|Jurnal Sinar Edukasi |JSE|Vol. 7| No. 1|May|Year 2026|
This is an Open Access article, published by Institute of Information Technology and Social Science (IITSS), Indonesia
| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

Designing the future of Pancasila education: A needs analysis for interactive Android-based digital learning materials in primary schools

NISA A'RAFIYAH TRI WULANDARI[1*], SITI AWALIYAH[2], SITI UTAMI DEWI NINGRUM[3], MUTIA KAMALIA MUKHTAR[4], RENDA YURIANANTA[5], ERNA RISNAWATI[6], MUJIONO[7], AND EKA ANALITA ELIANA[8]

Pancasila education in primary schools is central to character formation, civic literacy, and the development of the Pancasila Student Profile. However, classroom learning often remains less engaging when moral and civic values are delivered mainly through verbal explanation, textbook reading, or conventional exercises. This study aimed to identify primary school students' learning preferences, motivational needs, and openness to technology-based civic learning as an evidence-based foundation for designing GO-PANCASILA, an Android-based interactive learning application. The study used a survey-based needs analysis involving 115 students from Grades 4-6 at SDIT Ummul Quro Depok, SDN Sukoharjo 1 Malang, and SD Muhammadiyah 12 Pamulang. Data were collected through an online structured questionnaire consisting of Likert-type items and open-ended questions. The questionnaire explored students' experiences in learning respect, tolerance, and diversity; preferences for videos, books, stories, discussions, games, simulations, and websites; and interest in digital learning tools. The findings show that students strongly prefer visual, story-driven, interactive, and gamified learning experiences. Specifically, 82% of students preferred videos and digital stories to books or lectures, 78% enjoyed games or simulations, 71% liked stories and discussions about tolerance and respect, and approximately three out of four students reported higher motivation when learning involved points, badges, or ranking. These results indicate that GO-PANCASILA should prioritize multimedia stories, contextual moral dilemmas, simple game-based activities, and motivational feedback. The study concludes that Android-based interactive materials are pedagogically justified and contextually relevant for supporting meaningful, joyful, and technology-enhanced Pancasila learning in primary schools.

Keywords
Android application, digital learning material, needs analysis, Pancasila education

Article History
Received 22 February 2026
Accepted 05 May 2026

How to Cite
Wulandari, N. A.T., Awaliyah, S., Ningrum, S. U.D., Mukhtar, M. K., Yurianantа, R., Risnawati, E., Mujiono., & Eliana, E. A. (2026). Designing the future of pancasila education: A needs analysis for interactive Android-based digital learning materials in primary schools. *Jurnal Sinar Edukasi*, *7*(1), 68-76.https://doi.org/10.61346/jse.v7i01.328

[1*] Universitas Terbuka, Tangerang Selatan, Indonesia. Corresponding email: nisa.wulandari@ecampus.ut.ac.id
[2,5] Universitas Negeri Malang, Malang, Indonesia.
[3,4,6,7,8] Universitas Terbuka, Tangerang Selatan, Indonesia.

This is an Open Access article, published by Institute of Information Technology and Social Science (IITSS), Indonesia
| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

Introduction

Pancasila education at the primary level plays a strategic role in shaping character, civic literacy, and twenty-first-century competencies. In Indonesia, national policy under the Kurikulum Merdeka emphasizes the six dimensions of the Pancasila Student Profile, namely faith and noble character, independence, mutual cooperation, global diversity, critical thinking, and creativity, as cross-curricular targets, including within Pancasila Education. These dimensions are further operationalized through the Projek Penguatan Profil Pelajar Pancasila (P5), which encourages contextual and project-based learning. Consequently, Pancasila learning at the primary level should not only transmit normative values but also provide meaningful and developmentally appropriate learning experiences for children (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022; Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2025; Rachman et al., 2024).

