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Developing Quality Social Relationships: Technology-Based Learning Model to Enhance Social Skills in Boarding Schools

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Abstract: The technology-based learning process is one of the innovations in teaching and learning, one of which is in boarding schools. The aim is to find the effect of technology-based learning (X) in improving students' social skills at boarding school (Y). This research used a quantitative method using a Likert scale survey processed by Smart-PLS software. The research sample was 298 students from 4 boarding schools in Yogyakarta. The research results show a positive impact of technology-based learning on students' social abilities; many students are confident and shrewd even though technology continues to develop. They can align learning with online media. Apart from this research, it is hoped that many schools, especially boarding schools, will start implementing learning technology-based and not limit student interaction at school. Learning by utilizing online media is a collaboration and success in applying technology in education.

Keywords: technology-based learning model, social skills, boarding school

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INTRODUCTION

The rapid advancement of technology necessitates an educational shift towards technology-based learning, requiring instructors and schools to adapt accordingly. Learning should be viewed as a dynamic process rather than solely focusing on the end outcome (Dantas & Cunha, 2020). Keeping up with current developments, learning aligns the process by utilizing technology. Learning using the help of the internet is one part of learning how multimedia becomes a learning system with the help of a network to obtain information (Tuhuteru et al., 2023). The development of technology in the world of education does not only contribute in physical form as a learning tool but also takes a multi-dimensional form, such as becoming an ethical practice in facilitating and improving performance in the creation and processing of appropriate technological resources (Rachmadtullah et al., 2023). Learning is a constructive process that involves organizing information and experience into existing cognitive structures. It aims to modify the behaviour and cognitive skills of each individual. Educational activities can occur in diverse settings, including educational institutions, residences, and the surrounding milieu, and are closely intertwined with the progress of technology. Technology has become widely known in society, and it has been observed that technology can impact all elements of human existence and has effectively transformed the existing educational model (Supardi & Hasanah, 2020). In addition, the progress in digital technology and information has consequences for how people learn, leading to the rise of digital-oriented learning methods such as e-learning, virtual classrooms, game-based learning, multimedia, computer-based learning, and others (Jannah et al., 2020). With the proliferation of diverse media for educational purposes, there are both benefits and drawbacks. Technology-based learning refers to using technology to enhance and streamline knowledge acquisition. This can involve using hardware or software to provide, oversee, and bolster the learning experience.

Utilizing technology in education, such as incorporating instructional games or online learning platforms, can enhance student engagement and promote greater interactivity. Learning without technology will heavily depend on conventional methods and non-digital resources, resulting in a lack of variation and innovation in teaching approaches and strategies. For instance, the primary mode of contact is limited to face-to-face communication. At the same time, traditional resources such as whiteboards and printed materials play a more prominent role as educational tools. This learning approach fosters students' dependence on textbooks and direct instruction from teachers, depriving them of the opportunity to study autonomously and explore resources independently. Technology-based learning enables students to access educational content conveniently, regardless of location or time. In addition, using technology in education might offer an additional method to enhance student engagement and motivation, particularly in challenging subjects (Hariyono, 2023). Integrating technology and education enables students to engage in diverse relationships, facilitating the exchange of ideas, collaborative projects, and acquiring knowledge from many cultures and views. Technology-mediated education

has become widely known and acknowledged for providing online and web instructional materials (Kurdi et al., 2020). Numerous educators are encountering challenges in adjusting to using multiple technology-driven educational instruments (Chen & Chiu, 2005). AI, a field of computer science generally referred to as artificial intelligence, is being utilized by students to complete work assigned by teachers. This indicates that educational settings are becoming more acquainted with technology advancements. AI utilizes algorithms to provide novel and compelling educational content.

