic, including the rules for implementing learning in ECE units or projects to help meet the level of formative achievement according to the child's age level, evaluation principles, standard assessment measures in terms of measurement and assessment of learning outcomes to determine level of achievement according to the child's age level [13]. The COVID-19 pandemic has made the world restless [14] and has threatened and created panic at all levels of society [15] which affects many things in all life [16], [17]. This is one of the difficulties for educators and teachers [18] to always accompany early childhood in inculcating values [19] because during a pandemic like this, it is very challenging to achieve instructive goals. In practice learning usually cannot run clearly, however, students still have to get education and learning services. Therefore, teachers must be able to adapt to the current pandemic conditions, understand disciplines from various backgrounds and be sensitive to the needs of improving students. Furthermore, educators must have high development and imagination in finding, constructing, changing and introducing data in order to be effectively perceived as information [20] for early childhood. Therefore, this study will analyze the TPACK competencies of Early Childhood Education

teachers: Analysis of the Impact of the Covid 19 Pandemic.

2. RESEARCH METHODS

This research is a library research technique using library assets to obtain research information. Based on this, the secondary data collection was carried out manually by reading and understanding various existing articles as well as several research results that have been carried out regarding the TPACK competence of early childhood education teachers in the covid 19 pandemic. In addition, information and data that have been collected, compiled or assembled and then checked efficiently. An illustration checks to see the TPACK skills of a youth school instructor: Investigating the impact of the covid-19 pandemic.

3. RESULTS AND DISCUSSION

3.1. TPACK Competence (Technology, Pedagogy, and Content Knowledge)

TPACK is a very important performance base and is very gifted with innovation [3] that complements educational material information or PCK [2]. PCK consists of explicit abilities that are influenced by the setting, content and experience shown [21] that discuss how to encourage a material with a purpose in thinking to encourage development in learning to see, such as getting what is thought about the material [22], [23].

TPACK not only works from three bases of substance-specific information, academic information and mechanical information [24]–[26]. However, there are three other components included in the TPACK framework, as shown in Figures 1 [2], [27], [28]:
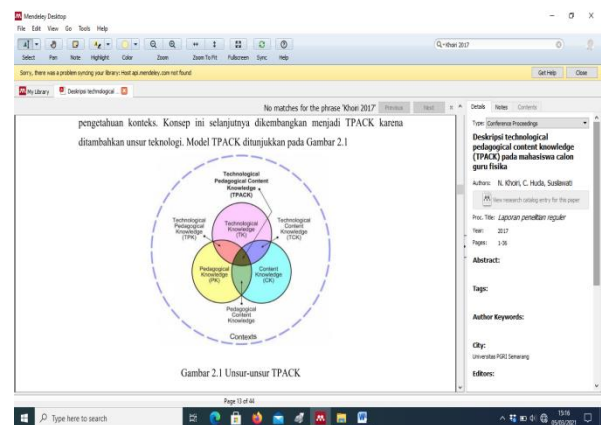
Picture 1: The Elements of TPACK

3.1.1. Technology knowledge (TK)

is information about various advances ranging from innovation guidelines, such as books and computerized assistance for innovations such as the web, recordings, smart whiteboards, and programming programs. This ability is expected to take advantage of certain advances.

3.1.2. Content knowledge (CK)

as the original topic that will be taught. Content information is very important for educators. This information includes information about ideas, hypotheses, thoughts, thought structures, original information, evidence, laws, standards, practices and how to handle this information.

3.1.3. Pedagogical knowledge (PK)

is information from top to bottom about the cycle and practice of delivering material to be contemplated or learning techniques that include learning objectives, quality and learning measures.

3.1.4. Pedagogical content knowledge (PCK)

is unique in relation to various types of content, because PCK is a mixture of content and learning methods that are determined to encourage performance exercises for superior material according to the characteristics of the material to be taught. PCK combines center materials, learning measures, educational plans and learning outcomes.