Despite this policy direction, the implementation of Pancasila education in primary schools still faces substantial pedagogical and structural challenges. In many schools, teachers continue to rely on conventional instruction, worksheets, and verbal explanation, while opportunities for interactive, reflective, and technology-supported learning remain limited. Broader policy and research also show that the successful integration of ICT depends not only on device availability, but also on teacher competence, curriculum alignment, and institutional readiness (UNESCO, 2018; UNESCO, 2023b; Wang et al, 2023). In the Indonesian context, studies have found that classroom teachers' digital literacy remains uneven, which affects the quality of technology use in learning activities (Atmojo et al., 2023). These conditions are particularly relevant in primary-level character education, where abstract values such as respect, responsibility, cooperation, and tolerance need to be connected to learners' everyday experiences.

From a pedagogical perspective, the development of digital learning media should be grounded in robust theoretical frameworks. The TPACK framework highlights that effective learning design requires the alignment of technology, pedagogy, and content knowledge (Mishra & Koehler, 2006). In addition, Multimedia Learning theory explains that appropriately designed combinations of words, images, and audio can improve understanding more effectively than text-only instruction, provided that cognitive load is carefully managed (Mayer, 2020; Mayer & Fiorella, 2021). Motivational aspects are also crucial, especially for younger learners. The ARCS model emphasizes that educational media should attract attention, establish relevance, build confidence, and provide satisfaction in order to support sustained engagement (Keller, 2010). Together, these frameworks suggest that digital materials for Pancasila education should not merely digitize textbook content, but should present value-based learning in interactive, contextual, and age-appropriate formats.

The growing availability of mobile devices in Indonesia further supports the feasibility of mobile learning for primary schools. Android remains the dominant mobile operating system in Indonesia, making it a practical platform for broad educational access, including in semi-urban and rural settings (StatCounter, 2025). Research has also shown that mobile device integration can produce positive effects on student learning performance when supported by meaningful instructional design (Sung et al., 2016). More recent evidence from primary

This is an Open Access article, published by Institute of Information Technology and Social Science (IITSS), Indonesia
| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

education similarly indicates that mobile learning can support literacy, numeracy, and engagement when activities are interactive rather than purely transmissive (Dorris et al., 2024; Garzón et al., 2023). This suggests that Android-based learning materials may provide a realistic and scalable solution for primary Pancasila education, especially if they are designed to function under constrained school conditions.

In Indonesia, the development of Android-based and other digital materials for Pancasila or civic education has grown in recent years. Prior studies have generally reported that such products are valid, practical, and effective in limited trials. For example, the "MESILA" application for Grade 2 students was found valid and effective in improving understanding of Pancasila symbols (Swandari & Paksi, 2025), while the "SI PANCA" application for Grade 4 also demonstrated high feasibility through expert validation and field trials (Qoidah & Paksi, 2021). Other studies have developed Android-based media for diversity topics (Arianto, 2021), Android teaching modules for Grade 1 learners (Efliriani & Wardhana, 2024), and broader interactive civic-education media for primary schools (Rachmadtullah et al., 2018). Research on digital teaching materials and gamified mobile learning in Indonesia also generally reports increased learner motivation and improved learning outcomes (Kurniyawati & Nugraheni, 2021; Mustikasari, 2023; Waldi et al., 2025). However, much of this literature focuses on testing the feasibility or effectiveness of finished products, while relatively few studies begin with a detailed mapping of pedagogical, content, technical, and motivational needs for a specific grade level and topic.

This gap is important because not all forms of educational technology automatically improve learning. Research has warned that technology may even contribute to disengagement when used in overly didactic or poorly designed ways, and classroom distraction remains a concern if interactivity is not pedagogically purposeful (Bergdahl et al., 2020; Bergdahl et al., 2022; UNESCO, 2023a). In addition, studies on children's screen exposure point to ethical and developmental considerations that require designers to ensure that digital experiences remain balanced, reflective, and socially meaningful (Domingues-Montanari, 2017; Lissak, 2018; Sun et al., 2025). In the context of Pancasila education, this means that digital materials should not merely entertain students, but should support meaningful engagement with moral and civic values.

