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The role of social media as technological tools in Japanese education: a quantitative perspective

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Abstract

Technology has facilitated the implementation of innovative teaching methods and has enabled educators to use interactive resources that enrich the learning process. This study aims to analyze and understand how social media is used in Japanese classrooms, evaluating its impact on teaching methods, student-teacher interaction, and academic performance, as well as identifying the opportunities and challenges that these digital tools present in the Japanese educational context. A quantitative approach was applied for this research, allowing for the measurement of the impact of social media use, thereby identifying the opportunities presented by these technological tools. The interpretation of the data provided suggests that there is significant diversity in the social media platforms that Japanese students regularly access, with 75% of students using these platforms to send and receive messages, such as chat platforms (26.9%) and Facebook (11.5%).

Keywords: Education; Japan; Social Networks; Technology

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1. Introduction

Technological education has become a key element in the modernization of education systems worldwide, and Japan is no exception. As a global leader in technological innovation, the country has significantly integrated digital tools into its educational framework, aiming to enhance learning quality and prepare students for an increasingly digitalized world (Tooka et al., 2024). The implementation of technological tools in Japanese classrooms offers numerous benefits, such as access to up-to-date educational resources, personalized learning, and facilitation of student collaboration (Johnson and Christensen, 2017).

However, personalized education through digital platforms allows students to define their goals, take self-selected content, manage relevant data, and present results tailored to their academic preferences (Horita and Nagahama, 2023). This essay explores the effects of technology on the education of Japanese students, analyzing both its benefits and challenges, and evaluating the overall impact on the educational process. The integration of technology in Japanese education has significantly transformed student learning, providing substantial benefits in terms of accessibility, personalized learning, and collaboration. However, it also presents challenges that must be carefully managed to avoid negative effects on students' cognitive and academic development. As technology continues to evolve, it is crucial that educational policies and teaching practices adapt in ways that maximize benefits and minimize risks.

1.1. Literature review

1.1.1. Benefits of technological education

Collaborative learning has also been enhanced by technology. Platforms such as Google Classroom and Microsoft Teams allow students to work on group projects more efficiently, even outside school hours. These tools not only improve communication and collaboration among students but also prepare young people for the modern work environment, where technology and remote collaboration are fundamental (Creswell, 2014). Although technological education in Japan offers many advantages, it also encounters significant obstacles. A key concern is the digital divide: while Japan is known for its technological advancement, access to devices and reliable internet is not equal for all students. This gap can result in unequal academic outcomes and restrict learning opportunities for certain groups (Onyefulu and Roofe, 2019). Nevertheless, the use of mobile technology in education has the potential to reduce teacher absenteeism, increase their teaching effectiveness, and improve students' academic performance (Fukukawa, 2020). This suggests that mobile tools can facilitate communication, task management, and access to educational resources, benefiting both teachers and students.

1.1.2. The overall impact of technology on Japanese education

Despite these challenges, the overall impact of technology on Japanese education has been positive. Technology has facilitated the implementation of innovative teaching methods and enabled educators to use interactive resources that enrich the learning process. Additionally, it has prepared students for a future where digital literacy is essential. Government initiatives have played a crucial role in this process. Programs such as the

"GIGA School Program" by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) have aimed to equip all schools with digital devices and high-speed internet connections, with the goal of closing the digital divide and ensuring that all students have access to the same educational opportunities (MEXT, 2020). In other words, to effectively respond to the constant changes in society, it is crucial to acquire knowledge about new technologies and develop teamwork skills (Ito-Morales, 2019). These competencies allow individuals to adapt quickly to new circumstances and collaborate efficiently with others to address emerging challenges.

1.1.3. General objective

This study is exploratory and descriptive in nature and aims to understand how social media is used in Japanese classrooms. It seeks to observe and describe how these digital platforms influence teaching methods, student-teacher interaction, and academic performance, without establishing causal relationships. Additionally, the study aims to identify the opportunities and challenges that social media presents within the Japanese educational context, providing a general overview of its integration into both school and university settings.

1.1.4. Research question

How do social media influence teaching methods, student-teacher interaction, and academic performance in Japanese classrooms, and what are the opportunities and challenges associated with their use in the Japanese educational context?

2. Methodology

A quantitative approach was applied for this research, which allows for measuring the impact of social media use, thereby identifying the opportunities these technological tools present. In the context of education, the quantitative method can be used to evaluate the impact of educational interventions, measure academic performance, analyze student behavior, and examine the effectiveness of different teaching methods, among other aspects (Johnson and Christensen, 2017). A non-probabilistic convenience sampling method was used. This approach is characterized by the intentional selection of individuals who meet the characteristics of interest to the researcher, thus ensuring an adequate representation of the population (Hernández and Carpio, 2019).

