Multidisciplinary Output Research For Actual and International Issue (MORFAI Journal) ISSN (e): 2808-6635
Volumes 5 No. 2 (2025)

# THE INFLUENCE OF HIGH SCHOOL STUDENTS' COMMUNICATION WHILE USING ARTIFICIAL INTELLIGENCE ON INDEPENDENT LEARNING PROCESSES IN BANJARBARU CITY, SOUTH KALIMANTAN (A CASE STUDY ON THE USE OF CANVA AND CHATGPT)

**Mardiana[1], Muzahid Akbar Hayat[2], Ahmad Riduan[3]**
Universitas Islam Kalimantan Muhammad Arsyad Al Banjari, Banjarmasin
E-mail: hj.mardiana27@gmail.com[1], m.akbarhayat@gmail.com[2], rindurinfu@gmail.com[3]

| | | | |
|---|---|---|---|
| Received | : 29 June 2025 | Published | : 09 August 2025 |
| Revised | : 11 July 2025 | DOI | : https://doi.org/10.54443/morfai.v5i2.3714 |
| Accepted | : 31 July 2025 | Link Publish | : https://radjapublika.com/index.php/MORFAI/article/view/3714 |

**Abstract**

The development of Artificial Intelligence (AI) technology has had a significant impact on the field of education, particularly in supporting students' independent learning processes. In this digital era, Senior High School students in Banjarbaru City have begun to utilize AI-based tools, such as ChatGPT and Canva, to assist them in completing assignments and understanding material more efficiently and flexibly. In using AI, students' communication skills play a crucial role in determining the effectiveness of their interactions with the technology, especially in delivering accurate commands or prompts. This research employed a quantitative approach with a correlational method to examine the influence of students' communication when using AI on their independent learning processes. The data were analyzed using simple linear regression with hypothesis testing (t-test), supported by SPSS version 26. Findings revealed that the t-count was 9.455, with a regression coefficient (β) of 0.221 and a significance level (ρ) of 0.00. These results indicate that the independent learning process variable had a significance value of 0.00 < 0.05, meaning that the independent variable (students' communication using AI) significantly influenced the dependent variable (independent learning process). The communication variable showed a moderate significant influence of 19.5% on the independent learning process of Senior High School students in Banjarbaru City, as indicated by the R Square value of 0.195. The remaining 80.5% is influenced by other variables not included in this study. Overall, the hypothesis testing confirmed that students' communication when using AI has a moderate significant effect on their independent learning process.

**Keywords:** ***Communication, Artificial Intelligence, Independent Learning Process.***

## INTRODUCTION

In today's era, technology is developing so rapidly that it is widely used to assist with work and solve human life problems, especially in the field of education. One technological development that is significantly influencing this is artificial intelligence (AI). AI is machine intelligence or software for developing intelligent machines. In education, AI offers a wide range of potential to improve the quality of learning. One such approach is adaptive learning, where AI can tailor teaching materials and methods to individual student needs and abilities (Budiyono et al., 2024). According to Fauziyati (2023), with tools and programs built on AI, students can utilize AI in various forms to improve their understanding, skills, and learning efficiency during independent learning, provided it is used wisely and integrated well into the learning system. This is because AI can adapt materials, methods, and learning speed based on individual needs and can be accessed anytime and anywhere, making it very easy to use. According to Ma'wa (2024), the use of AI can increase the effectiveness and efficiency of learning, motivate students to learn independently, and provide broader access to information. This is very different from conventional learning, where students must search for literature in the form of textbooks only, so the information obtained is not up to date with current developments (Alexander & Jetton, 2003). The use of AI is in line with the cognitive, social, and emotional development of high school students, how they can quickly complete assignments, communicate and interact with AI, and understand the importance of AI to ensure that they can succeed in independent learning (Setiawi et al., 2024). This was also stated by Rabiul, Arya, and Zakariyya (2023) that the application of AI also raises a number of challenges and ethical concerns, such as algorithm bias, data privacy and security, and technological dependency, if

not done wisely. Communication in learning is a crucial aspect to consider (Morreale et al., 2017). This is due to the importance of selecting communication methods in the learning process to ensure effective and efficient learning (Miftah, 2013). According to Astiti and Raharja (2023), the communication process in education involves human elements, educational materials, tools, methods and techniques, and the environment. Good communication is key to successful learning. Lukman, Agustina, and Aisy (2023) state that the use of AI without balanced skills development can result in shallow understanding. Students require learning that fosters mental, moral, and spiritual development, as well as social relationships, which programs like AI lack (Oktavian et al., 2024). AI can only provide students with a favorable learning context, but it will not shape their character (Grassini, 2023). AI only allows students to adapt to their personal needs during their learning (Rane et al., 2023). Therefore, research into the influence of student communication when using AI on the independent learning process of students in public high schools in Banjarbaru City is crucial. This study is expected to provide a comprehensive overview of the benefits and challenges of implementing AI in learning, as well as provide recommendations for technological developments in the digital era.