Accordingly, there is a need for a systematic needs analysis that begins from students' learning experiences and preferences. Such an analysis is important because students' motivation, media preferences, and openness to technology determine whether an Android-based application can become a meaningful learning tool. Although software development frameworks such as the Waterfall model may inform later stages of application development (Royce, 1970), the present paper focuses on the needs-analysis stage before prototype development. The study therefore asks: What learning preferences, motivational features, and technology-based activities are needed by primary school students to support the development of Android-based interactive digital materials for Pancasila learning?

Based on this problem formulation, this study aims to identify primary school students' preferences and motivational needs for Pancasila learning as an evidence-based foundation for designing GO-PANCASILA. The contribution of the study lies in providing empirical design priorities for an Android-based learning application that is aligned with the Pancasila Student

This is an Open Access article, published by Institute of Information Technology and Social Science (IITSS), Indonesia
| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

Profile, evidence-based multimedia design, and the need for interactive, contextual, and joyful civic learning in primary schools.

Methodology

This study employed a survey-based needs analysis to identify students' learning preferences, motivational needs, and openness to technology-based Pancasila and civic education. The needs-analysis design was selected because the study sought to generate empirical design priorities for GO-PANCASILA before the application proceeds to prototype development and classroom testing.

The respondents were 115 primary school students from Grades 4-6. They came from three schools: SDIT Ummul Quro in Depok, SDN Sukoharjo 1 in Malang, and SD Muhammadiyah 12 in Pamulang. The inclusion of students from different school contexts was intended to capture a broader picture of students' preferences toward Pancasila learning media and technology-supported civic learning activities.

Data were collected using an online structured questionnaire. The instrument consisted of Likert-type items and open-ended questions. The Likert-type items used a four-point scale ranging from 1 to 4, with the anchors adjusted to item content, for example from "Never" to "Always" or from "Not willing" to "Very willing." The questionnaire explored students' experiences in learning respect, tolerance, and diversity; their preferences for learning media such as videos, books, stories, discussions, games, simulations, and websites; and their interest in digital tools for learning moral and civic values.

The open-ended section asked students to describe factors that made moral or Pancasila lessons feel boring and to share their experiences with video or digital learning. These responses were used to contextualize the quantitative patterns and to strengthen interpretation of the design implications. Data were analyzed descriptively by calculating response trends and percentages related to students' motivation, interactivity preferences, and media preferences. The findings were then translated into design priorities for GO-PANCASILA, especially in relation to visual learning, digital storytelling, gamified activities, and contextual discussion of civic values.

Results and Discussion

Student respondents and the need for learner-centered Pancasila media

The needs analysis involved 115 students from Grades 4-6 at SDIT Ummul Quro Depok, SDN Sukoharjo 1 Malang, and SD Muhammadiyah 12 Pamulang. The respondent profile is important because the application design is intended for primary-school learners whose reading fluency, attention span, and motivation are still developing. The findings show that students should not be treated merely as passive recipients of moral messages. Instead, they need learning media that allow them to see, hear, choose, respond, and discuss values in ways that are close to their everyday experiences.

| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

This finding supports the idea that the effectiveness of educational technology depends on the alignment of content, pedagogy, and technology (Mishra & Koehler, 2006). In Pancasila education, the content is value-based, the pedagogy should be contextual and reflective, and the technology should help students experience values through meaningful activities rather than memorization alone. This is consistent with the Kurikulum Merdeka and the Pancasila Student Profile, which call for contextual learning and the development of character through meaningful experiences (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022; Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2025; Rachman et al., 2024).

Visual and story-driven learning preferences

The strongest media preference identified in the survey was students' interest in videos and digital stories. A total of 82% of students preferred videos and digital stories to books or lectures. This indicates that primary-school students are more responsive when moral and civic values are presented through visual narratives rather than through text-heavy explanation. In the context of Pancasila learning, stories can help students understand abstract values such as respect, tolerance, responsibility, and cooperation by placing them in familiar situations.

The finding is consistent with Multimedia Learning theory, which explains that words and images can support understanding when they are designed in complementary and cognitively manageable ways (Mayer, 2020; Mayer & Fiorella, 2021). For GO-PANCASILA, this means that the application should prioritize short digital stories, simple illustrations, and concrete examples of Pancasila values in daily life. The content should not simply reproduce textbook explanations in digital form. Instead, it should transform civic concepts into age-appropriate stories that students can understand and relate to.