3.1.5. Technological content knowledge (TCK)

is a type of information about the existence of different innovations and progress capabilities, for example those used in the learning system, being aware of how to educate and studying game plans, being aware of how learning outcomes change due to the use of certain advances and vice versa.

3.1.6. Technological pedagogical knowledge (TPK)

is a structure to further develop pragmatic instructive capacity that combines the ability to demonstrate, inspire learning due to the use of innovation in the learning system.

3.1.7. Technological pedagogical content knowledge (TPACK)

is identified with the information needed by educators to incorporate innovation into the teaching of a particular substance. Instructors have a natural understanding of the intricate relationship between three important pieces of information (content, teaching methods, innovation) by demonstrating content using appropriate educational and mechanical strategies.

3.2. Early Childhood Education (ECE)

Early Childhood Education (ECE) occurs before entering the elementary school level, especially in the preschool period [7]. ECE is a conscious and planned effort carried out to children aged 0-6 years by providing educational guidance to help each development and improvement [29] both physical and deep changes, considering ECE is a period that sets the framework for development and children's progress [30]. Therefore, young people will really want to organize themselves to continue their education at the next stage [31].

Early childhood education functions to encourage, develop and foster all the ideals of children's abilities so that essential behaviors and capacities are formed according to the phase of improvement, where children are a group that is on an interesting path of development and progress. Children are imitators, what they see and hear they will do [32]. Therefore, early childhood education is very important, because youth development is the reason for the formation of human character that must be planned by children's needs to foster various parts of improvement, both from a religious and moral point of view, an intellectual perspective, a language point of view, a socio-emotional point of view and part of progress, physical and motor abilities [33] especially during the current covid-19 pandemic [34].

In the process of early childhood education (ECE) During the coronavirus pandemic, it is intended for learning exercises (playing) that are carried out at home or known as gain from home. This is in accordance with the strategy carried out by public authorities, to carry out social and physical separation specifically to contain the spread of Coronavirus infection. Limiting this movement has a suggestion that changes to the design of adolescent learning that have previously been carried out in schools and the climate around where adolescents live should be carried out at home [35]. The learning system can be said to be effective if a teacher can understand examples of good arrangements in fostering ECE education programs to coordinate realization so that it can run properly to achieve ideal goals [5].

During the covid-19 pandemic, many technology platforms that were previously rarely used have now become tied tools so that educators must prepare what kind of learning strategies are suitable to be integrated

into technology in a lesson [36]. One of them is by using the TPACK teacher competency development pattern which is one of the smart answers to ensure the implementation of learning according to demand and change [3]. There are efforts that can be made to further develop learning outcomes during the pandemic through improving online application-based learning media, for example by introducing video media in the introduction of learning materials. Video media, such as bandicam, etc. have a better capacity [9] for ECE students.

3.3. TPACK and the teacher's Practice in Early Childhood Education in the Pandemic Decade

3.3.1. Technology knowledge (TK)

The transformation of ECE learning, is usually conventional to technology-based and carried out en masse. However, at the ECE level, technology-based learning is integrated in every line of development, providing its own challenges for teachers to transform [37] so that teachers can no longer rely solely on conventional methods. Every teacher must have high abilities and skills because the difficulties faced today do not revolve around children's scholastic abilities, but rather on intelligent, enthusiastic, moral and moral students. Every ECE teacher must have the ability as instructed in the law and local requests [6] especially in the conditions of the covid-19 pandemic which has resulted in teachers using a lot of technology in applying learning materials to early childhood.

In this case, communication technology is used as technological tools consisting of programming tools, cycles and frameworks to help correspondence interactions with the aim of active correspondence, where the teacher can decide one or if no two capacities, to be a special innovation as device or potentially simultaneously as material to instigate the achievement of a certain turn of events. However, regardless of whether the use of ICT is feasible for the development and improvement of children's interactions, it is really a consideration for educators before choosing the right type of gadget. The various uses of ICT for ECE learning can be identified from the way they are used, both interactively and non-interactively, as follows [38]:

a. Audio dan video player, is a learning media that combines audio and visual media. Audio media is related to the learning process that cannot be separated from the auditory aspect while video/visual media involves the sense of sight which contains two kinds of messages, namely verbal and nonverbal messages.

b. Computers, where teachers can organize topics and play materials for children by choosing the right application and so that it can be delivered using a PC.

c. The Internet, for this situation is identified with displaying source materials, especially educators can obtain new instructions and lesson plans and procedures, obtain raw and complete materials that are suitable for all fields of study, as well as declare and offer assets.