## LITERATURE REVIEW

### Artificial Intelligence (AI)

Artificial intelligence (AI) is a branch of computer science that enables machines (computers) to perform tasks similar to and as well as humans. Initially, computers were primarily used as calculating tools. However, over time, computers have increasingly dominated human life. Computers are no longer used solely as calculating tools; more than that, they are expected to be empowered to perform everything humans can. (Lukman et al., 2023)

### Communication

Communication, as a science that studies human behavior in communicating, can be described in various models. Communication models are created to help us understand communication and specify the forms of communication in human relationships. In its early days, communication science was heavily influenced by the disciplines of sociology, psychology, linguistics, mathematics, and physics. These disciplines have given rise to various communication models, one of which is relevant to this research, the human-computer interaction model (Fridayani, 2021).

### Independent Learning

Independent learning is a student's readiness to engage in independent learning, which is one way to improve skills in the learning process, which is essential for achieving good and optimal learning outcomes. Students are expected to experience behavioral changes in cognitive (knowledge), affective (attitude), and psychomotor (skills) aspects. Independent learning skills play a role in shaping students' lifelong learning abilities. In independent learning, the term self-directed learning is known, which is a person's readiness or willingness to learn independently, which consists of an attitude component that takes the initiative to learn with or without the help of others who can formulate learning objectives, identify learning resources, choose and implement appropriate learning strategies and evaluate learning objectives (Irfan et al., 2019).

## METHOD

To determine the results of a specific research problem, a methodology is required. This study uses quantitative research with a correlational approach (Curtis et al., 2016). The researchers used questionnaires and in-depth interviews related to the research being conducted. Quantitative research is a research method that emphasizes the analysis of numerical data (numbers) which is then analyzed using appropriate statistical methods (Sugiyono, 2016). This research focuses more on design, measurement, and planning issues, which are clearly detailed before sample collection and data analysis (Sutinah, 2007). The aim of this approach is to determine the relationship or influence between two variables, namely student communication (variable X) and independent learning success (variable Y). Data was collected in this study through interviews. Interviews with 10 informants were conducted openly, informally, and flexibly, depending on the participants' circumstances (Kumar, 1989). The purpose of these interviews was to obtain initial information about the research objectives (Rashidi et al., 2014). Therefore, the main focus of this study was to determine the effect of using AI as a communication system for independent learning among students at the public high school level in Banjarbaru City. Meanwhile, the research method used was a survey, where researchers distributed questionnaires to collect data (Young, 2015). The goal of this type of research is to establish the existence and strength of a quantitative relationship between two or more variables (Mohajan,

2020). This research was conducted between December 2024 and May 2025. The research was conducted at several public senior high schools (SMA) in Banjarbaru City, consisting of several locations:

1) State Senior High School 1 Banjarbaru: Street Keruing No. 3, RT. 3, RW. 1, Kemuning, Banjarbaru City
2) State Senior High School 2 Banjarbaru: Street Perhutani Mentaos, Mentaos, Banjarbaru City
3) State Senior High School 3 Banjarbaru: Street Banua Praja Utara, Cempaka, Banjarbaru City
4) State Senior High School 4 Banjarbaru: Street A. Yani, KM 21,600 Liang Anggang, Banjarbaru City
5) State Senior High School 5 Banjarbaru: Street Guntung Harapan, RT. 34, RW. 05, Landasan Ulin, Banjarbaru City

The researchers used documentation, interviews, and questionnaires to collect data. These techniques are common in quantitative research, with questionnaires distributed to 367 public high school students in Banjarbaru City. Research is the act of measuring something. Therefore, it requires a good tool to obtain good results. Sugiyono explained that quantitative research instruments can include tests, interviews, questionnaires, or surveys. A questionnaire with a Likert scale was used to collect data for this study. Before the questionnaire instrument was used in collecting the main data, the researcher conducted a trial first to test the validity and reliability of the statement items that had been prepared. This study used correlation and regression analysis techniques in data processing. Correlation is a statistical relationship that indicates the extent to which one variable is related to another (Arikunto, 2013).