Specifically, a sample of 52 students was obtained. To collect the information, a survey was used; this technique employs standardized questionnaires to obtain data from individuals or groups on various topics such as attitudes, beliefs, opinions, consumption patterns, habits, prevalent biases, and voting intentions, among others (Katz et al., 2019). The research was also conducted with higher education students from the University of Tokyo. The survey was administered through Google Forms, which allowed for the collection of primary data.

2.1. Ethical considerations

It is important to emphasize that all collected information was handled confidentially and used exclusively for research purposes, thereby ensuring the integrity and privacy of the data.

2.1.1. Limitations section

The sample size of this study, consisting of 52 students, is justified by the objectives, given the homogeneity of the population and the available resources. The results obtained provide a solid basis for future studies with larger samples and more in-depth analyses. Although the study shows a link between social media use and student performance, it cannot be said that there is a direct cause and effect (Loo, 2019). This distinction is crucial to interpret the results appropriately and to guide future research that seeks to better understand this dynamic.

3. Results and discussion

This study examines the findings from research focused on the use of social media among students and teachers in the Japanese educational context. Through surveys and data analysis, the social interaction dynamics facilitated by social media within Japanese classrooms were explored. The findings reveal significant trends regarding the frequency and nature of communication through digital platforms, as well as perceptions of their impact on teaching and learning. The complete results of this investigation are presented below, providing a comprehensive perspective on how social media influences social interaction within Japan's educational sphere.

The interpretation of the provided data suggests a significant diversity in the social media platforms regularly accessed by Japanese students. The figures indicate that Facebook is the least used social network, with 51.9% of students connected to it. On the other hand, Twitter is the most popular platform, with 63.5% of students connected. This figure suggests that Twitter is not only a widely used communication tool among Japanese students, but also serves multiple purposes in their university life. First, it is used as a space for academic discussion, where students can share articles, reflections, educational resources, and participate in debates related to their fields of study.

Second, Twitter facilitates the coordination of group activities by allowing fast, real-time communication for organizing projects, collaborative assignments, and student events. Finally, its use for entertainment is also significant, as it provides a channel for following personal interests, humor, cultural trends, and news, which contributes to students' well-being and social interaction.

This multifunctionality makes Twitter a key platform in the digital environment of Japanese university students. Other popular services include YouTube, with 75% of students connected, and Instagram, with 42.3%. TikTok and LinkedIn have lower usage rates, with 9.6% and 17.3%, respectively (Figure 1). Additionally, it is observed that a considerable percentage of students use other unspecified social networks, indicating a variety of preferences and usage habits among the Japanese student population.

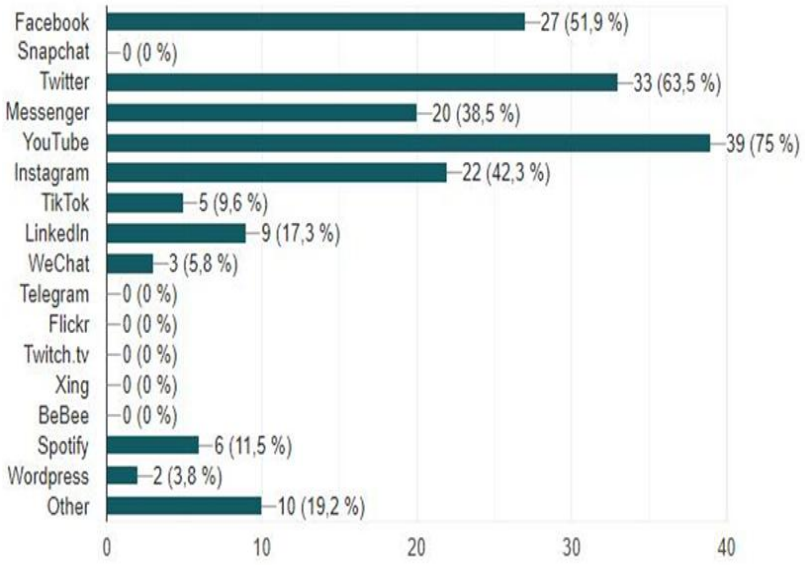


Figure 1. What social networks do you connect to constantly? (Source: Recreated by the author based on the information consulted)

In this way, the interpretation of these data suggests that the vast majority of Japanese students use social media regularly in their academic activities. Specifically, 78.8% of respondents indicated that they use social media every day for this purpose, suggesting a significant integration of these platforms into their study routines and schoolwork. Additionally, 19.2% of respondents indicated that they use social media for academic activities on some days, which still reflects frequent use of these tools for educational purposes (Figure 2). This high level of daily and occasional participation in using social media for academic activities highlights the importance of these platforms in the educational environment of Japanese students.

