



The Role of Digital Technology in Overcoming Game Addiction in Post-COVID-19

Ika Fitria ¹, Budi Pangestu ², Budi Mardikawati ³, Indra Tjahyadi ⁴, Arozatulo Bawamenewi ⁵

¹ Poltekkes Kemenkes Tanjungkarang, Indonesia

² Universitas Primagraha, Indonesia

³ Politeknik Transportasi Darat Bali, Indonesia

⁴ Universitas Panca Marga, Indonesia

⁵ Universitas Nias, Indonesia

Corresponding Author: Ika Fitria, E-mail: ikafitriamelmeida@poltekkes-tjk.ac.id

Received: Nov 06, 2024

Revised: Nov 21, 2024

Accepted: Nov 21, 2024

Online: Nov 21, 2024

ABSTRACT

This article aims to describe the role of digital technology in overcoming game addiction in post-covid-19. One of the problems that has received widespread attention from society is online game addiction. Teenagers are one of the largest age groups who experience game addiction. The aspects that impact online game addiction are life aspects, health aspects, psychological aspects, academic aspects, financial aspects, and social aspects. The purpose of the study is to examine alternatives to prevent online game addiction in adolescents in the midst of the Covid-19 pandemic by using digital technology in the form of digital literacy. This problem utilizes a qualitative approach using the questionnaire method. In this process, the role of digital technology has become an alternative to prevent addiction to playing games. Many of the researchers focus more on educating about game addiction, but forget the facts about efforts to prevent online games. The results of this study explain that the role of digital technology can overcome game addiction. The conclusion of the research results on the role of digital technology in overcoming game addiction in post covid-19 is that it can help efforts in overcoming game addiction by using digital technology parameters. The limitation of this research is that researchers only conduct research in post covid-19, and the time used is also limited to conduct research, researchers hope that future researchers can take greater action than the current research using better methods or technology and a larger scope.

Keywords: *Addiction, Efforts, Literacy*

Journal Homepage

<https://ejournal.staialhikmahpariangan.ac.id/Journal/index.php/alhijr/>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite:

Fitria, I., Pangestu, B., Mardikawati, B., Tjahyadi, I., Bawamenewi, A. (2024). The Role of Digital Technology in Overcoming Game Addiction in Post-COVID-19. *Al-Hijr: Journal of Adulearn World*, 3(1), 110-121. <https://doi.org/10.55849/alhijr.v2i4.553>

Published by:

Sekolah Tinggi Agama Islam Al-Hikmah Pariangan Batusangkar

INTRODUCTION

In December 2019 a virus appeared, namely the Corana virus (Hua & Shaw, 2020; Khavandi et al., 2020; Sargiacomo et al., 2020). Corona virus is an epidemic of acute respiratory syndrome that attacks humans, this virus was first discovered in China, precisely in the city of Wuhan (Lau et al., 2020). The virus has spread to more than 114 countries in just three months, affecting 118,000 human cases and causing more than

4,291 deaths. Thus making the World Health Organization (WHO) announced as a global pandemic (Valdez & Gubrium, 2020). From all over the world, massive campaigns have begun to inhibit the spread of the virus, namely by cleaning hands, minimizing contact with surrounding communities, and using face masks and maintaining physical distance (Handfield et al., 2020; Turner et al., 2020). Due to the rapid spread of this virus, such as communicating between people directly, or indirectly, such as through contaminated items, or having direct contact with an infected person through oral and nasal emissions. These emissions include saliva, respiratory transmission, or droplet (splash) currents. So that the Covid-19 Pandemic has made a very big change in the living habits of all people in the world.