Regression analysis is the analysis of a linear equation obtained from statistical calculations, commonly referred to as a model, to determine how differences in one variable affect another variable (Bungin, 2014). A normality test is also performed to determine whether the collected data follows a normal distribution. If the significance value (sig) is greater than 0.05, the data is said to be regularly distributed; this is the premise used in the normality test. On the other hand, data is considered non-normally distributed if the sig value is less than 0.05. After the normality test, a linearity test is performed to ensure that the variables are related to each other. According to Ghozali (2009), heteroscedasticity is a condition where the residuals do not have the same variance (homogeneous) at each level of the predictor variable. In regression analysis, one of the important assumptions that must be met is the presence of homoscedasticity, namely a condition where the residuals are spread evenly and randomly across the range of predictor values.

## RESULTS AND DISCUSSION

### Overview of the Research Site

Banjarbaru City is a city in South Kalimantan Province, Indonesia. Previously known as an administrative city, Banjarbaru was a division of Banjar Regency. Much earlier, most of its territory was part of the Ulin District within Banjar Regency. Banjarbaru City was established on April 20, 1999, based on Law Number 9 of 1999 (Khairunnisa & Rosalena, 2019). Banjarbaru City has an area of 371.38 km² (37,130 ha), or 3.8 times the size of Banjarmasin or half the size of Jakarta. The current Banjarbaru area was once a hilly area on the outskirts of Martapura City known as Mount Apam. The Mount Apam area was known as a resting place for diamond miners after mining in Cempaka (Supriatna et al., 2022).


Figure 1. Banjarbaru City

### Research Results

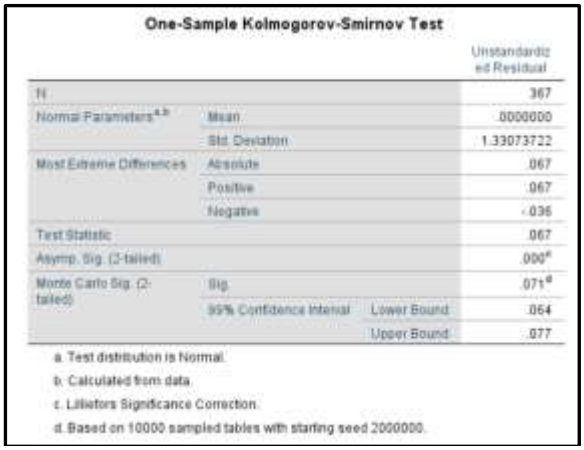
In this study, the researcher determined that there were 10 informants who would be determined according to the research criteria, such as students in five public high schools in Banjarbaru City who had used AI as a tool for

communicating and digging up information in completing school assignments. These informants are part of the characteristics possessed by the population, because the research analysis was determined based on the data contained in the sample, so it is necessary to determine a sample that is representative of the population. In this study, the sample was taken from the population using purposive sampling. Purposive sampling is a data collection technique based on specific considerations (Sugiyono, 2016). The reason for using this purposive sampling technique is because it is suitable for use in qualitative research, or research that does not generalize, according to Sugiyono (2011).

Tabel 1. Research Informant Criteria

| No | Informant | Status | Class |
|---|---|---|---|
| 1. | Nadya Melka Sari | Student SMAN 1 Bjb | X |
| 2. | Muhammad Ananda Rizky Pangestu | Student SMAN 1 Bjb | XI |
| 3. | Maycella Cantika Wijaya | Student SMAN 2 Bjb | X |
| 4. | I Ketut Raditya Wiguna Darma | Student SMAN 2 Bjb | X |
| 5. | Muhammad Rafiqi Al-farabi | Student SMAN 3 Bjb | XI |
| 6. | Muhammad Aldianor | Student SMAN 3 Bjb | XI |
| 7. | Ardita Maharani | Student SMAN 4 Bjb | XI |
| 8. | Rama Putra Pamungkas | Student SMAN 4 Bjb | XI |
| 9. | Shinta Yuniarti | Student SMAN 5 Bjb | X |
| 10 | Nur Hafizhah S | Student SMAN 5 Bjb | X |

The results of the normality test using the standardized residuals using the Monte Carlo approach obtained a significance value of 0.071, which is higher than the 5% significance level (p>0.05). This indicates that the residual values produce normally distributed data (Bandalos & Leite, 2006).