This result also clarifies the contribution of the present study to previous research. Existing studies on Android-based Pancasila and civic education media have demonstrated product feasibility and effectiveness (Qoidah & Paksi, 2021; Arianto, 2021; Efliriani & Wardhana, 2024; Swandari & Paksi, 2025). The present study strengthens this line of work by showing that students themselves express a clear preference for visual and story-driven learning. Therefore, the design of GO-PANCASILA should place digital storytelling as a core feature rather than as an additional decorative element.

Games, simulations, and motivational features

The survey also showed that 78% of students enjoyed learning through games or simulations. In addition, approximately three out of four students reported being more motivated when learning involved points, badges, or ranking. These findings suggest that gamified elements can increase students' interest in Pancasila learning when they are connected to meaningful learning goals.

The motivational value of games and achievement indicators can be explained through the ARCS model. Points, badges, and ranking can attract students' attention and provide satisfaction, while simulations can build relevance by allowing students to make choices in situations related to moral and civic values (Keller, 2010). However, the use of gamification should be pedagogically purposeful. Research on technology-enhanced learning warns that

| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

digital features may cause disengagement when interactivity is superficial or poorly connected to learning (Bergdahl et al., 2020; Bergdahl et al., 2022; UNESCO, 2023a).

For GO-PANCASILA, the implication is that games and simulations should not be designed merely as entertainment. They should present simple value-based situations, such as choosing how to respond to a friend, how to respect differences, how to cooperate in a group, or how to act responsibly at school and at home. Points and badges should reward reflection, completion, and positive choices rather than speed alone. In this way, gamification can support value internalization instead of reducing Pancasila education to scoring.

Stories and discussions about tolerance and respect

Another important finding is that 71% of students liked stories and discussions about tolerance and respect. This shows that students are not only interested in visual or game-based media, but also in social and dialogic learning experiences. Pancasila education requires students to interpret values, listen to others, and connect moral choices with everyday behavior. Therefore, the application should include prompts that encourage discussion, not only individual screen-based interaction.

This finding is relevant to the aims of civic and character education. Values such as tolerance and respect become meaningful when students encounter them in concrete situations and discuss possible actions. The digital application can support this process by presenting short scenarios followed by discussion questions, reflective choices, or classroom follow-up activities. Such a design is also aligned with the broader goal of the Pancasila Student Profile, which emphasizes mutual cooperation, global diversity, critical thinking, and noble character (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, 2022; Rachman et al., 2024).

At the same time, the application should be designed with attention to children's developmental needs. Studies on children's screen exposure remind educators that digital experiences should remain balanced and socially meaningful (Domingues-Montanari, 2017). Therefore, GO-PANCASILA should combine on-screen activities with off-screen discussion, reflection, or simple action tasks. This balance is important to ensure that technology strengthens, rather than replaces, the social dimension of Pancasila learning.

Technology openness and Android-based design relevance

The overall pattern of responses indicates that students are open to technology-based civic learning. Their preference for videos, digital stories, games, simulations, and motivational features confirms that an Android-based application is a contextually relevant medium for developing Pancasila learning materials. Given Android's strong presence in Indonesia, the platform provides a practical pathway for broadening access to interactive learning resources (*StatCounter, 2025*).

This finding is consistent with mobile learning research showing that mobile devices can support learning performance when their use is guided by meaningful instructional design (Sung et al., 2016). Recent studies also show that mobile learning in primary education can support engagement when activities are interactive and appropriately structured (Dorris et al., 2024; Garzón et al., 2023). In this study, students' preferences indicate that GO-PANCASILA should be designed as more than a repository of digital reading materials. It should become an

| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

interactive environment that combines visual explanation, story-based learning, simple simulations, and motivational feedback.

