ORIGINAL RESEARCH

Online learning for innovation method to improve students' characteristic

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Abstract
The development of the education system has changed due to the impact of the COVID-19 virus. Online learning has become an accessible method during the pandemic. However, this method influences the students' characteristics. Also, investigating related to these characteristics changes has not been explored in the literature. Therefore, the study aimed to evaluate the impact of online learning on students' characteristics. The study used a descriptive study involving 62 respondents. Inclusion and exclusion were determined. The instruments were questionnaires. Spearman's rank correlation coefficient was also used for data analysis. Our study showed that online learning does not build the character of elementary school children ($p>0.05$). Further studies are needed to evaluate these variables in another population.

Keywords: Online learning; community nursing; education system; students' characteristics; nursing care

Introduction

School-age is a period when varied changes in a child's growth and development significantly affect their characteristics and personality (NICHD Early Child Care Research Network, 2007). This stage becomes a core experience for a child, shaping their behavior in relationships with peers, parents, and cousins (López-Bueno et al., 2020). This period may also impact their education, particularly during the pandemic, as the learning process shifted to home through online or distance learning. Studying at home can emphasize life skills education, including understanding the COVID-19 pandemic (Zheng, Bender & Lyon, 2021). Online learning involves the use of the Internet in the learning process. It allows students the flexibility to study anytime and anywhere. This learning method is an educational innovation designed to meet the challenge of providing varied learning resources. However, the success of any learning model or medium depends on the characteristics of the student. Nakayama's research indicates that not all learners will succeed in online learning due to differences in the learning environment and individual student characteristics (Lemay, Bazelais & Doleck, 2021). A person of good character is an individual who can make decisions and is ready to take responsibility for the consequences of those decisions. Therefore, fostering good character and adaptability in students is crucial for their success in any learning environment, including online learning.

Online learning has emerged as a transformative force in the educational landscape, offering a wealth of benefits for students (Xia, Hu, Wu, Yang, & Lei, 2022). One of the primary advantages is the unparalleled flexibility it provides. Students can access course materials, attend virtual classes, and engage in learning activities at their own pace and on their own schedule, allowing them to better balance their academic responsibilities with other commitments, such as work or family obligations (Barrot, Llenares, & Del Rosario, 2021). This level of autonomy empowers students to take a more active role in their education, fostering a sense of ownership and self-directed learning that can lead to enhanced engagement and deeper understanding of the subject matter. Moreover, online learning opens up a world of possibilities in terms of accessibility and diversity. Students from various geographical locations, socioeconomic backgrounds, and physical abilities can now access high-quality educational resources that were previously out of reach. This democratization of education has the potential to level the playing field, providing equal opportunities for students to acquire knowledge and develop essential skills, regardless of their

physical location or personal circumstances (Omole, Villamil, & Amiralli, 2023). By breaking down barriers and expanding the reach of educational institutions, online learning has the transformative power to create a more inclusive and equitable educational landscape, ultimately benefiting students from all walks of life **(Figure 1)**.

Figure 1. Illustration of online learning.

Learning is a fundamental component of the educational process, shaping the character, knowledge, attitudes, and habits of students (Addimando, 2022). In this context, the importance of learning activities that empower all potential students to master the expected competencies cannot be overstated. Online or distance learning has the potential to educate and transform the character and attributes of students. However, teachers may face various shortcomings and limitations in implementing fully online learning. Art teachers, for instance, may struggle to adapt quickly to this mode of instruction, despite efforts in this direction (Maqbool et al., 2022). Moreover, not all teachers possess the same level of digital literacy skills; while some may be more adaptable, others may have difficulty transitioning to online learning. Additionally, the lack of access to the minimum required equipment by both teachers and students can pose a significant obstacle to the successful implementation of online learning. Furthermore, the quality and reliability of internet connectivity, as well as the affordability of data packages, can be limiting factors (Li & Pei, 2023). Interestingly, studies have shown that some schools do not face significant barriers to online learning (Barrot, Llenares, & Del Rosario, 2021; Stecuła & Wolniak, 2022), suggesting that the implementation of online learning may not be a universal challenge. However, the issue of first-class students who struggle with the practical aspects of online learning can be addressed by involving parents. Additionally, while some students may perceive digital instruction as a suitable alternative for larger classes, those with poor self-efficacy beliefs and low self-regulation may face difficulties in meeting the requirements of this learning style and may require additional support. Student engagement also plays a crucial role in the success of online learning, but there are limitations in assessing the characteristics of students for the effectiveness of this learning modality. Given these considerations, this study aims to investigate the benefits of online learning in improving students' characteristics.