Additionally, AI has the capacity to offer personalized learning experiences for students. Integrating Industry 4.0 principles into the learning and teaching process challenges students and teachers (Putnik et al., 2023). Both entities must assimilate and analyze current technological advancements and effectively incorporate them into education. Education is currently endeavouring to incorporate the development of values and positive attitudes in students and their environment through a single programme known as character education. This programme is an educational project to foster students' social, emotional, and moral growth. It recognizes that education is crucial in cultivating exemplary human character (Panggabean, 2022). Students are taught 18 character education ideals, including the need to develop social skills. These abilities are essential for effective interaction, communication, and collaboration. Social skills must be acquired and perfected in multiple settings, including home, school, and the surrounding environment. One essential skill that every individual must possess is the capacity to communicate effectively. This skill is crucial for active engagement in several aspects of life, such as education and society (Yulianti & Handayani, 2021). Individuals with proficient social skills, particularly in communication, can effectively transmit information, ensure comprehension, and exhibit empathy by comprehending and acknowledging the emotions of others. According to UNICEF, social skills are essential life skills that every kid should possess. Typically, children who cultivate the practice of assisting others tend to exhibit better emotional management in many social domains. The reference is from Sørlie et al. (2021). Cultivating social skills in students guarantees their ability to interact with the broader community now, effectively, and in the future. Hence, social skills encompass various aspects such as effective communication, critical thinking, self-awareness, empathy, and numerous other attributes.

Hence, every student must get instruction in developing proficient social skills within the school environment. This aptitude becomes invaluable not only throughout their academic tenure but also in their subsequent endeavours and future endeavours. An individual's character has a significant impact on their thoughts and actions. Consequently, education must incorporate character education, as emphasized in the autonomous curriculum. One aspect of character education is the development of social skills (Defitrika & Mahmudah, 2021). Insufficient or inadequate social skills hinder an individual's ability to embrace diversity in their surroundings, impede their capacity to collaborate effectively and hinder their ability to engage proficiently within their environment. Recently, numerous institutions have implemented boarding school programmes that provide students with academic education, Islamic learning, and Islamic character development. These programmes also incorporate technology in learning (Hastasari et al., 2022). The boarding school model necessitates that every student reside in a dormitory, enabling professors or educators to supervise the academic advancement of each student closely. Boarding schools promote character education by cultivating integrity, social responsibility, respect for others, and non-discrimination among students (Abdulloh, 2020).

Can the boarding school model allow students to freely engage with the external environment, particularly beyond the school premises, given that students typically have limited involvement in activities outside of school? The current empirical research on students enrolled in boarding schools still needs to be improved. This is a reason for worry, as boarding school students spend significant time in classroom and dormitory settings. Consequently, it is imperative to also focus on developing students' social skills within the boarding school context (Fredrick et al., 2021). Within a boarding school setting, students are firmly pushed to achieve high proficiency in science and technology. Additionally, while residing in the dormitory, students are expected to demonstrate the ability to apply religious principles and effectively communicate their social and life skills to their peers, instructors, and carers. The primary focus of the education system in Indonesia is on cognitive characteristics, emphasizing acquiring abilities, soft skills, life skills, and the ability to engage with the environment during the learning process (Purwanto et al., 2020). Based on the concept of providing accommodation for students, boarding schools are inherently intertwined with technology, which serves as a vital instrument in several aspects of human life, including education (Iqbal et al., 2021). Every educational institution must consistently enhance its quality in terms of infrastructure and the calibre of its graduates. Islamic boarding schools resemble traditional boarding schools, as both necessitate students to reside in dormitories during their educational journey. Both should also ensure they keep up with the technological advancements in the learning process. Researchers in Malaysia tested students' social skills, such as communication, intrapersonal, and thinking skills, to solve problems by utilizing technological advances in online learning. The research findings found that theatre games carried out online and systematically using the Google Meet platform meant that students could communicate, listen, be responsible, and try to solve problems together which involved competent social interaction among students (Nor et al., 2024). Apart from that, learning media such

as stop motion video and e-learning are innovations that realize the concept of technology-based learning. Mobile learning can also improve students' skills and does not limit sources of knowledge or interaction because it can be done anytime and anywhere (Rasimin et al., 2024).