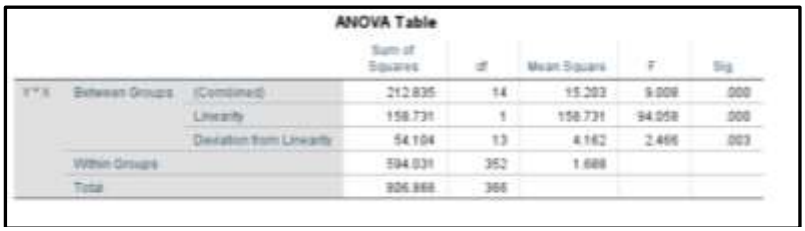


**One-Sample Kolmogorov-Smirnov Test**

| | | | Unstandardized Residual |
|---|---|---|---|
| N | | | 367 |
| Normal Parameters[a,b] | Mean | | .0000000 |
| | Std. Deviation | | 1.33073722 |
| Most Extreme Differences | Absolute | | .067 |
| | Positive | | .067 |
| | Negative | | -.036 |
| Test Statistic | | | .067 |
| Asymp. Sig. (2-tailed) | | | .000[c] |
| Monte Carlo Sig. (2-tailed) | Sig. | | .071[d] |
| | 99% Confidence Interval | Lower Bound | .064 |
| | | Upper Bound | .077 |

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. Based on 10000 sampled tables with starting seed 2000000.

Figure 2. Normality Test



**ANOVA Table**

| | | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| Y * X | Between Groups | (Combined) | 212.835 | 14 | 15.203 | 9.009 | .000 |
| | | Linearity | 158.731 | 1 | 158.731 | 94.058 | .000 |
| | | Deviation from Linearity | 54.104 | 13 | 4.162 | 2.466 | .003 |
| | Within Groups | | 594.031 | 352 | 1.688 | | |
| | Total | | 806.866 | 366 | | | |

Figure 3. Linearity Test

Based on the data presented above, we can see that there is a significant relationship between variables X and Y. We can say it is linear because the significance level is clearly higher than 0.05 (Cochran, 1951).

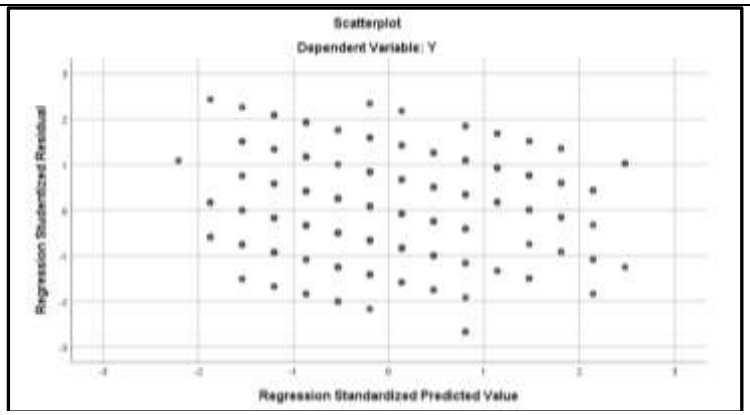



Figure 4. Scatterplot Graph

The scatterplot graph shows that the points are randomly distributed, both above and below zero on the Y-axis. This indicates that there is no heterojunction in this regression model (Boland et al., 2025). Besides observing the scatterplot graph, heterojunction can also be tested using the Glejser test. The Glejser test regresses the absolute value of the residual against the independent variable. The following are the results of the Glejser test:

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 1.197 | .430 | | 2.780 | .006 |
| | X | -.003 | .013 | -.012 | -.232 | .817 |

a. Dependent Variable: res_abs

Figure 5. Glejser Test

Based on the image below which is the result of the calculation of processed data in SPSS 26 in the correlation test between the independent variable of Student Communication when using artificial intelligence (X) with the dependent variable of the independent learning process (Y), it can be seen from the table above that the correlation value is 0.444 with a significance value of 0.000 where the value is smaller than 0.05. Based on the product Moment correlation table, the correlation value of 0.4 - 0.599 means that the level of relationship between the independent variable (Y) and the dependent variable (X) is a moderate level of relationship (Ezemerihe & Ume, 2018).