3.3.2. Content knowledge (CK)

During a pandemic like this, distance learning (PJJ) is a solution that can be used where teachers are required to be able to operate applications and devices both software and hardware [37] for early childhood. With the new learning stage, ECE teachers must have the capacity and ability to design fun PJJs that are still in accordance with instructive education programs [39] especially for the ECE curriculum because as an educator it takes a teacher's capacity to dominate information, abilities, values. and mentality in performing tasks with an awareness of certain expectations [40].

Therefore, the atmosphere and learning are coordinated so that students can develop their potential through more practice of learning materials, where learning for children is more experimental exercises, social games, for example, role playing and other stimulation exercises [41]. In this case, it is necessary to prepare learning materials as modules and remember virtual innovations, such as virtual innovation-based learning by educational units. Apart from the coordination with parents, cooperation from relevant parties to fortify IT educators and education staff [40] for early childhood.

3.3.3. Pedagogical knowledge (PK)

Pedagogic competencies are essential things that must be demanded by teachers in carrying out learning in accordance with the characteristics of students [42] especially for children. For this situation, Mulyasa explained that instructors must be able to coordinate innovation and academic information in web-based learning measures. Likewise, with the learning system that occurs in the homeroom, the steps of web-based learning continue to realize instructive abilities, among others, first, gain experience and learning tools; second, students' understanding; third, the progress of the education plan; fourth, lesson plans; fifth, the implementation of instructive and intelligent learning; utilization of the 6th innovation; seventh, assessment of learning outcomes and; improvement of the eight students' abilities [12].

For this situation, the implementation of learning at home must of course be planned by an educational program that has been prepared so that the implementation of learning can be carried out in a home visit model with various types of exercises that can stand out for children. One of them is through playdough games which can be an option for teachers and guardians in completing the learning system during the coronavirus pandemic, which in using internet learning, ECE educators must have the choice to dominate innovation and learning [43].

3.3.4. Pedagogical content knowledge (PCK)

The teaching process is effective if the implementation of pedagogy can support the learning of all students in the classroom [44]. In times of Coronavirus, the requirements for imaginative answers to enhance instructive endeavors are growing. In this case, the teacher has the ability to facilitate student learning using technology [45] so that students have the ability to adapt when learning, and can imagine wherever and whenever students are. Students and teachers can still talk, as is the case with their meeting mates. However, even though the learning system is carried out online, the teacher does not reduce his educational ability [12].

Teachers can also take advantage of the combination of affordability of mobile technology and applications to improve some aspects of learning practice [46]. Guze explained that technologies such as podcasts and videos with flipped classroom learning models, mobile devices with applications, video games, simulations, and wearables (google glass) are some of the techniques available to cope with changes in the scope of education [36].

In addition, there are many types of methods that can be used by teachers, especially in conducting distance learning (CDL), such as the use of whatsApp groups because everyone has the application, assigning assignments, broadcasting via TVRI, using applications that can connect video conferences, using media platforms, social, project, collaborative, blended learning, and games [37]. In this case, the teacher's task in structuring learning tools is a requirement to achieve student learning outcomes [47].

3.3.5. Technological content knowledge (TCK)

Technological developments require teachers not only to have the choice to dominate student presentations and expert learning materials, but teachers must also dominate innovation to work with student understanding in learning. This ability serves to develop oneself as a teacher and supports the

achievement of a learning system [12] especially ECE teachers.