One of the countries experiencing the impact of this Covid-19 pandemic is Indonesia (Amirudin et al., 2021; Setiawati et al., 2021). The first case occurred in early March 2020. The Indonesian government is also practicing a new habit to tackle the spread of covid-19 (Iqbal et al., 2020). School closures were carried out as a form of effort made by the government in the spread of Covid-19, so that learning was carried out online for all students. The Minister of Education and Culture issued a circular letter Number 4 of 2020 concerning the implementation of education policies during the emergency period of the spread of Covid-19 which was issued on March 24, 2020. So all students are asked to do learning at home, namely with an online system, so that it makes the use of the internet increase drastically from usual (Azlan et al., 2020; Besser et al., 2022). This learning system has created many pros and cons in various circles due to the implementation of online learning. Online learning is learning without face-to-face meetings between teachers and students, but this learning is done online (Reese et al., 2020). Pembelajaran online bisa dilaksanakan melalui video conference, e-learning atau distance learning. Diterapkannya pembelajaran secara daring ini menjadi hal yang baru, baik bagi siswa maupun gurunya. Sehingga membutuhkan waktu yang cukup lama bagi siswa dan guru untuk memulai adaptasi (Pokhrel & Chhetri, 2021; Scull et al., 2020). However, this online learning also has a positive impact on students, namely students can easily get the subject matter provided by the teacher and students can learn to assess their own learning wherever they are, either at home or in other public places. In addition to having a positive impact, online learning also has a negative impact on students, namely students abuse this online learning system and use a lot of their learning time with things that are not important, for example by playing online games and it is very clear that it makes itself detrimental. So this research will highlight efforts to overcome Online Game Addiction in adolescents during the Covid-19 Pandemic.

Online games are a game schedule connected using a network that we can play anytime and anywhere, and can be played simultaneously in groups around the world (Chakraborty et al., 2019; Scheier et al., 2019). Attractive images are displayed in the game as desired by the player, and are also supported by the computer. Psychologically, online games can arouse players to continue to race to defeat the opponent. Online games make players preoccupied so that they forget about time and are done of their own free will with the aim of getting pleasure when playing these gaming activities. All games that

can cause addiction for players, to be able to play this online game the player can spend hours, even a full day to play it. For this reason, a way is needed to overcome the addiction that occurs in these children. Moreover, the electronic visual media used to play online games is what causes radiation to the eyes, so that the eyes become tired and accompanied by headaches.

Dependence on this gaming activity will have an impact on the child's time to repeat the lessons learned and make the child's lack of socialization with the people around them (Barriage, 2018; Brodeur et al., 2021; Verheijen et al., 2019). If this goes on for a long time, adolescents will isolate themselves from social interaction, and the environment around them becomes insensitive, even anti-social personalities can be formed, that is, children become unable to socialize well in their environment (Baabdullah, 2018; de Calheiros Velozo & Stauder, 2018; Quwaider et al., 2019). In this development, adolescents experience enormous changes ranging from irregular emotions, body fatigue, lack of interest in learning, and poor behavior patterns. In addition to having a negative impact, online games also have some positive impacts, such as being able to help a series of hand to eye settings, motoric, spatial skills, and can also develop children's ability to analyze, make quick decisions, and think in an embedded manner. Compared to others, the players are also more concentrated.

This online game addiction occurs because of the attraction to the game, game players will think about the game even when they are offline and often fantasize as if the game they are playing is real (Akkoc & Fisher, 2019; Yildiz Durak et al., 2022). Teenagers who experience online game addiction will always focus on being able to play games and often leave important things such as school assignments, ongoing lessons, and so on. Online game addiction will have a negative impact on students, so the role of parents and teachers is needed here to prevent game addiction (Hasan et al., 2018; Tang et al., 2018). In general, the level of online game addiction in adolescents is influenced by the parenting applied by parents to children at home (Altarturi et al., 2020; Balakrishnan & Griffiths, 2018; Jones et al., 2022). If the parenting given by parents is right for children, such as controlling children's activities and limiting their playing time in playing online games, it will have an impact on reducing children's behavior in playing online games.

Based on the results of relevant research related to this study conducted by Yeni Eliviani, Ira Kusumawaty, and Yunike in 2021 in their article entitled Reducing Online Game Addiction by Implementing Cell Phone Use During Online Learning, they said online learning is an alternative way used by the government during the Covid-19 pandemic. However, it has a bad impact on children, one of which is game addiction, it can be seen that more than 60% of students experience game addiction, including 1% who are indicated as severely addicted, and 14.6% are moderately addicted and 35.7% are mild. Parents and communities experience many obstacles in implementing this cell phone regulation. Therefore, a great effort is needed from parents, teachers, and the government in accompanying student learning, to overcome game addiction that has already occurred,

and change the online learning system and think about the possibility of offline learning that can implement health protocols so that students' learning needs can be met properly.