Previous Indonesian studies on digital teaching materials and civic education media have reported positive effects on learner motivation and learning outcomes (Kurniyawati & Nugraheni, 2021; Waldi et al., 2025). The present findings add a student-needs perspective by identifying the specific types of features students prefer. These include videos and digital stories, games or simulations, stories and discussions about respect and tolerance, and motivational features such as points, badges, or ranking.

Design priorities for GO-PANCASILA

Based on the integrated findings, the main design priority for GO-PANCASILA is to create interactive, visual, and gamified learning experiences that remain closely connected to Pancasila values. The application should include short video-based or illustrated stories, simple games and simulations, reflective prompts, and motivational elements. These features are not isolated preferences; together, they represent students' need for learning that is concrete, engaging, and meaningful.

The design should also avoid excessive technological complexity. Educational technology is beneficial only when it supports learning goals and remains accessible to users (UNESCO, 2018; UNESCO, 2023b; Wang et al., 2023). Therefore, GO-PANCASILA should emphasize clarity, simplicity, and relevance. Each screen or activity should have a clear learning purpose, and every interactive feature should help students understand or practice values such as respect, tolerance, cooperation, responsibility, and diversity.

In comparison with studies that primarily report the validity or effectiveness of finished products (Qoidah & Paksi, 2021; Efliriani & Wardhana, 2024; Swandari & Paksi, 2025), this study contributes by identifying student-based design priorities before product development. This makes the application development process more responsive to learners' actual preferences. The needs analysis therefore provides a practical foundation for subsequent stages of GO-PANCASILA development, including prototype design, expert review, usability testing, and classroom-based evaluation.

Conclusion

The primary school students need Pancasila learning materials that are interactive, visual, story-driven, and motivationally engaging. Based on the survey of 115 students from Grades 4-6 at three schools, students showed strong preferences for videos and digital stories, games and simulations, stories and discussions about tolerance and respect, and motivational elements such as points, badges, or ranking. These findings indicate that the development of GO-PANCASILA as an Android-based interactive application is pedagogically justified and contextually relevant. The application should not merely digitize textbook content, but should translate Pancasila values into meaningful stories, simple simulations, reflective activities, and joyful learning experiences. At the same time, the use of technology should remain purposeful and developmentally appropriate so that digital interaction supports value understanding and civic formation. Future studies are recommended to continue with prototype development, expert validation, usability testing, and classroom-based evaluation to examine the

This is an Open Access article, published by Institute of Information Technology and Social Science (IITSS), Indonesia
| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

effectiveness of GO-PANCASILA in strengthening students' civic literacy and character formation.

Disclosure Statement

No potential conflicts of interest were reported by the authors.

References

Arianto, R. R. T. (2021). *Pengembangan media pembelajaran berbasis Android pada mata pelajaran PPKn* [Skripsi]. Universitas Negeri Jakarta. repository.unj.ac.id

Atmojo, I. R. W., Sajidan, S., Wulandari, N., Fatchurrohman, F., & Prasetyo, Z. K. (2023). The level of classroom teacher digital literacy in the technological dimension. *International Journal of Instruction, 16*(4), 1–18. https://files.eric.ed.gov/fulltext/EJ1398690.pdf

Bergdahl, N., et al. (2022). Engagement and disengagement in online learning. *Computers & Education, 186*, 104536.

Bergdahl, N., Nouri, J., & Fors, U. (2020). Disengagement, engagement and digital skills in technology-enhanced learning. *Education and Information Technologies, 25*(2), 957–983.

Domingues-Montanari, S. (2017). Clinical and psychological effects of excessive screen time on children. *Journal of Paediatrics and Child Health, 53*, 333–338.

Dorris, C., et al. (2024). A systematic review of mobile device use in the primary classroom. *Computers & Education Open, 6*, 100143.

Efliriani, A. A., & Wardhana, M. D. K. (2024). Aplikasi Android Modul Pancasila Kelas 1 untuk Pengajaran Sekolah Dasar. *Jurnal Pendidikan Guru Sekolah Dasar, 1*(4), 1–13. https://doi.org/10.47134/pgsd.v1i4.713

Garzón, J., et al. (2023). Effects of mobile learning in English language learning: A meta-analysis. *Electronics, 12*(7), 1595.