In this case, cognitive development actually requires representation in the size of information transfer, this is needed in a learning system for interesting media/devices to stimulate children's motor development. In the field of technology, students will make simple technology in completing their class assignments/projects [48]. Therefore, educators are needed to be able and master the field of data innovation as a mechanism for delivering messages in learning, so that educators and children can follow and refresh the data. The learning messages are so engaging and intuitive that they can build children's premium while taking an interest in learning [49].

3.3.6. Technological pedagogical knowledge (TPK)

Technological Pedagogical Knowledge (TPK) includes knowledge about the advantages and disadvantages of technology related to different pedagogical approaches and how the teaching and learning process changes when technology is used. TPK is very important for an educator to be able to create effective learning in the learning process. The main components in this TPK include first, teacher knowledge about ICT tools; second, learning strategies supported by ICT; third, information skills, student facilitators, and; fourth is the students' technical difficulties [12].

ECE needs to have the option to plan and plan web-based learning that is light and attractive, using gadgets or web-based media that are appropriate and in accordance with the material being taught [50] instructors further develop their educational skills quickly to combine the dominance and use of data and correspondence innovation to help virtual or online based learning [40].

3.4. The Role of Various Parties to Early Childhood

Early childhood learning is strived to be able to improve all aspects of children's growth to the maximum [51]. To meet their needs, support from various parties is needed [52] firstly, the role of parents who are the closest people to their children, especially while the child is at home during the coronavirus pandemic [53] which basically affects the role of parents in children's development [54]. Parents need to realize that what children need is only consideration, parental mediation with the child's reality, parental love, a sense of peace and security, during a pandemic, but throughout a child's life all children need is consideration, parental mediation with the child's reality, parental love, a sense of peace

and security, during the pandemic, but throughout the child's life [55] and has become a new challenge faced by parents to be able to accompany children so that they are able to make sufficient contributions to children's development so that the stages of development that children go through early age runs maximally [19]. In this case, children who continue to be educated with exemplary future orientation, good communication, mutual respect, and synergize make children's self-concepts positive [56].

Active parental involvement with children is very important [57] because parental support is needed in an effort to optimize children's potential (Kremer, 1991). Second, the role of the teacher or educator who is generally an educator is a determining variable that is very applicable in teaching, because the instructor takes an important part in learning interactions [53]. However, teachers in early childhood in this Coronavirus era have different obligations and capacities due to the many changes currently in various aspects through the policies that have been set [58].

During the coronavirus pandemic, instructors will have to take another test so that the learning system for children continues to run well, the educational plan targets have not been achieved, and learning exercises remain a good time for children. Furthermore, the teacher must have the right strategies and procedures so that all parts of the child's progress can be mobilized to achieve the ideal improvement according to the abilities of each child [58]. Third, the role of BK teachers who are relied on to have options to deal with various kinds of problems brought by children for instructive purposes and leads to more unique progress in achieving an educational goal and leads to more dynamic development [52], [59].

4. CONCLUSION

The COVID-19 pandemic has resulted in many layers of society complaining and feeling burdened by the many changes that have occurred since. One of the perceived impacts is in the learning process where a teacher must have the choice to understand the model well in developing the ECE curriculum through a new learning model by integrating technological knowledge, pedagogy knowledge, and content knowledge (TPACK) in order to produce effective learning using technology in learning, especially for ECE teachers and is able to foster parts of youth progress which include parts of discipline and virtue, physical machine point of view, intellectual point of view, language point of view, socio-passionate point of view and imaginative point of view and cannot be separated. of how an educator can complete a learning system by causing students to learn. feeling cheerful. In this case, it is also necessary to pay attention from

various parties such as the role of parents, teachers or other educators and BK teachers or counselors so that early childhood children grow and develop according to their stage of development.

REFERENCES

[1] A. N. Arifin, A. Bahri, and A. I. Suryani, "Improving android-based e-learning skills of biology teachers in Enrekang Regency, South Sulawesi," J. Community Serv. Empower., vol. 1, no. 2, pp. 80–85, 2020, doi: 10.22219/jcse.v1i2.12418.