The reason for researchers in using this title is because they see the many problems experienced by adolescents when implementing online learning in the covid-19 period, such as online game addiction which makes teenagers' concentration decrease so that teenagers fail to focus and forget easily. With that, efforts are needed so that these adolescents can avoid online game addiction. There have been many studies with the problem of online game addiction, but of the many studies, there are still very few studies that focus on the efforts of online game prevention. In this article, researchers try to review how an alternative way to prevent online game addiction in children in the midst of the covid-19 pandemic is by using digital literacy. Thus adolescents can be more productive in using gadgets for more positive things.

RESEARCH METHODOLOGY

The approach taken by the researcher this time is a qualitative approach. For the type of research used, namely qualitative research with descriptive. The research objective is to describe the role of digital technology in efforts to reduce adolescents who are addicted to online games in post covid-19 (Alikin et al., 2018; Pollock et al., 2020; Smith & McGannon, 2018). The research was conducted in Poltekkes Kemenkes Tanjungkarang. The subjects of this research were adolescents. Teenagers who participated in this research amounted to 10 people. In capturing the truth, it cannot be done by researching only one person but needs to approach various people, because in essence every human being has different views in assessing something, so it cannot capture the truth absolutely (Alwidyan et al., 2020; Tunçer Ünver & Harmanci Seren, 2018). In this study, it is necessary to have observations made by researchers to get a realistic picture between adolescents who experience online game addiction and adolescents who are not affected by online games. In conducting this research, the researcher has gone through several procedures such as conducting a preliminary study to be able to find what problems will be researched, determining the research subject in accordance with the problem, namely adolescents, collecting the data obtained, and describing the interview data that has been obtained, and drawing conclusions from the research.

Table 1. Frequency Distribution of Characteristics and Variables in the Study

Variables	Goals	Frekuensi	Presentase
Age	≤ 17 Tahun	7	70
	≥ 17 Tahun	3	30
Gender	Male	8	80
	Female	2	20
Digital Literacy	There is	4	40
	None	6	60
Game Addiction	No	2	20
	Lightweight	2	20
	Medium	2	20
	Weight	4	40

This research was conducted in September-October 2020 in Poltekkes Kemenkes Tanjungkarang, researchers used data collection techniques by means of interviews. The interview technique is used in order to obtain information about how to prevent online game addiction by using digital technology parameters, namely digital lietration and observing the behavior of online game players. This research cannot be measured by counting alone, so measurements are needed because of the situation from the field, there is no manipulation or contrived. As for data analysis techniques, researchers use data triangulation techniques, namely by comparing the data that has been obtained. Thus in the collection of data received is soft data, this is what causes the results obtained from research using this qualitative method to have the possibility to change.

RESULT AND DISCUSSION

Digital Literacy

Digital literacy is divided into two words: literacy and digital. Literacy itself is an ability that a person has in reading and writing something that is being talked about, listened to, and expressed by others. Digital literacy is the ability to use information and learn it from various sources that can be searched through computer devices (List, 2019; Porat et al., 2018; Sánchez-Cruzado et al., 2021). Therefore, it can be concluded that digital literacy is a skill in using and pursuing the use of information and communication technology with positive goals and uses. Digital literacy is mostly linked to the technical ability to access, assemble and understand, and disseminate information. At the critical level of assessing information, critical thinking is also important in improving information literacy, the critical thinking aspect is expected to foster digital literacy skills, critical thinking and critical evaluation of content on the Internet so as to be able to apply it in today's life.

The development of digital literacy has several important factors such as culture, culture is an understanding in various contexts of users in the digital world, then cognition is an assessment of the content of thinking, and constructive which is the making of something expert and practical, and communication skills are understanding the performance of networks and communication in the digital world, being responsible and confident, being creative and doing new things in new ways, solving or critically dealing with existing content, being responsible to society (Techataweewan & Prasertsin, 2018). Thus it can be interpreted that digital literacy is a knowledge and skills in managing digital media, communication tools, assessing, creating information, and using it properly, as well as complying with the law in establishing interactions for society. So digital literacy is a skill (life skills) that determines a person to have behavior and critical thinking, inspiring as digital competence, but at the same time they also have superior proficiency and skills in using technology, information and communication devices.