An educational transformation strategy that leverages technology advancements involves implementing a digitalization programme. This programme entails creating a digital site that serves as a platform for learning through video calls and similar methods. The platform is available around the clock and facilitates extensive interaction, enabling students to communicate information freely without any communication limitations (Suharto et al., 2022). There is concern that if children in Boarding Schools fail to acquire proficiency in technology and lack social skills, they may struggle to effectively engage and interact with their immediate surroundings in the future. The significance of social skills in cultivating accomplished and competitive individuals lies in their ability to prioritize ethics and actively contribute to society to effectuate meaningful transformations (Tamami & Mardianto, 2023). Hence, this study aims to investigate the impact of technology-mediated learning on the development of students' social skills in boarding schools.

METHODS

This research used a quantitative method that used many numbers, from data collection to interpretation (Rofi'I et al., 2024). Quantitative research is a research method that follows the positivist ideology and seeks to study a specific population or sample. Quantitative research is commonly employed to ascertain the influence of knowledge management strategies and processes on the creativity and performance of an organization or group (Barbosa et al., 2019). Quantitative research is commonly employed in social sciences, education, media, and other related professions. This study aims to assess the influence of technology-driven educational models on the cognitive and interpersonal proficiencies of students enrolled in Boarding Schools.

The study focused on a specific group of students, namely those who attended Boarding Schools in Yogyakarta. A sample of 298 boarding schools was analyzed; out of these, only 259 provided complete responses. Approximately 39 students failed to fully complete the distributed questionnaire, maybe due to their diminished interest in filling it out. 86.91% of students completed the questionnaire, while 13.09% did not, rendering the data unusable. Four boarding schools in Yogyakarta are involved in this research. The quantity of samples from each boarding school is displayed in Table 1.

Table 1. Data Population and Sample

Number	Boarding School	Number of Respondents
1	MBS Bantul	63
2	SMA Muhammadiyah 7	74
3	MAN 2 Yogyakarta	85
4	Madrasah Mu'allimin	37
	Total Sample	259

This study employed a questionnaire as a research instrument, utilizing data collection methods in which respondents directly respond to questions through either a Google form or a traditional questionnaire. The questionnaire encompasses inquiries regarding technology-mediated education and interpersonal abilities. It employs a Likert scale evaluation, with response options ranging from 5 for strongly agree, 4 for agree, 3 for neutral or uncertain responses, 2 for disagree, and 1 for strongly disagree choices (Zakiy et al., 2023). This scale is commonly employed in questionnaire instruments to assess the respondent's degree of agreement or disagreement with a specific question or statement. Researchers can employ a Likert scale to gauge the degree of intensity or strength of individuals' thoughts on a particular subject (Edmondson, 2005). The data analysis was conducted using Smart PLS version 4.0 software. The SEM-PLS approach involved outer and inner model testing to process the data. Figure 1 shows the conceptual framework used in this research. This research hypothesizes that the technology-based learning model influences the improvement of students' social skills at the boarding school.

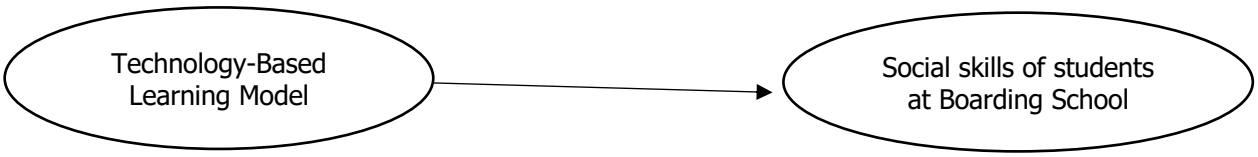

Figure 1. Research conceptual model

Figure 1 shows the theoretical framework of the research. The hypothesis or presumption seen in Figure 1 can be explained as follows: Technology-based learning as a variable (X) impacts students' social skills at boarding schools, which is a variable (Y). Measurements in research are carried out in several stages to assess validity and reliability. Validity testing is essential to show that the instrument is correct and aligned with the construct. It assesses the relationship between technology-based learning (X) and students' social skills at boarding school (Y). After a validity test, a reliability test was carried out to determine whether the test was valid and reliable. Validity and reliability assessment in SEM-PLS used Construct Reliability and Validity, with an indicative value of 0.6. Next, the structural model underwent validity and reliability assessment to prevent problems. The results obtained are confirmed to be valid and reliable.