[2] A. Quddus, "Implementasi technological pedagogical content knowledge (TPACK) dalam pendidikan profesi guru (PPG) PAI LPTK Uin Mataram," J. Tatsqif, vol. 17, no. 2, pp. 213–230, 2019.

[3] N. Nofrion, B. Wijayanto, R. Wilis, and R. Novio, "Analisis technological pedagogical and content knowledge (TPACK) guru geografi di kabupaten Solok, Sumatera Barat," J. Geogr., vol. 10, no. 2, pp. 105–116, 2018, doi: 10.24114/jg.v10i2.9070.

[4] Undang-Undang Republik Indonesia Nomor 14, "Undang-undang Republik Indonesia nomor 14 tahun 2005 tentang guru dan dosen," 2005.

[5] H. Apriyanti, "Pemahaman guru pendidikan anak usia dini terhadap perencanaan pembelajaran tematik," J. Obs. J. Pendidik. Anak Usia Dini, vol. 1, no. 2, pp. 111–117, 2017, doi: 10.31004/obsesi.v1i2.22.

[6] R. Husain and A. Kaharu, "Menghadapi era abad 21: Tantangan guru pendidikan anak usia dini di Kabupaten Bone Bolango," J. Obs. J. Pendidik. Anak Usia Dini, vol. 5, no. 1, pp. 85–92, 2021, doi: 10.31004/obsesi.v5i1.527.

[7] Ui. U. Nuha, M. A. Latief, and N. Yuliati, "Analisis technological pedagogical and content knowledge (TPACK) calon guru PAUD angkatan tahun 2015 di Universitas Jember," J. Edukasi, vol. VII, no. 2, pp. 13–16, 2020, doi: 10.19184/jukasi.v7i2.22674.

[8] A. P. Satrianingrum and I. Prasetyo, "Persepsi guru dampak pandemi covid-19 terhadap pelaksanaan pembelajaran daring di PAUD," J. Obs. J. Pendidik. Anak Usia Dini, vol. 5, no. 1, pp. 633–640, 2021, doi: 10.31004/obsesi.v5i1.574.

[9] M. Kristiawan, N. Aminudin, and F. Rizki, "Optimalisasi pembelajaran daring berbasis aplikasi online bagi calon guru pendidikan anak

usia dini," J. Obs. J. Pendidik. Anak Usia Dini, vol. 5, no. 2, pp. 1905–1914, 2021, doi: 10.31004/obsesi.v5i2.942.

[10] D. F. Padmasari, "Implementasi teknologi pendidikan dalam meningkatkan mutu pendidikan inklusif pada era pandemi covid 19 di kabupaten Magetan," in Prosiding Seminar Nasional Manajemen Penanganan Autism Spectrum Disorder (ASD) pada Anak Usia Dini, 2020, pp. 60–69.

[11] A. Rosyid, "Technological pedagogical content knowledge: Sebuah kerangka pengetahuan bagi guru indonesia di era MEA," in Prosiding Seminar Nasional Inovasi Pendidikan Inovasi Pembelajaran Berbasis Karakter dalam Menghadapi Masyarakat Ekonomi ASEAN, 2016, pp. 446–454.

[12] W. A. Habibah and A. Rosyid, "Pengaruh technological pedagogical knowledge (TPK) guru terhadap pembelajaran daring di SD Budi Luhur Karang Tengah," J. Perseda, vol. IV, no. 1, pp. 51–59, 2021.

[13] A. T. A. Putra, Sufiani, and Jahada, "Transformasi nilai pendidikan Islam anak di PAUD Sultan Qaimuddin Kendari pada masa pandemi Covid 19," Murhum J. Pendidik. Anak Usia Dini, vol. 1, no. 1, pp. 79–90, 2020, doi: 10.37985/murhum.v1i1.8.

[14] D. Telaumbanua, "Urgensi pembentukan aturan terkait pencegahan Covid-19 di Indonesia," QALAMUNA J. Pendidikan, Sos. dan Agama, vol. 12, no. 1, pp. 59–70, 2020, doi: 10.37680/qalamuna.v12i01.290.