Method

The study used a descriptive correlational study using the cross-sectional method. A correlational study is a type of research design that examines the relationship between two or more variables without the researcher actively manipulating or controlling them (Janse et al.,2021). The primary goal of a correlational study is to determine the strength and direction of the association between the variables of interest, rather than establishing a causal relationship. In a correlational study, the researcher collects data on the variables and then analyzes the degree to which they are related (Curtis, Comiskey, & Dempsey, 2016). The strength of the relationship is typically measured using a statistical coefficient, such as the Pearson correlation coefficient, which ranges from -1 to 1. A positive correlation indicates that as one variable increases, the other variable also tends to increase, while a negative correlation suggests that as one variable increases, the other variable tends to decrease. The closer the coefficient is to 1 or -1, the stronger the relationship between the variables. Correlational studies are useful for identifying patterns and associations, which can then inform further research, such as experimental studies that may establish causal relationships. However, it is important to note that correlational studies do not provide evidence of causality, as there may be other factors that influence the relationship between the variables.

The study employed a set of carefully considered inclusion and exclusion criteria to ensure the validity and relevance of the findings. The inclusion criteria stipulated that participants must be students engaged in online learning, have family support, and be able to communicate in Bahasa Indonesia. Conversely, the exclusion criteria eliminated junior high school students who were utilizing direct learning methods. The population of interest for this study was students enrolled in elementary schools. A total of 62 students were involved in the research, with the authors opting not to use specific sample size criteria, as the voluntary respondents met the established inclusion requirements. To assess the effectiveness and characteristics of the online learning method, the researchers utilized a specified questionnaire. The study was conducted in an elementary school setting within Indonesia. To evaluate the study's objective, the authors employed the Chi-Square statistical analysis, a robust technique for examining the relationships between categorical variables. By meticulously defining the participant criteria, selecting an appropriate sample, and employing a well-suited analytical approach, the researchers have laid the groundwork for a comprehensive investigation into the benefits and implications of online learning for elementary school students in the Indonesian context.

Results

The study's findings revealed insightful details about the characteristics of the participating elementary school students. The majority of the students were in the age range of 12 years, accounting for 43.5% of the total sample, followed by 13-year-olds at 27.4% and the minimum age of 10 years at 4.8%. In terms of gender distribution, the classes 4, 5, and 6 had a slightly higher proportion of female students, comprising 53.2% of the respondents, while male students accounted for 46.8%. When examining the distribution of students across the different grade levels, the study found that class 5 had the highest number of respondents, making up 45.2% of the sample, followed by class 6 at 32.3% and class 4 at 22.6%. The analysis of the students' character traits yielded promising results. In the religious characteristics category, 98% of the students were rated as excellent, while 96% were categorized as amazing in the honesty dimension. Similarly, 98% of the students were classified as outstanding in the responsibility category, 95% were very good in the tolerance category, and 95% were excellent in the discipline category. The Chi-square test results indicated that there was no statistically significant correlation between the students' characteristics and their engagement in online learning. The strength of the relationship between the variables was found to be weak (< 0.25), but the directionality of the relationship was positive across all five-character traits examined. These findings suggest that online learning may not have a direct impact on the development of the students' character, but further research is needed to fully understand the complex interplay between online learning and the multifaceted aspects of student development.

Discussion

The study's findings revealed an intriguing insight – the strength of the relationship between online learning and the character trait of tolerance was categorized as strong. This suggests that the implementation of online learning may have a more significant impact on the development of students' tolerance compared to other character traits examined in the study. The implications of this finding are particularly relevant in the context of the COVID-19 pandemic, where religious education in schools has the potential to play a crucial role in enhancing students'