**Correlations**

| | | Y | X |
|---|---|---|---|
| Pearson Correlation | Y | 1.000 | .444 |
| | X | .444 | 1.000 |
| Sig. (1-tailed) | Y | . | .000 |
| | X | .000 | . |
| N | Y | 367 | 367 |
| | X | 367 | 367 |

Figure 6. Correlation Test

Based on the figure below, the results of the simple linear regression test are as follows:
$Y = a + bX$
$Y = 5.830 + 0.221X$
This equation can be translated as:

1. Constant (a = 5.830)
   If a student's communication score (X) is 0 or non-existent, then the independent learning success score (Y) is estimated to be 5.830 units. This means that even without communication, there are still underlying values

or other factors that contribute to independent learning success.

2. Regression coefficient (b = 0.221):
   Every 1-unit increase in a student's communication score (X) will result in a 0.221-unit increase in independent learning success (Y) linearly, assuming other variables remain constant.

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 5.830 | .764 | | 7.636 | .000 |
| | X | .221 | .023 | .444 | 9.455 | .000 |

a. Dependent Variable: Y

Figure 7. Regression Test

Based on the following figure, the results of the SPSS Version 26 calculation are obtained so that it can be seen that the R Square (R2) value in the determination coefficient test is 0.195 = 19.5%. This shows that the independent variable (X), namely student communication when using artificial intelligence, has an impact on the dependent variable (Y), namely the self-learning process, while 80.5% is the influence of other factors outside of those studied in the study (Amira Roumaissa BOUDJEDRA, 2024).

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | R Square Change |
|---|---|---|---|---|---|
| 1 | .444[a] | .197 | .195 | 1.333 | .197 |

a. Predictors: (Constant), X
b. Dependent Variable: Y

Figure 8. Determination Coefficient Test

Based on the following figure, the results of the SPSS version 26 calculation show that the calculated t is 9.455 and the t table value at a probability of 0.05 (df = 365) is 1.967. Because the calculated t > t table (9.455 > 1.967) and the significance value Sig. = 0.000 < 0.05, then H0 is rejected and H1 is accepted. This means that there is a statistically significant influence between student communication when using artificial intelligence and the independent learning process.

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | 5.830 | .764 | | 7.636 | .000 |
| | X | .221 | .023 | .444 | 9.455 | .000 |

a. Dependent Variable: Y

Figure 9. T Test

**Discussion**

1. Types of Communication Used by Students in Independent Learning with AI

Data from questionnaires indicate that AI (ChatGPT) positively contributes to students' academic communication skills, reflected in verbal, visual, and expressive communication. Students demonstrate strong verbal communication by understanding and re-expressing AI-provided information using their own words, both orally and in writing. Research supports that AI enhances listening, speaking, reading, and writing skills, particularly in language learning. Canva, as a visual communication tool, helps students present ideas clearly and attractively, aligning with studies showing positive impacts of visual media on digital literacy and independent learning. AI also supports expressive communication, building students' confidence in expressing opinions and completing tasks. Interviews reveal that clear, structured prompts enhance the relevance of AI responses, showcasing students' written communication skills.

Students also validate AI information with teachers, peers, or Google, demonstrating critical thinking and selective attitudes. Additionally, using Canva alongside ChatGPT shows that students can communicate ideas visually and creatively, emphasizing the need for digital literacy and interpersonal communication to maximize AI's role in independent learning.

2. Social Interaction Patterns When Using ChatGPT and Canva

Questionnaire results show that AI use fosters active social interaction among students, encouraging discussions and collaborations that enhance critical thinking and interpersonal communication. This aligns with connectivism, emphasizing networks and connections in digital-era learning. While AI is often used individually, there is growing willingness among students to provide peer feedback, highlighting the need for collaborative learning environments. Studies confirm that AI should complement, not replace, educators, and that technology-facilitated collaborative learning benefits communication and teamwork. Interviews indicate that students engage in two-way interactions with AI, refining prompts and verifying responses with various sources, reflecting critical awareness and confidence. Communication with AI helps students understand material independently, improves their sentence construction, and builds confidence for peer explanations and presentations using Canva. Overall, social interactions with AI involve high levels of interpersonal communication, critical thinking, and reflective learning, forming a dynamic, collaborative, and technology-integrated independent learning environment.