[15] S. Choirunnisa, "Coronavirus disease 2019 (Covid-19) dalam perspektif filsafat ilmu," JUSTITIA J. Ilmu Huk. dan Hum., vol. 7, no. 3, pp. 536–546, 2020.

[16] M. Alkaf, "Agama, sains, dan Covid-19: Perspektif sosial-agama," MAARIF, vol. 15, no. 1, pp. 93–108, 2020.

[17] D. Selasi, "Dampak pandemic disease terhadap perkembangan pasar modal syariah di Indonesia," J. Ilm. Indones., vol. 5, no. 5, pp. 46–54, 2020.

[18] A. Taufik, "Perspektif tentang perkembangan sistem pembelajaran jarak jauh di kabupaten Kutai Kartanegara Kalimantan Timur," J. Pendidik. Ris. dan Konseptual, vol. 3, no. 2, pp. 88–98, 2019, doi: 10.28926/riset_konseptual.v3i2.111.

[19] J. Rihlah, D. Shari, and A. R. Anggraeni, "Dampak penggunaan gadget di masa pandemi covid-19 terhadap perkembangan bahasa dan sosial anak usia 5-6 tahun," Early Child. J. Pendidik., vol. 5, no. 1, pp. 45–55, 2021.

[20] A. Wahyudin, "Model pembelajaran bleended learning (Model flipped classroom) untuk meningkatkan efektivitas pembelajaran IPS pada masa pandemi covid19," J. Sudut Pandang, vol. 1, no. 1, pp. 1–23, 2020.

[21] J. Loughran, A. Berry, and P. Mulhall, Understanding and developing science teachers' pedagogical content knowledge. Monash University, Clayton, Australia: Sense Publishers, 2006.

[22] A. Zuhaida, "Penyusunan instrumen analisis pedagogical content knowledge guru IPA Madrasah Tsanawiyah terintegrasi konten Islami," Edukasia Islam. J. Pendidik. Islam, vol. 3, no. 2, pp. 234–248, 2018, doi: 10.28918/jei.v3i2.1690.

[23] M. Rollnick, J. Bennett, M. Rhemtula, N. Dharsey, and T. Ndlovu, "The place of subject matter knowledge in pedagogical content knowledge: A case study of South African teachers teaching the amount of substance and chemical equilibrium," Int. J. Sci. Educ., vol. 30, no. 10, pp. 1365–1387, 2008, doi: 10.1080/09500690802187025.

[24] C. S. Chai, J. H. L. Koh, and C.-C. Tsa, "A review of technological pedagogical content knowledge," Educ. Technol. Soc., vol. 16, no. 2, pp. 31–51, 2013.

[25] N. Baya'a and W. Daher, "The development of college instructors' technological pedagogical and content knowledge," Procedia - Soc. Behav. Sci., vol. 174, pp. 1166–1175, 2015, doi: 10.1016/j.sbspro.2015.01.733.

[26] C. C. Lin, W. W. Yu, J. Wang, and M.-H. Ho, "Faculty's perceived integration of emerging technologies and pedagogical knowledge in the instructional setting," Procedia - Soc. Behav. Sci., vol. 176, pp. 854–860, 2015, doi: 10.1016/j.sbspro.2015.01.550.

[27] P. Mishra and M. J. Koehler, "Technological pedagogical content knowledge: A framework for teacher knowledge," Teach. Coll. Rec., vol. 108, no. 6, pp. 1017–1054, 2006, doi: 10.1002/bjs.7342.

[28] N. Khoiri, C. Huda, and Susilawati, "Deskripsi technological pedagogical content knowledge

(TPACK) pada mahasiswa calon guru fisika," in Laporan penelitian reguler, 2017, pp. 1–36.

[29] M. A. Syarif, "Hubungan kemampuan berhitung melalui permainan balok angka pada anak kelompok B di TK Seroja Desa Kalideras Kecamatan Kaliwedi Kabupaten Cirebon," J. Jendela Bunda, vol. 6, no. 2, pp. 64–75, 2019.