character of tolerance. During these challenging times, it is essential that schools foster an environment where COVID-19-positive patients are not stigmatized or socially excluded, but rather supported and assisted (Butt, Mahmood, Saleem, Rashid & Ikram, 2021). By prioritizing the cultivation of tolerance and compassion through religious education, schools can contribute to the formation of a more culturally-attuned and empathetic student population **(Figure 2)**. Furthermore, character education rooted in the foundational principles of Pancasila, the Indonesian state ideology, can serve as a powerful framework for instilling values such as religious attitude, honesty, tolerance, discipline, and responsibility (Vezne, Yildiz Durak, & Atman Uslu, 2023). This holistic approach to character development, encompassing both the academic and the personal, can help shape well-rounded individuals who are equipped to navigate the complexities of the modern world and contribute positively to their communities.
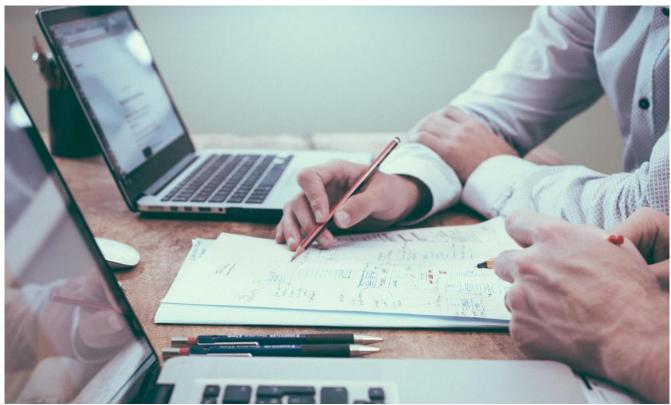

Figure 2. Illustration of good personality in discussion (*Courtesy of unsplash.com*).

The impact of online learning on students' characteristics is a complex and multifaceted phenomenon that warrants careful examination. While the current study did not find a statistically significant correlation between students' engagement in online learning and the development of their character traits, it is essential to consider the potential nuances and longer-term implications of this learning modality (Chu & Li, 2022). One potential avenue for exploration is the indirect influence of online learning on students' characteristics. Although the direct relationship may not be evident in the present study, the flexibility, accessibility, and autonomy inherent in online learning could foster the development of self-regulation, time management, and independent learning skills – all of which are crucial for the cultivation of positive character traits (Wang, 2023). Additionally, the exposure to diverse perspectives and the opportunity for asynchronous collaboration in online environments may contribute to the enhancement of empathy, tolerance, and communication abilities. Further longitudinal investigations are needed to uncover the more subtle and long-term impacts of online learning on the holistic development of students' character, knowledge, and attitudes. By adopting a comprehensive and nuanced approach, researchers and educators can gain a deeper understanding of the complex interplay between online learning and the multifaceted growth of students, ultimately informing the design and implementation of effective educational strategies that nurture both academic and personal development (Azmi, Khan, & Azmi, 2022).

The COVID-19 pandemic has undoubtedly had a profound and far-reaching impact on the educational landscape, with potential long-term implications for the development of students' character traits **(Figure 3)**. As educational institutions navigate these uncharted waters, it is crucial to consider the multifaceted ways in which the pandemic may have influenced the growth and nurturing of essential character attributes. One key area of concern is the potential impact on students' resilience and adaptability (George et al., 2014). The sudden shift to remote and hybrid learning models, coupled with the broader societal upheaval, has challenged students to develop new coping mechanisms and problem-solving skills. While this experience may have strengthened their ability to navigate uncertainty and adversity, it is essential to ensure that students do not become overly reliant on these survival strategies at the expense of other crucial character traits, such as empathy, collaboration, and emotional intelligence (Cortés-Albornoz, Ramírez-Guerrero, García-Guáqueta, Vélez-Van-Meerbeke, & Talero-Gutiérrez, 2023). Furthermore, the isolation and social distancing measures implemented during the pandemic may have had a detrimental effect on students' interpersonal skills and sense of community. The lack of face-to-face interactions and opportunities for extracurricular activities could have hindered the development of essential social-emotional competencies, including communication, conflict resolution, and the ability to work effectively in teams. Educational institutions must proactively address these gaps by implementing innovative approaches to fostering meaningful connections, promoting peer-to-peer learning, and creating inclusive, supportive learning environments.