By implementing digital literacy, it is hoped that it can divert the focus of adolescents who are addicted to online games, maybe if reading using books, magazines, newspapers makes children bored (Jin et al., 2020). However, by using digital literacy, readings can be made even more interesting, for example providing moving images,

sounds, and displaying attractive colors. So that children can be more interested in reading and divert their focus from the online game. In addition, reading can broaden horizons and knowledge, help critical thinking in making decisions, make the brain work more optimally, hone writing skills and string words better, improve the ability to capture and understand information from reading, and can enrich vocabulary, thus making children more courageous to speak in public.

Digital Literacy Actions during the Covid-19 Pandemic

The social life of the community is threatened by the virus that spreads almost all over the world, namely the Covid-19 virus, which requires people to reduce their activities outside the home and it is one of the steps to prevent the spread of Covid-19. With the outbreak of this corona virus, smartphones are the only main means to take online lessons, because smartphones are practical objects and of course almost everyone has them. Apart from being used to find various information and learning materials, smartphones can also be used to play various online games. This is what makes teachers and parents plagued with worries, because the existence of online games makes children prefer to play games for hours without thinking about time rather than studying and doing their schoolwork. This behavior will turn children into closed individuals because they are engrossed in playing with smartphones without thinking about social activities in their environment. Making children forget about their main task, which is learning. Another impact of online game addiction is the declining interest in reading among school-age children. UNESCO says Indonesia only ranks second from the bottom in world literacy, meaning that interest in reading in our country is very low. Therefore, in this study, researchers designed the concept of digital literacy using family digital literacy and community digital literacy actions. researchers chose this because most of the community's activities during the pandemic were carried out at home, starting from studying, working, worshipping and social activities, all of which were carried out at home. Thus, family and community digital literacy actions are expected to help fill community activities during the Covid-19 pandemic and can also help efforts to overcome adolescents who experience online game addiction.

Family Digital Literacy Action

The use of digital literacy culture in families, especially for children, aims to improve the ability to think critically, creatively and positively in using digital media for daily life. In addition, the application of digital literacy is expected to limit or reduce online game addiction experienced by teenagers today. Parents are required to be able to wisely and appropriately focus and foster habits in using digital literacy in the family (Wilkinson & Bond, 2021). Thus, the use of digital literacy in the family can improve the ability of family members to use and manage digital media (information and communication technology) wisely, intelligently, carefully and appropriately. To foster communication and interaction between family members more harmoniously, as well as obtain various information that is useful for family needs. Parents must be able to create an informative social environment in the family, especially for children. To build

interactions between parents and children, it can be done by utilizing digital media in the form of discussions, and telling each other about the positive use of digital media.

The strategy that families can take in family digital literacy actions during the Covid-19 pandemic is to increase the number and variety of reading materials in the form of information and communication technology related to Covid-19 prevention. For example in the form of magazines, books, comics, caricatures, serialized images and in the form of soft copies if they can be accessed through computers and devices. Choosing educational television and radio programs for family members, especially children, so that they can become a source of knowledge, as well as choosing sites and applications that can provide learning resources for children, so that children can open sites and applications to increase knowledge and hone their creativity, such as smart children's applications, guessing pictures, math games, and so on, and providing computers, laptops, gadgets and internet access which is one of the important efforts in the development of science in this digital era.

There are four models that can be used in this family digital literacy, namely the first Protectionist model, this model encourages audiences to be able to choose good shows and avoid bad shows, the form of activity is in the form of setting a viewing schedule, the second Uses and Gratification model, this model is equipped with the ability to select and sort media content, the form of activity is to study the work of the media, Third, the Cultural Studies model, this model is used to analyze and criticize the media, forms of activities such as media boycotts, and fourth, the Active Audience model, this model is intended to train children to be able to interpret media content based on their respective backgrounds, both socially and culturally, the form of activities is to produce media according to their aspirations. In this way, parents can control the use of gadgets in children.

Parents can practice time management with children in using gadgets. There are several ways that parents can implement time management for children to limit the use of gadgets in children (Linde-Valenzuela et al., 2022). One of the time management that parents can use is by giving children time allotments in playing gadgets or parents can also make a schedule for using gadgets for children. In addition to giving time allotments and schedules to children, parents must also always accompany children in using gadgets, starting from accompanying children in accessing the internet, setting examples and teaching children to be wise in using gadgets, to always trying to divert children's attention from gadgets by dividing special time to accompany children to play, because children still need more attention from their parents. If this has been implemented by parents, children can also divert their attention from gadgets so that they are no longer focused on these online games.