[30] E. Munastiwi, "Manajemen ekstrakurikuler pendidikan anak usia dini (PAUD)," Manag. J. Manaj. Pendidik. Islam, vol. 3, no. 2, pp. 369–378, 2018, doi: 10.14421/manageria.2018.32-09.

[31] A. Tulhusni and Setiawati, "Hubungan tingkat pendidikan orang tua dengan partisipasi untuk menyekolahkan anak ke lembaga PAUD," J. Pendidik. Tambusai, vol. 4, no. 3, pp. 3261–3266, 2020.

[32] S. Maghfiroh and D. Suryana, "Media pembelajaran untuk anak usia dini di pendidikan anak usia dini," J. Pendidik. Tambusai, vol. 5, no. 1, pp. 1560–1566, 2021.

[33] A. Azizah and F. Mayar, "Peran pendidik dan orang tua dalam mengembangkan kemampuan seni anak usia dini," J. Pendidik. Tambusai, vol. 3, no. 6, pp. 1440–1444, 2019.

[34] A. M. Campbell, "An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives," Elsevier B.V., Australia, 2020.

[35] N. G. A. M. Y. Lestari and G. B. Sugriwa, Pendidikan anak usia dini di masa pandemi covid-19, Cetakan 1. Yayasan Kita Menulis, 2020.

[36] S. S. Rosiva and S. W. M. Diningrat, "Model pembelajaran era 4.0 dan peranan teknologi pendidikan selama pandemi covid-19," in Prosiding Seminar Nasional Teknologi Pembelajaran Universitas Negeri Malang, 2021, pp. 102–111.

[37] A. P. Satrianingrum, F. A. Setiawati, and P. Y. Fauziah, "Pembelajaran jarak jauh pada PAUD: Studi literatur berbagai metode pembelajaran pada masa pandemi di berbagai tempat," J. Pendidik. Anak, vol. 10, no. 1, pp. 34–41, 2021.

[38] H. Rusmayadi, "Teknologi informasi dan komunikasi untuk AUD," Direktorat Jendral Guru dan Tenaga Kependidikan, 2016.

[39] C. Pramana, "Pembelajaran pendidikan anak usia dini (PAUD) dimasa Pandemi Covid-19," Indones. J. Early Child. J. Dunia Anak Usia Dini,

vol. 2, no. 2, pp. 116–124, 2020, doi: 10.35473/ijec.v2i2.557.

[40] Mulyana et al., Pembelajaran jarak jauh era Covid-19. 2020.

[41] Nuraeni, "Strategi pembelajaran untuk anak usia dini," J. Pengkaj. Ilmu dan Pembelajaran Mat. dan IPA "PRISMA SAINS," vol. 2, no. 2, pp. 143–153, 2014.

[42] R. Zafira and G. Gunansyah, "Kompetensi pedagogik guru pada anak berkebutuhan khusus di SDN inklusi Klampis Ngasem Surabaya," J. Pendidik. Guru Sekol. Dasar, vol. 3, no. 2, pp. 195–207, 2015.

[43] R. M. Raharja, R. D. Kusuma Wardhani, and L. Rosidah, "Kinerja guru PAUD di kota Serang pada masa pandemi covid 19," Murhum J. Pendidik. Anak Usia Dini, no. 1, pp. 13–22, 2021, doi: 10.37985/murhum.v2i1.28.

[44] H. B. Haris and K. F. Khairuddin, "Pelaksanaan pedagogi inklusif bagi murid berkeperluan khas masalah pembelajaran," Malaysian J. Soc. Sci. Humanit., vol. 6, no. 2, pp. 197–210, 2021, doi: 10.47405/mjssh.v6i2.666.

[45] R. Innaha and E. Setyaningsih, "Kemampuan technological content knowledge (TPK) guru IPA di sekolah inklusi SMP Negeri 23 Surakarta tahun ajaran 2017-2018," in Seminar Nasional Pendidikan Biologi dan Saintek III, 2018, pp. 496–503.