3. The Role of Communication in Supporting Successful Independent Learning with AI

Questionnaire results confirm that communication plays a crucial role in supporting independent learning with AI, enhancing students' confidence from understanding to presenting material. While students use ChatGPT for comprehension and presentation preparation, trust and dependency on AI remain partial due to output quality and prompt effectiveness. Research supports AI's role in delivering clear, logical information, making complex material easier to understand, while emphasizing the importance of effective prompt usage. AI also boosts students' confidence in completing tasks, but deeper digital literacy is needed to ensure students fully understand and control their learning. Interviews show that effective communication with AI involves constructing precise prompts and teachers' guidance to build confidence in exploring learning materials. Students recognize AI's benefits in summarizing, explaining, and preparing class presentations, while maintaining critical thinking and not relying solely on AI. They combine AI use with books and teacher consultations and use Canva to support creative visual presentations. Overall, communication bridges internal understanding and external expression, with AI serving as a thinking tool that encourages students to learn actively, confidently, and reflectively

## CONCLUSION

Based on the findings, students' communication in independent learning with AI has become increasingly diverse, encompassing personal, interpersonal, and visual communication developed through the use of AI tools such as ChatGPT and Canva. This indicates that the integration of AI in learning cannot be separated from students' communication skills in formulating effective prompts and in assessing and managing information. Therefore, digital literacy and interpersonal communication are essential to support the effective use of AI in independent learning. Furthermore, students' social interaction patterns when using AI demonstrate openness to collaboration, open access, and active participation, although there remains room for improvement in active involvement and providing peer feedback. AI serves as a flexible learning partner that strengthens learning networks rather than acting as the sole source of truth. Interactions with AI still require interpersonal communication skills, critical thinking, and a high level of self-reflection to ensure that independent learning processes are dynamic, collaborative, and sustainable.

Communication plays a crucial role in supporting independent learning, from understanding the material to sharing it with others. With the help of AI, communication functions not only as a speaking tool but also as a thinking tool that helps students become more active, confident, and reflective in their learning processes. Communication established with AI is not merely a technical process but part of a learning strategy that integrates technology with independent understanding, digital literacy, and personal responsibility in managing information. These findings also emphasize that communication established with AI is not merely a technical process but part of a learning strategy that integrates technology with independent comprehension, digital literacy, and personal responsibility in managing information. Therefore, AI utilization in learning requires guidance from educators to help students critically interpret and reflect on their interactions with AI, ensuring they remain active and socially connected learners while using technology to enhance their independent learning.

## REFERENCES

Alexander, P. A., & Jetton, T. L. (2003). Learning from traditional and alternative texts: New conceptualizations for the information age. In *Handbook of discourse processes* (pp. 203–245). Routledge.

Amira Roumaissa BOUDJEDRA, H. E. K. (2024). *Promoting EFL learners' Self-regulated Learning through the Use of Artificial Intelligence Applications*.

Arikunto, S. (2013). *Prosedur penelitian suatu pendekatan praktik*.

Astiti, P., & Raharja, D. M. (2023). Peran Komunikasi Dalam Pendidikan Era Digital. *Gandiwa Jurnal Komunikasi*, *3*(2), 41–48.

Bandalos, D. L., & Leite, W. (2006). The use of Monte Carlo studies in structural equation modeling research. *Structural Equation Modeling: A Second Course*, 385–426.

Boland, T. M., Gorelik, R., & Singh, A. K. (2025). Fundamental Factors Governing Stabilization of Janus 2D-Bulk Heterostructures with Machine Learning. *ArXiv Preprint ArXiv:2502.04603*.

Budiyono, S., Azhari, P., & Pamungkas, M. A. B. (2024). Problem Penggunaan AI (Artificial Intelligence) dalam Bidang Pendidikan. *Jurnal Inovasi Dan Pengabdian Kepada Masyarakat*, *3*(2), 660–669.

Bungin, B. (2014). *Metodologi Penelitian Sosial & ekonomi: Format-format kuantitatif dan Kualitatif untuk studi sosiologi, kebijakan publik, komunikasi, manajemen, dan pemasaran*.

Cochran, W. G. (1951). Testing a linear relation among variances. *Biometrics*, *7*(1), 17–32.