Figure 3. Illustration of online learning (*Courtesy of unsplash.com*)

In response to these challenges, educational institutions should adopt a multifaceted approach to character development that acknowledges the unique circumstances brought about by the pandemic. This may involve incorporating more explicit instruction on resilience, adaptability, and emotional regulation into the curriculum, as well as providing targeted support and counseling services to address the mental health and well-being of students (Gheshlagh, Ahsan, Jafari, & Mahmoodi, 2022). Additionally, schools should prioritize the integration of experiential learning opportunities, community service initiatives, and extracurricular activities that nurture the holistic growth of students' character, ensuring that they are equipped to navigate the complexities of the post-pandemic world with empathy, integrity, and a strong sense of social responsibility (Tang et al., 2023). By proactively addressing the

potential long-term impacts of the COVID-19 pandemic on students' character development, educational institutions can play a pivotal role in shaping a generation of resilient, compassionate, and adaptable individuals who are poised to lead and contribute to their communities in meaningful ways.

Character education is a fundamental pillar in the holistic development of individuals, as it focuses on the transformation of values and the cultivation of positive personality traits. This educational approach, when implemented systematically from an early age, lays the groundwork for the formation of a child's character and serves as a powerful tool for the betterment of the entire community. The COVID-19 pandemic has presented both challenges and opportunities in the realm of character education. While the study results showed some differences in student character during the online learning process, the overall assessment indicates that students generally maintained a good level of personality development. This is noteworthy, considering the novel and disruptive nature of the online learning experience for many students during this unprecedented time. The positive impacts of online learning during the pandemic era include the increased technological proficiency of students, as they were compelled to navigate and utilize digital platforms, such as WhatsApp, to continue their education (Bączek, Zagańczyk-Waczek, Szpringer, Jaroszyński, & Wożakowska-Kapłon, 2021). This exposure to technology, albeit limited, has the potential to equip students with valuable skills for the digital age. However, the study also highlighted the negative effects of online learning, particularly the barriers faced by some students who lacked access to the necessary technological resources, such as mobile phones (Yan, Whitelink-Wainwright, Guan, Wen, Gašević, & Chen, 2021). To address this challenge, educators and policymakers implemented creative solutions, such as encouraging students to study together in groups while adhering to health protocols (Delungahawatta et al., 2022).

Despite the disruptions caused by the pandemic, the research conducted during this period revealed that character education in elementary schools continued to focus on the development of essential values, including religious character, discipline, creativity, self-worth, responsibility, and curiosity. This resilience in character education underscores the importance of maintaining a holistic approach to student development, even in the face of unprecedented challenges. As educational institutions navigate the post-pandemic landscape, it is crucial to build upon the lessons learned and continue to prioritize character education as a fundamental component of the curriculum. By fostering the growth of positive personality traits, schools can empower students to become well-rounded individuals, equipped to navigate the complexities of the modern world and contribute meaningfully to their communities.

Conclusion

The impact of online learning on the development of students' characteristics in elementary schools is a complex and multifaceted phenomenon that warrants further exploration. While the existing research has yielded mixed findings, there is a growing body of evidence suggesting that online learning can indeed have a positive influence on the cultivation of essential character traits among young learners. As the COVID-19 pandemic has accelerated the widespread adoption of remote and hybrid learning models, it is crucial for educational stakeholders, including community nurses, healthcare educators, and parents, to work collaboratively in evaluating the nuanced effects of this shift on students' holistic development. By taking a comprehensive and interdisciplinary approach, these key players can gain a deeper understanding of the ways in which online learning environments may foster the growth of desirable characteristics, such as resilience, adaptability, self-regulation, and digital literacy.

Furthermore, it is essential that future research extends the scope of investigation beyond the elementary school level, exploring the potential long-term impacts of online learning on the character development of students in senior high school. As adolescents navigate the complexities of their formative years, the influence of technology-mediated education on their personal and social growth becomes increasingly crucial. Through this collaborative and forward-looking approach, educational institutions, healthcare providers, and families can work in tandem to ensure that the integration of online learning not only enhances academic outcomes but also fosters the holistic development of students' character, equipping them with the necessary skills and attributes to thrive in the rapidly evolving digital landscape and contribute positively to their communities.

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Author's perspective

Key points
- Online learning may both reduce or improve students' characteristics
- Community nurses play significant role to evaluate the student' performance
- It is necessary to collaborate with stakeholders to improve learning process

Potential areas of interest
- How can the family be involved in online learning?
- What supportive factors lead to successful online learning?
- When must healthcare technology be evaluated for online learning?