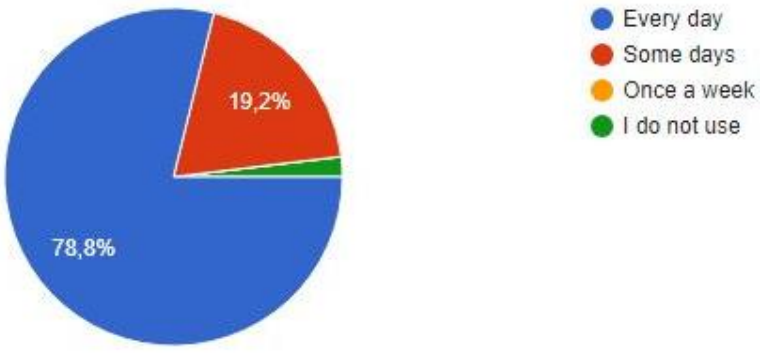


Figure 2. How often do you use social networks? (Source: Recreated by the author based on the information consulted)

Japanese students use social media in various ways for their academic activities. The majority, 75%, use them to send and receive messages, suggesting that these platforms are widely used as communication tools to discuss study-related topics and share relevant information. Additionally, 42.3% use them to exchange multimedia, indicating that social media are also used to share visual and audiovisual resources related to learning.

A significant percentage of students, 28.8%, use social media to submit assignments and schoolwork, suggesting that these platforms are also used as means to present and deliver academic tasks. Furthermore, 17.3% participate in debates through social media, indicating that these platforms are also used to actively discuss and debate academic topics. Besides their academic use, social media also serve as entertainment and leisure tools for many Japanese students. 51.9% use them to exchange information and knowledge, suggesting that social media are used as sources of information and informal learning. Finally, 65.4% use them for fun and leisure, indicating that a significant portion of the time Japanese students spend on social media is dedicated to entertainment and non-study-related activities (Figure 3).

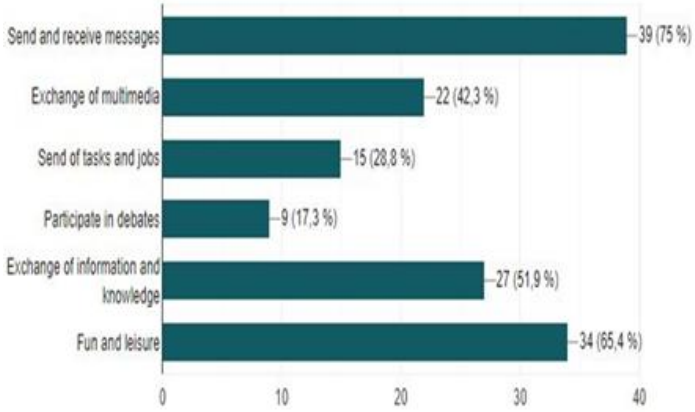


Figure 3. How useful is it for social networks? (Source: Recreated by the author based on the information consulted)

There is a wide variability in the time Japanese students spend on social media. A considerable percentage, 50%, spend between 2 and 3 hours daily on these platforms, suggesting prolonged and frequent use. Additionally, 26.9% of respondents indicated they spend less than an hour on social media each day, reflecting a more moderate or limited use of these platforms. However, it is also important to highlight that 15.4% of students reported spending 4 to 5 hours daily on social media (Figure 4). This group represents a minority, but it still indicates that a significant number of students dedicate a considerable amount of time to these platforms every day. This distribution in connection time suggests that the use of social media among Japanese students can vary widely, from sporadic to more intensive and prolonged use.