Curtis, E. A., Comiskey, C., & Dempsey, O. (2016). Importance and use of correlational research. *Nurse Researcher*, *23*(6).

Ezemerihe, A. N., & Ume, S. A. (2018). *Correlation Of Model And Prototype Benefits From South-Eastern River Basin Of Nigeria Using Pearson Product Moment Correlation And Regression Analysis*.

Fauziyati, K. A. (2023). Gamification of wordwall maze chase as a STEM-based learning media to improve students' creative thinking skills. *Research and Innovation in Social Science Education Journal (RISSEJ)*, *1*(1), 1–9.

Fridayani, S. (2021). Strategi Komunikasi Program KBKM 2021 dalam Upaya Pemajuan Kebudayaan oleh KEMDIKBUD-RISTEK. *RESIPROKAL: Jurnal Riset Sosiologi Progresif Aktual*, *3*(2), 150–166.

Ghozali, I. (2009). *Aplikasi Multivariabel Perogram SPSS*. Universitas Diponegoro.

Grassini, S. (2023). Shaping the future of education: Exploring the potential and consequences of AI and ChatGPT in educational settings. *Education Sciences*, *13*(7), 692.

Irfan, M., Nursiah, S., & Rahayu, A. N. (2019). Pengaruh Penggunaan Media Sosial (Medsos) Secara Positif Terhadap Motivasi Belajar Siswa SD Negeri Perumnas Kecamatan Rappocini Kota Makassar. *Publikasi Pendidikan*, *9*(3), 262. https://doi.org/10.26858/publikan.v9i3.10851

Khairunnisa, F., & Rosalena, I. R. (2019). GIS Application in Mapping of Forest and Land Fires and Mitigation in Banjarbaru City, South Kalimantan. *IOP Conference Series: Earth and Environmental Science*, *273*(1), 12049.

Kumar, K. (1989). *Conducting key informant interviews in developing countries*. Agency for International Development Washington DC.

Lukman, L., Agustina, R., & Aisy, R. (2023). Problems in the Use of Artificial Intelligence (AI) for Learning Among STIT Pemalang Students. *Madaniyah Scientific Journal*, 242–255.

Ma'wa, A., & Setiawan, D. (2024). Online disclosure of intellectual capital and the determinants: evidence from higher education in Indonesia. *Journal of Applied Research in Higher Education*.

Miftah, M. (2013). Fungsi, dan peran media pembelajaran sebagai upaya peningkatan kemampuan belajar siswa. *Kwangsan: Jurnal Teknologi Pendidikan*, *1*(2), 95–105.

Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment and People*, *9*(4), 50–79.

Morreale, S. P., Valenzano, J. M., & Bauer, J. A. (2017). Why communication education is important: A third study on the centrality of the discipline's content and pedagogy. *Communication Education*, *66*(4), 402–422.

Oktavian, R., Aldya, R. F., & Arifendi, R. F. (2024). Artificial intelligence dan pendidikan era society 5.0. *Inteligensi: Jurnal Ilmu Pendidikan*, *6*(2), 143–150.

Rane, N., Choudhary, S., & Rane, J. (2023). *Education 4.0 and 5.0: Integrating artificial intelligence (AI) for personalized and adaptive learning*. Nov.

Rashidi, M. N., Begum, R. A., Mokhtar, M., & Pereira, J. J. (2014). The conduct of structured interviews as research implementation method. *Journal of Advanced Research Design*, *1*(1), 28–34.

Setiawi, A. P., Patty, E. N. S., & Making, S. R. M. (2024). Dampak artificial intelligence dalam pembelajaran sekolah menengah atas. *Indo-MathEdu Intellectuals Journal*, *5*(1), 680–684.

Sugiyono. (2011). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. CV. Alfabeta.

Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT. Alfabet.

Supriatna, S., Hashilah, F., Mukhtar, M. K., & Wardani, K. K. (2022). Determinant of land use change in South Kalimantan: An evidence from Banjarbaru City and Banjar Regency. *Forest and Society*, *6*(1), 422–435.

Sutinah, S. (2007). Metodologi Kuantitatif Dalam Penelitian Komunikasi. *Scriptura*, *1*(2).

Young, T. J. (2015). Questionnaires and surveys. *Research Methods in Intercultural Communication: A Practical Guide*, 163–180.