RESULT AND DISCUSSION

The validity test in this study relies on the assessment of convergent validation and discriminant validation values, with a threshold value of 0.7. Any values below this threshold will be excluded from the model. However, Figure 2 reveals that no factors have been eliminated, as Table 2 displays the outer loading results indicating values over 0.7. Validity tests are crucial in research to assess the reliability of an instrument. The validity tests' results offer insight into the instrument's reliability in measuring variables. The convergent validity of the measurement or reflective measurement model can be assessed by examining the association between the items or indicators and the scores of the constructs (Wahdini & Zakiy, 2022). The conventional convergent validity coefficient is 0.5, while the desired coefficient is 0.7. A coefficient over 0.7 is considered superior.

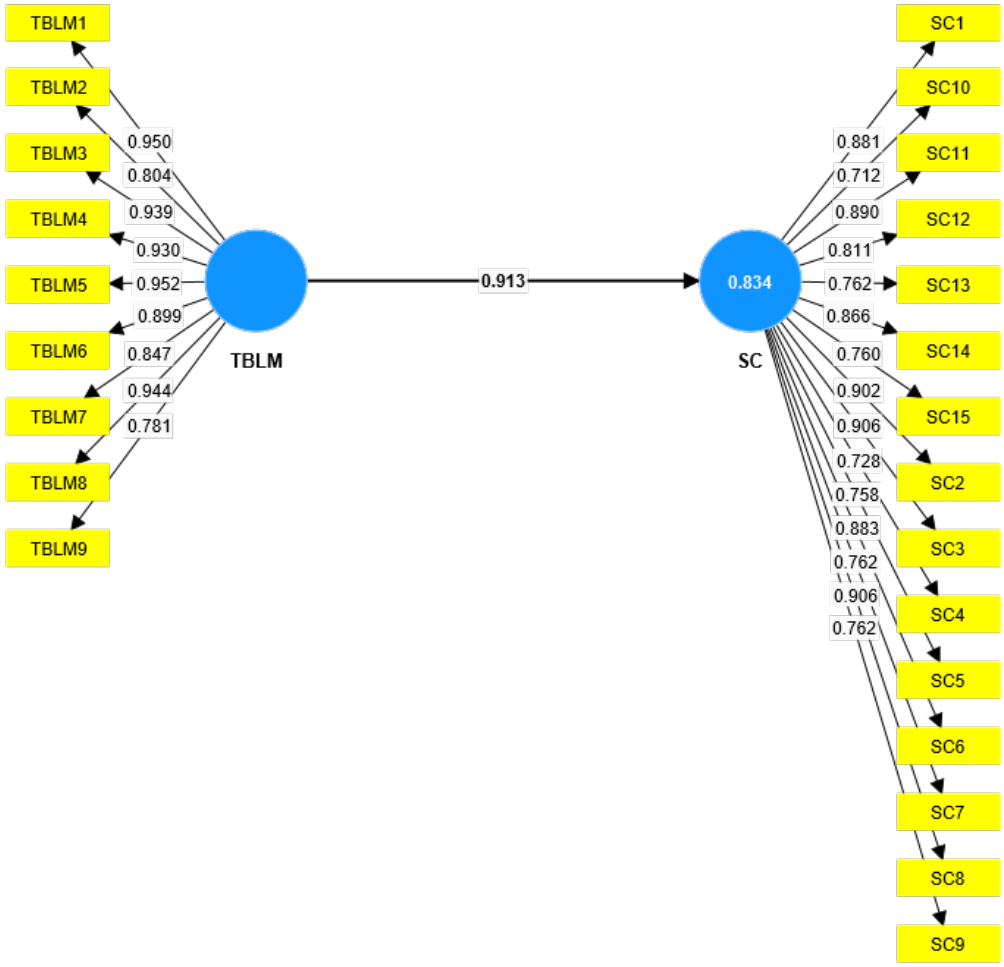

Figure 2. Outer Model Output Display

Figure 2 and Table 2 demonstrate that convergent validity has been achieved since all the outer loading factor values for each indicator or variable surpass 0.7, as elucidated in the validity test section. The AVE (Average Variance Extracted) number in Table 2 indicates that each variable's value is more than 0.5, indicating the validity of the data. If the Average Variance Extracted (AVE) value is less than 0.5, it indicates many errors in the items or indicators of the construct's variance value.