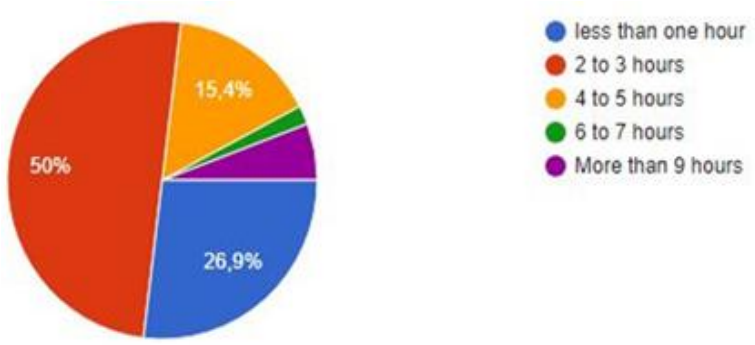


Figure 4. How long do you connect to these social networks? (Source: Recreated by the author based on the information consulted)

Similarly, the question was asked, "What technological medium do you use to communicate with your professors?" Email is the most commonly used technological medium among Japanese students for communicating with their professors, with an overwhelming 98.1% of respondents using it. This indicates that email remains a widely adopted communication tool in the Japanese educational context, as it provides a formal and direct way to communicate with professors. In addition to email, a significant portion of students, 26.9%, use chat to communicate with their professors, suggesting that instant messaging platforms also play an important role in student-professor communication. A smaller percentage of students use other platforms, such as blogs (1.9%), Facebook (11.5%), and other types of technological media (28.8%), indicating a variety of preferences and communication practices among the Japanese student population (Figure 5).

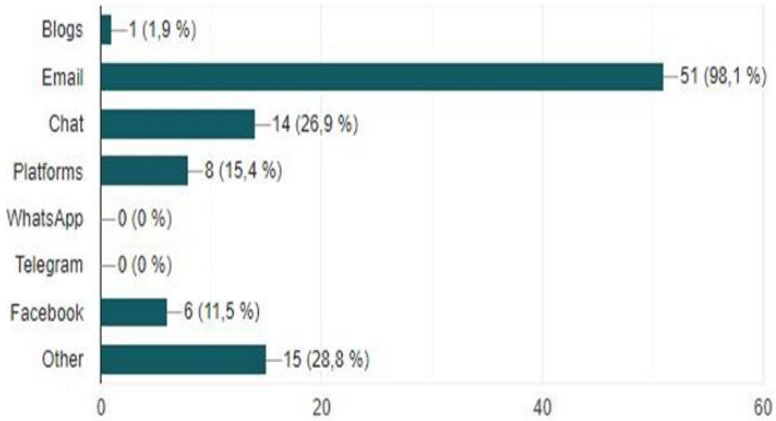


Figure 5. What is the technological means you use to communicate with your teachers? (Source: Recreated by the author based on the information consulted)

It is worth mentioning that the vast majority of Japanese students perceive that social media has influenced their academic education in some way. Specifically, 88.5% of respondents answered affirmatively, suggesting

that most students recognize the impact that social media has on their educational experience. This could imply that social media plays a significant role in how students access information, communicate with peers and professors, and engage in learning-related activities. On the other hand, only 11.5% of students indicated that they do not believe social media has influenced their academic education. This minority might have different opinions about the role of social media in their educational experience, such as viewing it as a distraction or not considering it relevant to their learning. Overall, these results suggest that social media has a widespread impact on the academic education of Japanese students, although the nature and extent of this influence may vary among individuals.

4. Findings

Once the results were defined, the research question posed in this study could be addressed: How do social media influence teaching methods, student-teacher interaction, and academic performance in Japanese classrooms, and what are the opportunities and challenges associated with their use in the Japanese educational context? The main findings are outlined below:

4.1. Influence on teaching methods:

75% of students use these platforms to send and receive messages, indicating widespread adoption of social media as tools for academic communication. Additionally, 42.3% of students use them to exchange multimedia, allowing educators to incorporate videos, images, and other visual resources into their lessons, thus enriching the teaching and learning process (Figure 6).

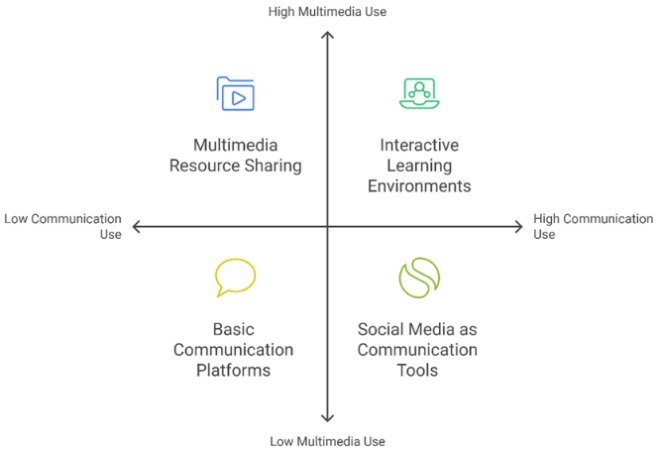


Figure 6. Social media utilization in education (Source: Recreated by the author based on the information consulted)

4.1.1. Student-teacher interaction:

Email remains the primary communication tool between students and teachers, with 98.1% of students using it regularly. However, there is also significant use of chat platforms (26.9%) and social networks like Facebook

(11.5%) for this communication. This suggests that while email provides a formal communication channel, social media and instant messaging applications enable faster and more direct interactions, promoting greater accessibility and support between teachers and students (Figure 7).