Community Digital Literacy Actions

Digital literacy in society is very useful for guiding people in utilizing technology and communication by using digital technology and communication tools or networks, namely to find, evaluate, use, manage, and create information wisely and creatively (Chow-Thomas, 2020; Detlor et al., 2019; Zainal Abiddin et al., 2022). In addition, digital

literacy can also be utilized by the community for responsible use of digital media, as well as knowing the aspects and legal consequences associated with Law No. 19 of 2016 concerning information and electronic transactions. The purpose of the digital literacy movement in the community is to increase the number and variety of digital literacy reading materials owned by each public facility, especially in preventing the spread of Covid-19. And by increasing the frequency of reading digital literacy reading materials related to covid-19 prevention, increasing the amount of digital literacy reading materials read by the public, supporting digital literacy in increasing the number of public facilities, increasing the number of digital literacy activities in the community, and increasing the utilization of digital media and the internet in providing access to information and public services can help people fill their free time during the pandemic.

The designs that can be carried out for community digital literacy actions during the covid-19 pandemic are such as socializing reference materials on law and ethics in using digital media, using applications or digital devices such as Goodreads to find more information about books, Google Play Books to make it easier for us to find books online, or Aldiko Book Reader on smartphones owned and the official government website to find data related to covid-19 prevention. Dissemination of information and knowledge through social media, where the use of social media can be used to disseminate information and knowledge as a form of community learning resources provided that the community needs to be critical and wise in disseminating information and knowledge created or obtained. Increasing the number and variety of quality learning resources, providing learning resources on information and communication technology in public spaces, and expanding access to learning resources and greater coverage to learners. With this design, it can make people utilize technology in a more positive direction.

CONCLUSION

The results of this study reveal that using digital literacy should be used as one of the guidelines in an effort to prevent online game addiction experienced by adolescents during the covid-19 pandemic, because online learning makes children spend their time playing games. Based on the description of the results and discussion examined by the researcher, the conclusion in this article is that applying literacy to children can make children shift their focus from playing games, because there are more interesting displays using digital literacy. Digital literacy is the knowledge and skills in using digital media, communication tools, or networks to find, evaluate, use, create information, and utilize it healthily, wisely, intelligently, carefully, precisely, and legally in order to foster communication and interaction in everyday life, digital literacy actions that can be taken during the covid-19 pandemic are family literacy actions and community literacy actions, as well as by implementing time management in the use of gadgets in children by parents and always accompanying children in using gadgets. Thus, the family digital literacy movement and community literacy movement are very important to fill people's free time and activities during the Covid-19 pandemic so that people are not bored at home alone and also as an effort to overcome adolescents who are addicted to online games.

ACKNOWLEDGEMENT

Thank you researchers to those who have participated in helping in the making of this article both directly and indirectly. So that this article can be completed on time and can be received properly. As well as to the supervisor, Mr. Adam, who has patiently guided and waited for researchers in making this very difficult but useful article. Hopefully it can be a good deed for all of us.