Table 2. Factor Loadings (FL), Average Variance Extracted (AVE), and Composite Reliabilities (CR)

Construct	Items	FL	AVE	CR
Technology-Based Learning Model	TBLM 1	0.950	0.803	0.973
	TBLM 2	0.804		
	TBLM 3	0.939		
	TBLM 4	0.930		
	TBLM 5	0.952		
	TBLM 6	0.899		
	TBLM 7	0.847		
	TBLM 8	0.944		
	TBLM 9	0.781		
Social skills of students at Boarding School	SC 1	0.881	0.676	0.979
	SC 2	0.902		
	SC 3	0.906		
	SC 4	0.728		
	SC 5	0.758		
	SC 6	0.883		
	SC 7	0.762		
	SC 8	0.906		
	SC 9	0.762		
	SC 10	0.712		
	SC 11	0.890		
	SC 12	0.811		
	SC 13	0.762		
	SC 14	0.866		
	SC 15	0.760		

Construct validity refers to the degree to which an instrument can accurately measure a specific construct, ability, or theory (de Almeida et al., 2016). The construct validity and reliability test results are presented in Table 3. In the section on Average Variance Extracted (AVE), both variables exhibit a value greater than 5, indicating their validity and the reliability of all constructs. Therefore, it may be inferred that every indication or variable possesses a significant discriminant value. In the composite reliability section, the findings demonstrate a value greater than 6, indicating that each variable has achieved composite dependability. Consequently, it can be inferred that all variables possess high reliability. In the Cronbach's Alpha section, each variable achieved a construct value greater than 0.7, indicating that all study variables meet the Cronbach's Alpha value conditions. Consequently, it may be inferred that all variables exhibit a high level of reliability. This test was conducted to validate the instrument's precision, reliability, and accuracy in measuring the construct.

Table 3. Constructs Reliability and Validity

Variable	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Technology-Based Learning Model	0.676	0.973	0.969
Social Skill	0.676	0.979	0.967

Upon conducting the discriminant validity test, the findings are presented in Table 4, indicating that the square root of the Average Variance Extracted (AVE) is higher for each construct. In order to prove discriminant validity, researchers must confirm that all constructs inside a model are distinct from one another (Rasoolimanesh, 2022). An analysis of the discriminant was conducted to evaluate the extent to which the tested construct varies from other constructs (Lundeto et al., 2021). The discriminant validity test is assessed by examining the cross-loading measurements between constructs using the criteria established by Fornell-Larcker. In the Fornell-Larcker test, discriminant validity is considered satisfactory when the square root of the Average Variance Extracted (AVE) in a construct is greater than the correlation with other latent variable constructs. Therefore, it can be inferred that the measurement model, or outer model, is deemed legitimate as it satisfies the convergent and discriminant validity criteria.

Table 4. Discriminant Validity

	Social Skill	Technology-Based Learning Model
Social Skill	0.822	
Technology-Based Learning Model	0.923	0.896

Structural model testing is conducted after assessing the validity and reliability of the measurement model. This evaluation employs bootstrapping techniques and path coefficients in the SmartPLS application, which serves as a means to examine the association between latent constructs. This test is conducted once the validity and reliability test results are deemed satisfactory or valid. This test aims to evaluate the hypothesis and examine the correlation between variables. The assessment of the structural model (inner model) in SmartPLS is evident in Table 5, based on the R-square value displayed.

Table 5. R-Square Value

Constructs	*R-Square*	*R-Square Adjusted*
Social Skill	0.834	0.833

According to the provided table, the R-square value for social skills is 0.834, indicating that the independent variable, technology-based learning, influences 83.4% of social skills. Testing this hypothesis involves utilizing path coefficients in structural model testing, employing menu steps, bootstrapping, and analyzing the findings by examining the original sample (β), T-statistics, and P-values. If the result is less than 5, it can be inferred that there is no correlation or impact between the variables (Dul et al., 2020). The test results are displayed in Table 6.