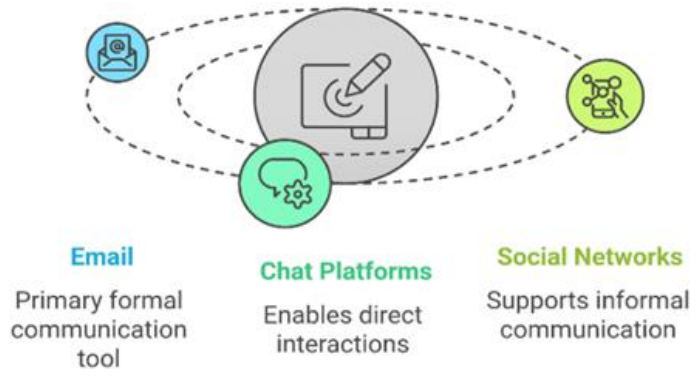


Figure 7. Communication channels in education (Source: Recreated by the author based on the information consulted)

4.1.2. Academic performance:

The majority of students (78.8%) use social media daily for academic activities, suggesting that these platforms are integrated into their study routines. Additionally, 88.5% of students perceive that social media has had a positive influence on their academic development. These results were obtained through a closed-ended survey administered to a sample of 50 students using convenience sampling. The survey was designed to assess both the frequency of social media use for academic purposes and students' perceptions of its impact on learning. This may imply that such platforms facilitate access to information, collaboration on projects, and participation in academic discussions, potentially contributing to improved academic performance (Figure 8).

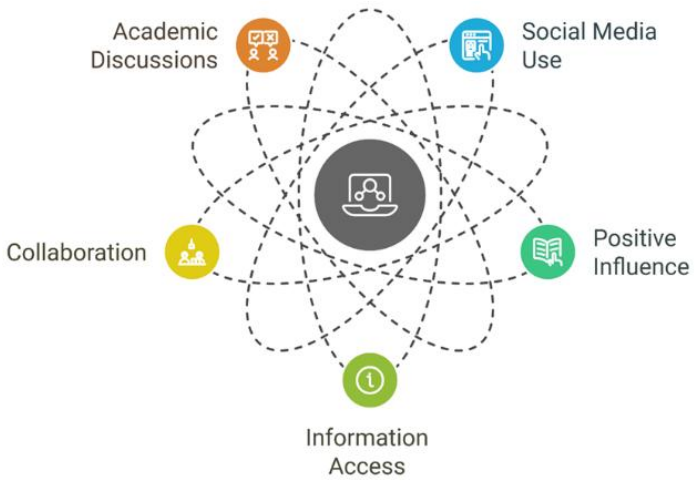


Figure 8. Social media's role in academic performance (Source: Recreated by the author based on the information consulted)

The integration of technology in education has the potential to significantly transform the learning process by offering benefits such as increased student engagement, personalized learning experiences, and expanded access to information (Sam, 2024). However, its implementation also presents several challenges. To fully understand these complexities, it is essential to examine the various issues that arise when applying educational technology, taking into account the perspectives of different researchers.

5. Conclusion

The purpose of the research was to understand the influence of social media on teaching practices, student-teacher communication, and academic outcomes in Japanese classrooms, as well as to explore the opportunities and challenges these tools present in the country's educational framework. The results are consistent with this objective, demonstrating that social media is now an integral and impactful part of students' academic lives. It facilitates effective communication, provides access to educational materials, and encourages collaborative work, thus enriching the learning experience. However, the study also identifies potential drawbacks, such as increased distractions and a decline in essential academic skills, underscoring the importance of integrating these platforms responsibly. The evidence suggests that while social media offers valuable insights for educational engagement and innovation, its benefits will only be maximized through careful planning, well-prepared educators, and institutional support. As Japan continues to embrace digital transformation, the evolution of its education system will depend largely on leveraging digital tools such as social media to improve educational quality and equity.

Future research

Differences in educational environments represent a limitation that should be addressed in future research. By incorporating a more diverse sample and controlling for contextual variables, a more comprehensive and accurate understanding of how social media use affects academic performance in different settings can be achieved. This would not only enrich the findings but also enable the design of more effective interventions tailored to the specific needs of each educational environment.

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