REFERENCES

- Akkoc, U., & Fisher, R. (2019). How making decisions for children affects the food choices of adults. *Appetite*, *143*, 104407. <https://doi.org/10.1016/j.appet.2019.104407>
- Alikin, D. O., Romanyuk, K. N., Slautin, B. N., Rosato, D., Shur, V. Ya., & Kholkin, A. L. (2018). Quantitative characterization of the ionic mobility and concentration in Li-battery cathodes *via* low frequency electrochemical strain microscopy. *Nanoscale*, *10*(5), 2503–2511. <https://doi.org/10.1039/C7NR08001H>
- Altarturi, H. H. M., Saadoon, M., & Anuar, N. B. (2020). Cyber parental control: A bibliometric study. *Children and Youth Services Review*, *116*, 105134. <https://doi.org/10.1016/j.chilyouth.2020.105134>
- Alwidyan, M. T., Trainor, J. E., & Bissell, R. A. (2020). Responding to natural disasters vs. disease outbreaks: Do emergency medical service providers have different views? *International Journal of Disaster Risk Reduction*, *44*, 101440. <https://doi.org/10.1016/j.ijdrr.2019.101440>
- Amirudin, A., Urbański, M., Saputra, J., Johansyah, M. D., Latip, L., Tarmizi, A., & Afrizal, T. (2021). The Impact of the COVID-19 Self-Isolation Policy on the Occupations of Vulnerable Groups. *International Journal of Environmental Research and Public Health*, *18*(12), 6452. <https://doi.org/10.3390/ijerph18126452>
- Azlan, C. A., Wong, J. H. D., Tan, L. K., A.D. Huri, M. S. N., Ung, N. M., Pallath, V., Tan, C. P. L., Yeong, C. H., & Ng, K. H. (2020). Teaching and learning of postgraduate medical physics using Internet-based e-learning during the COVID-19 pandemic – A case study from Malaysia. *Physica Medica*, *80*, 10–16. <https://doi.org/10.1016/j.ejmp.2020.10.002>
- Baabdullah, A. M. (2018). Consumer adoption of Mobile Social Network Games (M-SNGs) in Saudi Arabia: The role of social influence, hedonic motivation and trust. *Technology in Society*, *53*, 91–102. <https://doi.org/10.1016/j.techsoc.2018.01.004>
- Balakrishnan, J., & Griffiths, M. D. (2018). Loyalty towards online games, gaming addiction, and purchase intention towards online mobile in-game features. *Computers in Human Behavior*, *87*, 238–246. <https://doi.org/10.1016/j.chb.2018.06.002>
- Barriage, S. (2018). Task-centered activities as an approach to data collection in research with children and youth. *Library & Information Science Research*, *40*(1), 1–8. <https://doi.org/10.1016/j.lisr.2018.01.001>
- Besser, A., Flett, G. L., & Zeigler-Hill, V. (2022). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. *Scholarship of Teaching and Learning in Psychology*, *8*(2), 85–105. <https://doi.org/10.1037/stl0000198>
-

-
- Brodeur, M., Audette-Chapdelaine, S., Savard, A.-C., & Kairouz, S. (2021). Gambling and the COVID-19 pandemic: A scoping review. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *111*, 110389. <https://doi.org/10.1016/j.pnpbp.2021.110389>
- Chakraborty, T. R., Almathhur, R., Suh, C., & Chakraborty, S. (2019). Childhood Obesity: Health Policies and Interventions. In *Global Perspectives on Childhood Obesity* (pp. 455–472). Elsevier. <https://doi.org/10.1016/B978-0-12-812840-4.00035-9>
- Chow-Thomas, A. (2020). Digital Literacy and Liberative Community Engagement. *Curator: The Museum Journal*, *63*(2), 265–274. <https://doi.org/10.1111/cura.12359>
- de Calheiros Velozo, J., & Stauder, J. E. A. (2018). Exploring social media use as a composite construct to understand its relation to mental health: A pilot study on adolescents. *Children and Youth Services Review*, *91*, 398–402. <https://doi.org/10.1016/j.childyouth.2018.06.039>
- Detlor, B., Nasery, M., & Julien, H. (2019). The efficacy of digital literacy training initiatives led by local community organizations. *Proceedings of the Association for Information Science and Technology*, *56*(1), 634–635. <https://doi.org/10.1002/ptra.115>
- Handfield, R. B., Graham, G., & Burns, L. (2020). Corona virus, tariffs, trade wars and supply chain evolutionary design. *International Journal of Operations & Production Management*, *40*(10), 1649–1660. <https://doi.org/10.1108/IJOPM-03-2020-0171>
- Hasan, M. R., Jha, A. K., & Liu, Y. (2018). Excessive use of online video streaming services: Impact of recommender system use, psychological factors, and motives. *Computers in Human Behavior*, *80*, 220–228. <https://doi.org/10.1016/j.chb.2017.11.020>
- Hua, J., & Shaw, R. (2020). Corona Virus (COVID-19) “Infodemic” and Emerging Issues through a Data Lens: The Case of China. *International Journal of Environmental Research and Public Health*, *17*(7), 2309. <https://doi.org/10.3390/ijerph17072309>
- Iqbal, N., Fareed, Z., Shahzad, F., He, X., Shahzad, U., & Lina, M. (2020). The nexus between COVID-19, temperature and exchange rate in Wuhan city: New findings from partial and multiple wavelet coherence. *Science of The Total Environment*, *729*, 138916. <https://doi.org/10.1016/j.scitotenv.2020.138916>
- Jin, K.-Y., Reichert, F., Cagasan, L. P., de la Torre, J., & Law, N. (2020). Measuring digital literacy across three age cohorts: Exploring test dimensionality and performance differences. *Computers & Education*, *157*, 103968. <https://doi.org/10.1016/j.compedu.2020.103968>
- Jones, C. P., Armstrong-Moore, R., Penney, T. L., Cummins, S., Armitage, S., Adams, J., & White, M. (2022). Adolescents’ perspectives on soft drinks after the introduction of the UK Soft Drinks Industry Levy: A focus group study using reflexive thematic analysis. *Appetite*, *179*, 106305. <https://doi.org/10.1016/j.appet.2022.106305>
- Khavandi, S., Tabibzadeh, E., Naderan, M., & Shoar, S. (2020). Corona virus disease-19 (COVID-19) presenting as conjunctivitis: Atypically high-risk during a pandemic. *Contact Lens and Anterior Eye*, *43*(3), 211–212. <https://doi.org/10.1016/j.clae.2020.04.010>
- Lau, H., Khosrawipour, V., Kocbach, P., Mikolajczyk, A., Schubert, J., Bania, J., & Khosrawipour, T. (2020). The positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China. *Journal of Travel Medicine*, *27*(3), taaa037. <https://doi.org/10.1093/jtm/taaa037>
-