Keller, J. M. (2010). *Motivational design for learning and performance: The ARCS model approach*. Springer.

Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2022). Dimensi, elemen, dan subelemen Profil Pelajar Pancasila pada Kurikulum Merdeka [Policy document]. https://kurikulum.kemdikbud.go.id/wp-content/uploads/2022/07/V.2-Dimensi-elemen-subelemen-Profil-Pelajar-Pancasila-pada-Kurikulum-Merdeka.pdf

Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2025, January 20). Mengenal Projek Penguatan Profil Pelajar Pancasila (P5). https://pusatinformasi.kolaborasi.kemendikdasmen.go.id/hc/id/articles/8747598052121-Mengenal-Projek-Penguatan-Profil-Pelajar-Pancasila

Kurniyawati, S. U., & Nugraheni, A. S. (2021). Pengembangan media pembelajaran interaktif berbasis gawai pada pembelajaran PPKn kelas 3 SD/MI di masa pandemi COVID-19. *ELSE (Elementary School Education Journal): Jurnal Pendidikan Dan Pembelajaran Sekolah Dasar, 5*(2), 159–171. https://doi.org/10.30651/else.v5i2.7099

Mayer, R. E. (2020). *Multimedia Learning (3rd ed.)*. Cambridge University Press.

Mayer, R. E., & Fiorella, L. (Eds.). (2021). *The Cambridge handbook of multimedia learning (3rd ed.)*. Cambridge University Press. https://doi.org/10.1017/9781108894333

| e-ISSN: 2721-3706 and p-ISSN: 2721-6705| https://iitss.or.id/ojs/index.php/jse

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Qoidah, U. L., & Paksi, H. P. (2021). Pengembangan media pembelajaran Si Panca berbasis Android pada materi Pancasila untuk siswa kelas IV sekolah dasar. *Jurnal Pendidikan Guru Sekolah Dasar, 9*(07), 2816-2826.

Rachmadtullah, R., et al. (2018). Development of interactive learning media on civic education learning in elementary school. In Proceedings of ACEC-18. Atlantis Press.

Rachman, A., Himawan, F., & Lutfiani, N. (2024). A new tool for strengthening the Pancasila student profile. *Cogent Education, 11*(1), 2336039. https://pmc.ncbi.nlm.nih.gov/articles/PMC11382024/

Royce, W.W. (1970) Managing the Development of Large Software Systems. *Proceedings of IEEE WESCON, 26*, 328-388.

StatCounter. (2025, July). Mobile & tablet operating system market share in Indonesia. https://gs.statcounter.com/os-market-share/mobile-tablet/indonesia

Sung, Y.-T., Chang, K.-E., & Liu, T.-C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education, 94*, 252–275. https://www.sciencedirect.com/science/article/pii/S0360131515300804

Swandari, A. P., & Paksi, H. P. (2025). Pengembangan aplikasi Mesila pada materi simbol Pancasila untuk meningkatkan pemahaman siswa sekolah dasar. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar (JPPGSD), 13*(5), 1474–1488.

UNESCO. (2018). ICT competency framework for teachers (Version 3). https://teachertaskforce.org/sites/default/files/2020-07/ict_framework.pdf

UNESCO. (2023a). ICT Competency Framework for Teachers; Technology in education—GEM 2023. Teacher Task Force.

UNESCO. (2023b). Technology in education: A case study on Indonesia. Global Education Monitoring Report—Southeast Asia series. https://unesdoc.unesco.org/ark:/48223/pf0000387827

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). *Instructional development for training teachers of exceptional children.* Indiana University.

Waldi, A., Supendra, D., Rivelia, K. P., Anggraeni, A., & Febriani, R. (2025). Application of digital teaching materials based on flipped learning model in civics education in elementary school. *International Journal on Informatics Visualization, 9*(1), 90–96.

Wang, C., Zhang, M., Sesunan, A., & Yolanda, L. (2023). *Technology-driven education reform in Indonesia: A look into the current status of the Merdeka Belajar program*. Oliver Wyman.