[46] M. G. Domingo and A. B. Garganté, "Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and applications' use in the classroom," Comput. Human Behav., vol. 56, pp. 21–28, 2016, doi: 10.1016/j.chb.2015.11.023.

[47] R. Jayanti and siti rahmi Himayatuddin, "Peran guru dalam memanfaatkan pembelajaran daring pada masa pandemi covid-19," vol. 3, no. 2, p. 6, 2021.

[48] S. Wahyuni, Reswita, and M. Afidah, "Pengembangan model pembelajaran sains, technology, art, engineering and mathemathic pada kurikulum PAUD," J. Golden Age, vol. 04, no. 2, pp. 297–309, 2020, doi: 10.29408/jga.v4i02.2441.

[49] L. Nisa', "Pemanfaatan teknologi dalam pendidikan anak usia dini," ThufuLA J. Inov. Pendidik. Guru Raudhatul Athfal, vol. 8, no. 1, p. 001, 2020, doi: 10.21043/thufula.v8i1.6283.

[50] N. Nurdin and L. Anhusadar, "Efektivitas pembelajaran online pendidik PAUD di tengah pandemi Covid 19," J. Obs. J. Pendidik. Anak Usia Dini, vol. 5, no. 1, p. 686, 2020, doi: 10.31004/obsesi.v5i1.699.

[51] T. Ariyanti, "Pentingnya pendidikan anak usia dini bagi tumbuh kembang anak," J. Din. Pendidik. Dasar, vol. 8, no. 1, pp. 50–58, 2016.

[52] L. I. Badiah, "Urgensi bimbingan dan konseling bagi anak berkebutuhan khusus (ABK) di sekolah inklusi," in Prosiding Seminar Nasional Peran Bimbingan dan Konseling dalam Penguatan Pendidikan Karakter, 2017, pp. 123–131.

[53] P. A. Chusna and A. D. M. Utami, "Dampak pandemi covid-19 terhadap peran orang tua dan guru dalam meningkatkan kualitas pembelajaran daring anak usia sekolah dasar," Premiere, vol. 2, no. 1, pp. 11–30, 2020.

[54] R. Asri and Afdal, "The importance of having self disclosure in lesbians," J. Neo Konseling, vol. 2, no. 2, pp. 1–7, 2020, doi: 10.24036/00270kons2020.

[55] F. Rohayani, "Menjawab problematika yang dihadapi anak usia dini di masa pandemi covid-19," Qawwam J. Gend. Mainstreaming, vol. 14, no. 1, pp. 29–50, 2020, doi: 10.20414/Qawwam.v14i1.2310.

[56] Fitriana, A. M. Yusuf, M. BA, and Afdal, "Strategi keluarga dan guru bimbingan konseling dalam meningkatkan aspirasi karir siswa menuju generasi berkualitas," J. Pendidik. Tambusai, vol. 5, no. 2, pp. 4032–4038, 2021.

[57] R. Ariastuti and V. D. Herawati, "Optimalisasi peran sekolah inklusi," J. Pengabdi. Pada Masy., vol. 1, no. 1, pp. 38–47, 2016, doi: 10.30653/002.201611.7.

[58] S. Rahmatunnisa, I. Mujtaba, and A. Rizky Alfiany, "Strategi pendidik anak usia dini dalam pembelajaran daring di masa pandemi covid-19 pada kelompok B KB / TK Al-Ikhlas," in Prosiding Seminar Nasional Penelitian LPPM UMJ, 2020, pp. 1–8.

[59] U. Safitri and I. Dhaifi, "Peran guru bimbingan dan konseling anak usia dini dalam pengembangan potensi anak inklusi di TK Nurul Huda kabupaten Karangasem Bali," Atthufulah J. Pendidik. Anak Usia Dini, vol. 1, no. 1, pp. 30–37, 2020, doi: 10.35316/atthufulah.v1i1.914.