-
- Linde-Valenzuela, T., Guillen-Gamez, F. D., & Devitt, A. (2022). Digital Literacy of Teachers, Families, and Students for Virtual Participation in School: A Multiple Comparison Analysis. *IEEE Revista Iberoamericana de Tecnologías Del Aprendizaje*, 17(1), 1–8. <https://doi.org/10.1109/RITA.2022.3149800>
- List, A. (2019). Defining digital literacy development: An examination of pre-service teachers' beliefs. *Computers & Education*, 138, 146–158. <https://doi.org/10.1016/j.compedu.2019.03.009>
- Pokhrel, S., & Chhetri, R. (2021). A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning. *Higher Education for the Future*, 8(1), 133–141. <https://doi.org/10.1177/2347631120983481>
- Pollock, D., Pearson, E., Cooper, M., Ziaian, T., Foord, C., & Warland, J. (2020). Voices of the unheard: A qualitative survey exploring bereaved parents experiences of stillbirth stigma. *Women and Birth*, 33(2), 165–174. <https://doi.org/10.1016/j.wombi.2019.03.002>
- Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: Junior high-school students' perceived competencies versus actual performance. *Computers & Education*, 126, 23–36. <https://doi.org/10.1016/j.compedu.2018.06.030>
- Quwaider, M., Alabed, A., & Duwairi, R. (2019). The Impact of Video Games on the Players Behaviors: A Survey. *Procedia Computer Science*, 151, 575–582. <https://doi.org/10.1016/j.procs.2019.04.077>
- Reese, G., Hamann, K. R. S., Heidbreder, L. M., Loy, L. S., Menzel, C., Neubert, S., Tröger, J., & Wullenkord, M. C. (2020). SARS-Cov-2 and environmental protection: A collective psychology agenda for environmental psychology research. *Journal of Environmental Psychology*, 70, 101444. <https://doi.org/10.1016/j.jenvp.2020.101444>
- Sánchez-Cruzado, C., Santiago Campi3n, R., & S3nchez-Compa3a, M. T. (2021). Teacher Digital Literacy: The Indisputable Challenge after COVID-19. *Sustainability*, 13(4), 1858. <https://doi.org/10.3390/su13041858>
- Sargiacomo, C., Sotgia, F., & Lisanti, M. P. (2020). COVID-19 and chronological aging: Senolytics and other anti-aging drugs for the treatment or prevention of corona virus infection? *Aging*, 12(8), 6511–6517. <https://doi.org/10.18632/aging.103001>
- Scheier, L. M., Kumpfer, K. L., Brown, J. L., & Hu, Q. (2019). Formative Evaluation to Build an Online Parenting Skills and Youth Drug Prevention Program: Mixed Methods Study. *JMIR Formative Research*, 3(4), e14906. <https://doi.org/10.2196/14906>
- Scull, J., Phillips, M., Sharma, U., & Garnier, K. (2020). Innovations in teacher education at the time of COVID19: An Australian perspective. *Journal of Education for Teaching*, 46(4), 497–506. <https://doi.org/10.1080/02607476.2020.1802701>
- Setiawati, Y., Wahyuhadi, J., Joestandari, F., Maramis, M. M., & Atika, A. (2021). Anxiety and Resilience of Healthcare Workers During COVID-19 Pandemic in Indonesia. *Journal of Multidisciplinary Healthcare*, Volume 14, 1–8. <https://doi.org/10.2147/JMDH.S276655>
- Smith, B., & McGannon, K. R. (2018). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11(1), 101–121. <https://doi.org/10.1080/1750984X.2017.1317357>
- Tang, C. S. K., Wu, A. M. S., Yan, E. C. W., Ko, J. H. C., Kwon, J. H., Yogo, M., Gan, Y. Q., & Koh, Y. Y. W. (2018). Relative risks of Internet-related addictions and mood
-