Table 6. Hypothesis Testing Result

	Original Sample (β)	T-statistics	P-values
Technology-Based Learning Model ⟶ Social Skill	0.913	123.189	0.000

The hypothesis results indicate a favourable impact of technology-based learning methods on social skills. The results of hypothesis testing conducted on the SmartPLS version 4 programme indicate that the adjustments have a statistically significant and favourable impact on social skills. This is demonstrated by the initial sample value of 0.913 in a positive direction, followed by a T-statistics value of 123,189 and P-values of 0.000 or less than 0.001. Consequently, the use of technology in the learning model at the Boarding School has a notable and favourable impact on students' social skills. Thus, it can be inferred that this hypothesis is substantiated.

The results of the research that have been analyzed can be concluded that the instrument used in the validity test shows a very high value above the standard, namely 0.7, meaning it is suitable for use. Apart from the validity test, the reliability value in this finding is appropriate because it shows a value above 5. The reliability test value measures the stability of an instrument (Govindasamy et al., 2024). The results of hypothesis testing using the smart PLS application show the positive impact of technology-based learning at boarding schools on students' social skills. This can be seen from the findings presented in Table 6; hypothesis testing shows a coefficient value of 0.913, which indicates the positive influence of technology-based learning at boarding schools on students' social skills. The T-statistic value is 123.189, and the P-value is 0.000, less than 0.05. This means that technology-based learning significantly impacts the social skills of students at Islamic boarding schools. Social skills in everyday life are critical to preparing for the future because students are expected to make significant contributions to society. Therefore, it is essential to create appropriate social learning opportunities. Technology-based learning does not limit interactions between students and other people. The learning process must be interactive, challenging, motivating and provide a broader space for students (Kuntadi & Hidayat, 2022). Although boarding schools are sometimes considered to use traditional methods and limit students from interacting with technological advances, the fact is that now many boarding schools are taking advantage of the sophisticated technology available.

Technology-based education can significantly impact students' social talents, especially regarding online social interactions. In this scenario, students can engage, communicate, collaborate, and exchange information with their peers using online learning platforms or educational social media. Apart from that, students are also adept at adapting to current technological advances. Students are also required to increase their creativity and articulate their thoughts effectively. The principle of learning using the internet or various online platforms allows teachers and students to learn anywhere, interact with anyone, and at any time, giving students the freedom to learn (Kardi et al., 2023). In several boarding schools that were the object of research, it was found that the

use of learning through online media and using hardware such as laptops, cellphones and the like, which means that it has been proven that several boarding schools have implemented technology-based learning.

In an age of rapid technological progress, it is very important to have an education system that can adapt to changing times by effectively incorporating technology and overcoming social and other obstacles (Latipah et al., 2023). Based on a review of research findings, it can be concluded that there is a significant presence of technology-based educational institutions in Yogyakarta. Some schools have implemented special programs that allow students to access educational content, complete activities, and take exams online. Despite the online format, students cannot engage in interactive and creative activities. Apart from that, children attending Boarding School are free to form friendships and have social interactions with peers, teachers and dormitory caregivers.

CONCLUSION

This research investigates the impact of learning processes that utilize technology in improving students' social skills at boarding schools. The test results show a positive impact of technology-based learning on students' social skills. Developing social skills is essential for life in the future because, in the end, students will be directly faced with various problems, interact with the broader community, and face increasingly developing technological sophistication. Students who are actively involved in the learning process by utilizing technology can collaborate online, have a broad reach, obtain various information, and have the opportunity to perfect their social skills even at boarding school. The research results also show that many students who already understand how to use online media in learning and can interact well do not become left behind and anti-social individuals. Apart from improving academic achievement because they can study widely and get various lessons and online media, students can also learn how to manage emotions, solve problems, behave positively socially, learn cultural backgrounds through online media and so on. In summary, the use of technology in the educational curriculum in boarding schools presents fresh prospects for developing high-quality social skills. Through the judicious use of technology, educational institutions can create engaging and dynamic learning environments that encourage the development of social skills, thereby equipping students to navigate the demands of society effectively in the future.

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