-
- disturbances among college students: A 7-country/region comparison. *Public Health*, 165, 16–25. <https://doi.org/10.1016/j.puhe.2018.09.010>
- Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students using mixed method research. *Kasetsart Journal of Social Sciences*, 39(2), 215–221. <https://doi.org/10.1016/j.kjss.2017.07.001>
- Tunçer Ünver, G., & Harmanci Seren, A. K. (2018). Defining the patient safety attitudes and influencing factors of health professionals working at maternity hospitals. *Journal of Nursing Management*, 26(5), 579–586. <https://doi.org/10.1111/jonm.12585>
- Turner, D., Huang, Y., Martín-de-Carpi, J., Aloï, M., Focht, G., Kang, B., Zhou, Y., Sanchez, C., Kappelman, M. D., Uhlig, H. H., Pujol-Muncunill, G., Ledder, O., Lionetti, P., Dias, J. A., Ruellemele, F. M., & Russell, R. K. (2020). Corona Virus Disease 2019 and Paediatric Inflammatory Bowel Diseases: Global Experience and Provisional Guidance (March 2020) from the Paediatric IBD Porto Group of European Society of Paediatric Gastroenterology, Hepatology, and Nutrition. *Journal of Pediatric Gastroenterology & Nutrition*, 70(6), 727–733. <https://doi.org/10.1097/MPG.0000000000002729>
- Valdez, E. S., & Gubrium, A. (2020). Shifting to Virtual CBPR Protocols in the Time of Corona Virus/COVID-19. *International Journal of Qualitative Methods*, 19, 160940692097731. <https://doi.org/10.1177/1609406920977315>
- Verheijen, G. P., Stoltz, S. E. M. J., van den Berg, Y. H. M., & Cillessen, A. H. N. (2019). The influence of competitive and cooperative video games on behavior during play and friendship quality in adolescence. *Computers in Human Behavior*, 91, 297–304. <https://doi.org/10.1016/j.chb.2018.10.023>
- Wilkinson, J., & Bond, N. (2021). Digital Literacy Skills for Family History Research. *Evidence Based Library and Information Practice*, 16(2), 89–110. <https://doi.org/10.18438/ebliip29873>
- Yildiz Durak, H., Kidiman DemiRhan, E., & Citil, M. (2022). Examining various risk factors as the predictors of gifted and non-gifted high school students' online game addiction. *Computers & Education*, 177, 104378. <https://doi.org/10.1016/j.compedu.2021.104378>
- Zainal Abiddin, N., Ibrahim, I., & Abdul Aziz, S. A. (2022). Advocating Digital Literacy: Community-Based Strategies and Approaches. *Academic Journal of Interdisciplinary Studies*, 11(1), 198. <https://doi.org/10.36941/ajis-2022-0018>
-

Copyright Holder :

© Ika Fitria et al. (2024).

First Publication Right :

© Al-Hijr: Journal of Adulearn World

This article is under:

