





NEGOTIATION OF ORAL MEANING AND EQUALITY IN MULTI-MODAL TRANSLATION OF BILINGUAL DIGITAL STORYBOOKS

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Abstract

This study examines how meaning and moral equality are negotiated in the multimodal translation of bilingual digital storybooks used in Indonesian primary education. Based on the Multimodal Discourse Translation and Analysis Study, this study adopts a qualitative multimodal case study design that focuses on the bilingual digital storybook Putri dans Hutan. The study involved a textual analysis of bilingual translation units, a multimodal analysis of visual and auditory elements, and classroom-based data collected through observation and interviews with teachers and students. These findings reveal that moral equity in bilingual digital storybooks is not only achieved through verbal translation but emerges through the interaction of translation strategies, multimodal resources, and translanguaging practices in the classroom. Dynamic equality is identified as the dominant translation strategy, especially in the morally charged segment, as it prioritizes emotional accessibility and moral clarity for young learners. When linguistic simplification reduces moral explicitness, visual and auditory elements play a compensatory role by reinforcing emotional cues and moral orientation. Classroom translation further mediates moral understanding, allowing students to negotiate and internalize moral meaning by utilizing Indonesian and English. This study contributes to translation studies by extending the concept of equality into multimodal and pedagogical contexts. It also offers practical implications for educators, translators, and digital media designers by highlighting the importance of multimodal coherence and classroom mediation in conveying moral values through bilingual digital storybooks.

Keywords: Bilingual Digital Storybooks, Equivalence, Moral Meaning, Multimodal Translation, Translanguaging.



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INTRODUCTION

Applied linguistic studies and translation as well as the connection between bilingual learning, the use of digital media and the cultivation of moral values are getting more and more attention. Especially

in situations when English is taught as a foreign language since elementary school (Garcia & Kleifgen, 2018; Unsworth, 2020). In the context of Indonesia itself, the position of English is unique. On the one hand, this language is recognized for its role as a global communication tool, but on the other hand it is still positioned as a local content and has not yet become a compulsory subject in basic education. This condition presents its own challenges for elementary schools which are not only required to improve students' English literacy skills, but also ensure that the learning process remains in line with the internalization of moral values and cultural norms as the main pillars of national character education (Umar, Khosiyono, & Irfan, 2023).

In response to the complexity of these learning demands, the use of bilingual digital storybooks is increasingly prominent in learning practices in Indonesian elementary schools. This media unites verbal and visual elements through text, illustrations, narrative audio, animation, and interactive elements, thus creating a multimodal and contextual learning experience for early childhood learners (Jewitt et al, 2016; Jiang, 2017; Kress, 2018; Tour & Barnes, 2022). The integration of these various semiotic modes allows the mastery of foreign languages and the formation of moral values to take place simultaneously in a more interesting learning atmosphere. A number of studies have shown that digital storybooks contribute positively to improving vocabulary, reading comprehension, and student learning motivation in the context of learning English as a foreign language (Bus, Takacs, & Kegel, 2015; Zhang & Yu, 2023; Liu et al., 2024). In addition, other studies affirm that this media is effective as a means of instilling moral values, because the narrative structure of the story provides space for children to understand ethical messages through character dynamics, conflicts, and problem-solving, not solely through direct value delivery (Nikolajeva, 2014; Short, 2018).

Previous studies of bilingual children's storybooks revealed that this kind of text does not only function as a means of language learning, but also as a medium for conveying values and ethical roles. In this context, translation practices are strongly influenced by pedagogical considerations and cultural sensitivities that surround the target reader (Lathey, 2016; Oittinen, 2018; Mardiyah, Engliana, & Supadi, 2024). In line with this, recent research confirms that the process of meaning in multimodal reading requires learners to combine information from verbal and visual elements to build complete comprehension, an approach that expands on the classic visual grammar concepts put forward by Kress and van Leeuwen (Bateman, Wildfeuer, & Hiippala, 2017; Lowien & Thomas, 2025). Empirical findings in multimodal discourse studies also show that the visual and audio components often have a significant influence on children's emotional engagement as well as the way they interpret the moral dimension in stories. In the context of digital media, these various methods work synergistically to affirm values such as empathy, honesty, and responsibility, even in some cases able to mask the limitations of dot-simplified verbal texts. Thus, the delivery of moral values in bilingual digital storybooks is more determined by the orchestration of various semiotic modes including text, audio, visual, gestural, verbal, and spatial rather than relying on linguistic translation alone (Jewitt, Bezemer, & O'Halloran, 2016).

In the realm of translation studies, the discussion of equality has been more focused on linguistic aspects, especially the lexical, grammatical, and semantic suitability between the source text and the target text (Pym, 2014; House, 2015). Although the development of better studies has begun to involve multimodal translation, especially in audio-visual media and children's literature, there are still limitations of research that specifically examines how equality and moral messages are negotiated in bilingual digital storybooks, namely texts that combine the translation process with visual, audio and interactive features (Jiang, 2017; Oittinen, 2018; Chaume, 2020). The consequence is that the role of nonverbal fashion in shaping and maintaining moral equality has not received adequate attention until now.

This gap is especially evident in Indonesia's primary education, where bilingual digital storybooks are often produced locally to align with national cultural values and character education. One example is the bilingual digital storybook *Putri di Dalam Hutan*, which presents moral themes related to kindness, obedience, and respect for nature through a combination of narrative texts, illustrations, and audio narrations in Indonesian and English. Although these storybooks are designed to support language learning and moral education, it is still unclear how moral meanings are maintained, adapted, or altered across languages through translation options and multimodal designs.

In addition, moral meaning in children's stories is often conveyed implicitly through narrative events, character behavior, visual symbolism, and emotional cues rather than through explicit moral statements (Nikolajeva, 2014; Kummerling-Meibauer, 2018). When such stories are translated, shifts in words, simplification strategies, or cultural adaptations can alter moral emphasis and emotional resonance (Puurtinen, 2016). In a multimodal digital storybook, this shift can be amplified or further mitigated by

images, sound effects, and narrative. Without systematic analysis, it is difficult to determine whether the translation strategies used in bilingual digital storybooks such as *Putri dalam Hutan* achieve moral equality or whether moral meaning is reshaped through the interaction of linguistic and non-linguistic modes.

Another dimension that is less explored concerns classroom practices where bilingual digital storybooks are used. In Indonesian elementary classrooms, teachers and students are often involved in translanguaging practices (Garcia & Wei, 2014; Cenoz & Gorter, 2021), moves flexibly between Indonesian and English when explaining vocabulary, discussing story events, and reflecting on moral lessons. Previous studies have shown that translanguaging can support moral comprehension and reasoning by allowing learners to tap into their complete linguistic repertoire (García & Wei, 2014). However, translanguaging is rarely examined as part of the negotiation of moral meaning and equality in multimodal translated texts. As a result, the dynamic processes in which moral meaning is built together by translation strategies, multimodal resources, and class interactions remain inadequately documented.

Addressing this problem requires an integrated analytical framework that brings together Translation Studies and Multimodal Discourse Analysis (Jewit et al, 2016; Bateman et al, 2017). Such an approach allows researchers to examine verbal translation strategies alongside visual and auditory resources while also considering classroom translanguaging as a mediating factor in meaning creation. Both from a theoretical and practical perspective, this integration is essential to support teachers, translators, and educational media designers in producing bilingual digital storybooks that are linguistically accessible, culturally appropriate, and morally coherent for young learners.

Therefore, this study investigates the meaning of morality and equality as a negotiation process in the multimodal translation of the bilingual digital storybook *Putri Dalam Hutan*. The study pursued three specific goals. First, it aims to identify and classify the translation strategies used in achieving semantic and moral equality between Indonesian and English. Second, it seeks to analyze how multimodal resources, including visual, written text, and audio narrative, support, reinforce, or alter moral meanings in both languages. Third, it examines how translanguaging practices in the classroom mediate students' moral understanding and reflection when engaging with bilingual multimodal storybooks. By addressing this goal, this research contributes to the study of translation by extending the concept of equality beyond the verbal text into the context of multimodal education. It also contributes to bilingual literacy education by demonstrating how digital storybooks serve as sites for the construction of moral meaning in classroom practice, while offering practical insights for the ethical and pedagogical design of bilingual digital learning materials in Indonesian primary education.

This study offers a clear novelty by conceptualizing moral equality in bilingual digital storybooks as a multimodal and pedagogically mediated process, rather than a purely linguistic phenomenon. While previous studies of bilingual storybooks and digital storytelling have largely focused on linguistic accuracy, literacy development, or learner engagement, this study expands the idea of equality in Translation Studies by integrating multimodal resources (visual and auditory modes) and classroom translanguaging practices into the analysis of moral meaning constructions. In particular, this study provides original empirical evidence of Indonesian basic education by showing how moral meaning is negotiated through the interaction of translation strategies, multimodal design, and classroom interactions. By positioning bilingual digital storybooks as a multimodal translational space, this study contributes a new analytical perspective that bridges Translation Studies, Multimodal Discourse Analysis, and pedagogy a field that has received limited scientific attention.

RESEARCH METHOD

This study uses a qualitative approach with a multimodal case study design. The qualitative approach was chosen because this study aims to explore how moral meaning and equality are negotiated through translation strategies, multimodal resources, and classroom translanguaging practices rather than quantitatively measuring variables. The case study design is appropriate because the research focuses on a limited system consisting of a single bilingual digital storybook, its translated version, and its implementation in a specific classroom context (Creswell & Poth, 2018). Multimodal orientation allows for the analysis of linguistic, visual, and auditory elements as a meaning-making resource that is integrated in the translation and learning process.

The research target of this research is the bilingual digital storybook *Putri dalam Hutan*, which was developed as part of a research and development project and implemented as a teaching

material in English language learning activities. The research subjects consist of students and teachers who are directly involved in the use of storybooks in the classroom.

This research was conducted from February to May 2025 in three elementary schools located in North Sumatra Province, Indonesia. These schools were chosen because they implement bilingual English learning activities and utilize digital media, including bilingual digital storybooks, in classroom instruction. The participants included 90 students from Grade 5 and Grade 6 and three English teachers. The students are between 10 and 12 years old, while the teachers have a minimum of five years of teaching experience. The purposive sampling technique was used to select schools, teachers, and students because this research required participants who had first-hand experience with bilingual digital storybooks and classroom translanguaging practices.

The research procedure is carried out in several stages. First, bilingual digital storybooks were examined to identify translation units that contained moral content and relevant multimodal elements. Second, classroom implementation sessions were conducted in each school, where teachers used storybooks in English lessons while researchers observed classroom interactions, student engagement with multimodal features, and translanguaging practices. Third, semi-structured interviews were conducted with selected teachers and students to explore their understanding of translated texts, moral messages, and learning experiences. Finally, expert validation is carried out by translation and education experts to assess the suitability of translations, moral clarity, and pedagogical suitability of storybooks.

Data is collected using a variety of instruments to ensure comprehensive coverage of linguistic, multimodal, and pedagogical aspects. The main instruments include: Structured observation sheets used to document classroom interactions, translanguaging practices, and student responses to multimodal features. A semi-structured interview protocol consisting of open-ended questions related to understanding, moral reflection, and multimodal experiences. A translation analysis checklist used to identify translation strategies in bilingual text pairs. A multimode coding sheet used to analyze visuals, narrative, sound effects, colors, and layouts. A Likert scale expert validation form that focuses on content accuracy, moral clarity, and translation suitability.

Data collection techniques include classroom observation, interviews, document analysis, and expert assessment. This combination of techniques allows for triangulation of data to increase credibility and contextual validity (Denzin, 2012).

Table 1. List of Data Collection Instruments

Data source	Participants	Instruments	Purpose	Output data
Classroom observation	90 students (grades V-VI) and 3 teachers	Structured observation sheet (focusing on translanguaging, moral discourse and multimodal engagement)	Document classroom interactions as well as the use of multimodal approaches	Field notes, layer layers, transcripts of observation results
Semi-structured interviews	3 teachers and 18 students	Interview guidelines in the form of open-ended questions about understanding, moral reflection and multimodal experiences	Exploring perceptions of the translation process and negotiation of meaning	Audio transcripts, reflective narratives
Digital storybook analysis	Putri di Dalam Hutan (6 verses)	Translation analysis checklist and multimodal coding sheet	Review translation matching and multimodal alignment strategies	Find encoded multimodal segment annotated text pairs
Expert validation	2 linguists and 1 education expert	Validation instruments using the likert scale	Assessing the validity and feasibility of pedagogy	Validation scores, qualitative comments

Data analysis was carried out qualitatively in relation to the research objectives. Translation strategy analysis is applied to bilingual text units to identify strategies such as literal translation, dynamic equality, modulation, explicitness, omission, and cultural substitution. Each unit of translation is coded through descriptive and interpretive stages to check for semantic and moral equivalence. Guerrero-Sosa et al. (2025) highlight that multimodal analysis allows researchers to capture learning processes that cannot be observed through linguistic data alone, reinforcing the value of multimodal approaches in educational research.

In line with the theory of multimodal discourse, the visual and verbal elements in *Putri Dalam Dalam Dalam* collaboratively form moral interpretations, consistent with the finding that listeners/readers engage with holistic image-language grammatical resources during multimodal reading (Lowien & Thomas, 2025). Thematic analysis was applied to class observation notes and interview transcripts following Braun and Clarke's six-step framework. This analysis focuses on how translanguaging practices mediate students' moral understanding and reflection. The findings of all analyses are triangulated to develop a unified understanding of how moral meaning and equality are negotiated through translation strategies, multimodal resources, and classroom interactions. Statistical analysis was not applied because this study emphasized qualitative interpretation and contextual depth rather than numerical generalization.

RESULTS AND DISCUSSION

This section presents and discusses research findings on how meaning and moral equality are negotiated in the multimodal translation of the bilingual digital storybook *Putri Dalam Hutan*. The results came from translation unit analysis, multimodal features, and classroom interaction data. The discussion integrates these findings with relevant studies in Translation Studies, Multimodal Discourse Analysis, and bilingual education to show how moral equality emerges through the interaction of linguistic choices, visual and auditory resources, and pedagogical mediation. Shimizu et al. (2025) propose that multimodal analysis allows researchers to qualitatively track how readers construct meaning across text, images, and interactions during digital reading. Their framework highlights that understanding is a dynamic process shaped by the coordination of multiple semiotic resources.

Translation Strategies and the Achievement of Moral Equality

An analysis of twelve pairs of bilingual texts revealed that dynamic equality was the most frequently used translation strategy in *Putri dalam Hutan*, especially in segments containing moral advice, emotional responses, and evaluative assessments of character. Literal translation is primarily applied to descriptive narratives, whereas cultural modulation, explicitness, and substitution occur selectively in culturally embedded expressions. The frequent use of dynamic equality in *Putri dalam Hutan* is in line with the findings of Pratama (2019), who argue that children's picture book translators often use adaptive strategies to maintain accessibility and emotional resonance rather than strict lexical correspondence.

Sukenti (2025) reports that readability in bilingual children's storybooks significantly affects students' understanding and engagement, emphasizing the need for translation strategies that align linguistic simplicity with pedagogical goals. These findings are in line with previous studies of children's literary translation, which showed that translators often prioritize accessibility, emotional resonance, and pedagogical clarity over formal linguistic correspondence (Nida, 1969; Oittinen, 2018). In line with Nida's concept of dynamic equality, moral equality in this study is achieved when the translated English text elicits a response from young readers that is comparable to that intended in the source language, even when the lexical and syntactic forms are different.

Coillie and McMartin (2020) emphasize that translating children's literature involves more than just linguistic transfer, as the translator must consider the visual context, cultural values, and pedagogical intentions. In children's stories, meaning, especially moral meaning, is often conveyed implicitly through narrative events and illustrations, which require flexible translation strategies to maintain interpretive impact. However, these findings also suggest that the use of dynamic equivalence sometimes involves simplifying moral reasoning, especially when abstract ethical concepts are condensed into shorter or more directive expressions. A similar trend has been reported by Jiang (2017) and Tour and Barnes (2022), who argue that simplification in children's digital narratives often shifts moral explanations from verbal texts to other semiotic modes. In this study, moral meaning is not eliminated but redistributed across visual imagery and audio narratives, suggesting that equivalence in multimodal translation operates beyond the verbal level.

Multimodal Resources and the Construction of Moral Meaning

Multimodal analysis shows that illustrations, audio narratives, color schemes, and spatial layouts play an important role in reinforcing and compensating for shifts in verbal translation. The visual depiction of the characters' facial expressions, postures, and spatial positions is consistently aligned with the moral attitude of the intended narrative. Scenes involving guilt or moral tension are accompanied by darker tones of color and calm background music, signifying evaluative meaning even when verbal explanations are minimal. Wang (2025) shows that multimodal digital storytelling serves as a literacy learning tool and moral cultivation practice, as visual, auditory, and narrative modes together shape learners' ethical reflections. Moral understanding arises through emotional engagement and guided interpretation rather than explicit moral instruction alone. Research by O'Halloran, Tan & Smith (2016) shows that multimodal features shape emotional engagement, which influences how children internalize moral messages. When translation choices change the explicit level in moral statements, visual and auditory cues help maintain moral equivalence by directing learners' attention and emotional responses.

These findings are in line with recent meta-analytical evidence suggesting that reading children's storybooks is positively associated with the development of empathy-related skills, especially when stories are presented in a rich context that encourages reflection and discussion (Ciesielska et al., 2025). The study emphasizes that narrative engagement, rather than just textual exposure, plays an important role in fostering children's moral and emotional understanding. These findings are consistent with previous research on digital storytelling, which shows that multimodal elements such as visuals and audio narratives play an important role in supporting the construction of meaning in the context of EFL (Yuniarti & Yulian, 2022). While their study focused on speaking performance, these findings expand this insight by showing that multimodal scaffolding also supports moral interpretation and emotional engagement in bilingual digital storybooks.

Audio narration further guides moral interpretation through variations in tone, speed, and emphasis. Slower tempos and lower tones are consistently used in moments of reflection, regret, or moral consequences, subtly directing learners toward evaluative assessment. This confirms previous research showing that prosodic features in narrated digital texts play an important role in shaping children's ethical understanding (Tour & Barnes, 2022).

Classroom Translanguaging as Pedagogical Mediation

Classroom observations and interview data revealed that translanguaging played a central role in mediating moral meaning during engagement with bilingual digital storybooks. Teachers often alternate between English and Indonesian when explaining morally complex situations, such as character dilemmas or consequences of actions. This strategic use of language allows teachers to clarify moral reasoning while maintaining students' emotional engagement with English narratives. In a pedagogical context, translanguaging supports understanding, identity construction, and value negotiation (Ollerhead & Pennington, 2024).

According to Yu (2025), teachers play a central role in mediating multimodal digital storytelling activities by guiding interpretation, encouraging reflection, and connecting narrative content with students' social and cultural experiences. This pedagogical mediation is very important to turn multimodal input into meaningful learning outcomes. Tetrawan et al., (2024) show that bilingual storytelling significantly improves the development of empathy in young learners, especially when stories are discussed and interpreted interactively. This suggests that moral learning is strengthened when narrative content is mediated through language use and social interaction.

Importantly, translanguaging complements multimodal scaffolding. Scholars argue that bilingual storybooks can act as a translanguaging resource, allowing for scaffolding understanding and reflective dialogue around moral themes (Medina & Goddard, 2024). When students encounter unfamiliar vocabulary or abstract moral concepts, they rely on images and narratives while using their first language to interpret and evaluate moral messages. This supports the argument that class interaction is an important site where translated moral meanings are actively negotiated rather than passively accepted.

Taken together, these findings suggest that moral equality in bilingual digital storybooks is not achieved solely through translation strategies at the textual level. Instead, it emerges through the dynamic interplay of linguistic choices, multimodal resources, and classroom translanguaging practices. It supports House's view of translation as a process of negotiation of meaning rather than direct transfer, while also expanding the theory of multimodal discourse by highlighting the pedagogical dimension of meaning construction. While Mardiyah et al. (2024) focused on bilingual printed storybooks, this study expands

this line of inquiry by examining how moral equality is negotiated in digital and multimodal storybook environments, including the visual, auditory, and interactive dimensions of the classroom. Unlike previous research that examined digital storytelling, translation, or moral education separately, this study integrates translation strategies, multimodal analysis, and classroom translanguaging to explain how moral meaning and equality are negotiated together in bilingual digital storybooks. Theoretically, this research contributes to Translation Studies by expanding the concept of equality beyond verbal correspondence to include multimodal and pedagogical dimensions. These findings challenge traditional text-centered views of equality by showing that moral meanings in bilingual digital storybooks are distributed across linguistic, visual, auditory, and interaction modes. It supports and expands on the theory of multimodal discourse by positioning equality as a dynamic process of negotiation of meaning shaped by translation strategies, semiotic resources, and classroom practice.

Practically, these findings provide important implications for digital storybook translators, educators, and designers. Translators of children's digital storybooks are encouraged to consider not only linguistic accuracy but also the alignment of visual and auditory elements in order to maintain moral intent and emotional resonance. Educators can use classroom translanguaging strategically to mediate moral understanding and support the moral reasoning of young learners. For digital media designers, this study highlights the need for coherent multimodal design that supports ethical sensitivity and pedagogical goals when developing bilingual digital storybooks for primary education. These findings extend previous research on bilingual digital storybooks by showing that moral equality is not an inherent property of translated texts, but an emerging result of multimodal design and pedagogical mediation.

This study is limited to three schools that may not represent the wider variation in bilingual pedagogy or morality across Indonesia. Future research may extend comparative analysis across regions or evaluate the long-term moral development outcomes of the use of bilingual media. Studies that focus on student behavioral outcomes or family involvement can also provide richer insights into how moral meaning is internalized.

CONCLUSION

This study examines moral equity in bilingual digital storybooks by highlighting the role of multimodal resources and classroom mediation in Indonesian primary education. These findings suggest that moral meaning is not only generated through linguistic transfer but arises from the interaction of translation strategies, visual and auditory modes, and translanguaging practices. These findings expand the theoretical discussion of equality in Translation Studies by conceptualizing moral equality as a dynamic and multimodally mediated process. Pedagogically, the study shows that bilingual digital storybooks are most effective when teachers strategically use translanguaging and when translators and designers align linguistic, visual, and auditory elements to support young learners' morale.

The findings also offer some implications. For translators, the results highlight the importance of considering how moral meaning can be supported or reshaped by visual and auditory modes rather than relying solely on verbal strategies. For educators, this study underscores the pedagogical value of translanguaging in facilitating moral reflection when using bilingual digital storybooks. For digital media designers, the findings suggest that ethical coherence must be intentionally built through multimodal alignment, ensuring that visuals, narrative, and text work together to clearly convey moral values to young learners.

In conclusion, bilingual digital storybooks must be understood as a multimodal translation space where moral meaning and equality are constantly formed. This study expands the theoretical discussion of equality in translation studies by demonstrating its multimodal and pedagogical nature. In practical terms, these findings underscore the need for ethically sensitive translation strategies, coherent multimodal designs, and pedagogically informed classroom implementations when developing and deploying bilingual digital storybooks for young learners. Future research may explore comparative cases or longitudinal classroom practices to further examine how moral meaning develops in a variety of educational contexts.

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AUTHOR CONTRIBUTIONS

Farida R. Kembaren conceptualized the research, conducted data analysis, and compiled the manuscript. Dewi Utami and Widia Fransiska contributed to data collection and validation. Faradilla assists in literature review and manuscript editing.

CONFLICTS OF INTEREST

The author(s) declare no conflict of interest.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

REFERENCES

- Achivida, J. J. (2025). Multimodal language teaching and language skills development with AI and VR integration: A systematic literature review. *Psychology and Education: A Multidisciplinary Journal*, 31(6), 587–594. <https://doi.org/10.5281/zenodo.14797458>.
- Andrade Preciado, J. S., Sánchez Ramírez, H. J., & Priego Sánchez, Á. B. (2025). Ethical challenges in ai-assisted translation. *EthAIca*, 4, 151–170. <https://doi.org/10.56294/ai2025151>.
- Belhassen, S., & Hamda. (2025). Translation Students' Reliance on and Trust in Artificial Intelligence. *Arab World English Journal for Translation & Literary Studies*, 9(2). 106-119. <http://dx.doi.org/10.24093/awejtls/vol9no2.7>.
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–26. <https://doi.org/10.1037/qup0000196>.
- Bus, A. G., Takacs, Z. K., & Kegel, C. A. T. (2015). Affordances and limitations of electronic storybooks for young children's emergent literacy. *Developmental Review*, 35, 79–97. <https://doi.org/10.1016/j.dr.2014.12.004>.
- Bateman, S., Wildfeuer, J., & Hiippala, T. (2017). *Multimodality: Foundations, research and analysis*. De Gruyter.
- Bezemer, J., & Kress, G. (2016). *Multimodality, learning and communication*. Routledge.
- Cenoz, J., & Gorter, D. (2021). Pedagogical translanguaging. *System*, 92, 102278. <https://doi.org/10.1016/j.system.2020.102278>.
- Chang, C. C. (2025). Integrating Hybrid AI Approaches for Enhanced Translation. *Applied Sciences*, 15(16), 9039. <https://doi.org/10.3390/app15169039>.
- Chaume, F. (2020). Audiovisual translation: From theory to practice. *Perspectives*, 28(1), 1–16. <https://doi.org/10.1080/0907676X.2019.1693268>.
- Chen, C. L., Dong, Y., Castillo-Zambrano, C., Bencheqroun, H., Barwise, A., Nalaie, K., Niven, A. S. (2025). A systematic multimodal assessment of AI machine translation tools for enhancing access to critical care education. *BMC Medical Education*, 25, 1022. <https://doi.org/10.1186/s12909-025-07452-9>.
- Ciesielska, M., Kucirkova, N., & Thomson, J. (2025). How the type and context of children's storybook reading relate to select empathy skills: A meta-analysis. *Early Education and Development*, 36(8), 1888–1914. <https://doi.org/10.1080/10409289.2025.2516989>.
- Coillie, J. V., & McMartin, J. (2020). Children's Literature in Translation. *OAPEN(open access)*. <https://doi.org/10.11116/9789461663207>.
- Creswell, J.W. and Poth, C.N. (2018). *Qualitative Inquiry and Research Design Choosing among Five Approaches. 4th Edition*, SAGE Publications, Inc., Thousand Oaks
- Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research*, 6(2), 80–88.
- Ding, A. E., Cervantes, J. H., Martin, K., & Zhang, K. (2025). Designing translingual and transmodal scaffolding and VR pair programming for supporting multilingual learners' participation in scientific sensemaking. *Educ. Sci.*, 15(9), 1236. <https://doi.org/10.3390/educsci15091236>.
- Fares Ferrag & Ikram Aya Bentounsi. (2024). The use of artificial intelligence in academic translation tasks. *Ziglobitha Publications*, 2(011), 173–192. <https://doi.org/10.60632/ziglobitha.n011.11.vol.2.2024>.

- García, O., & Kleifgen, J. A. (2018). *Educating emergent bilinguals*. Teachers College Press.
- Garcia, O., & Wei, L. (2014). *Translanguaging: Language, bilingualism and education*. Palgrave Macmillan. <https://doi.org/10.1057/9781137385765>.
- Guerrero-Sosa, J. D. T., et al. (2025). Multimodal analysis in learning analytics. *Applied Sciences*, 15(11), 5896. <https://doi.org/10.3390/app15115896>.
- Hartati, E., Nababan, M.R., Santosa, R., & Djatmika. (2024). Translating english children's storybook into indonesian context: How should the nominal groups be translated? Proceedings of the Third International Conference on Communication, Language, Literature, and Culture (ICCoLiC 2024). https://doi.org/10.2991/978-2-38476-321-4_39.
- Holmes, W., Bialik, M., & Fadel, C. (2022). *Artificial Intelligence in Education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
- House, J. (2015) *Translation Quality Assessment*. London and New York. Routledge Taylor & Francis Group.
- Jewitt, C., Bezemer, J., & O'Halloran, K. (2016). *Introducing Multimodality*. (2nd ed). Routledge.
- Jiang, L. (2017). The affordances of digital multimodal composing for EFL Learning. *ELT Journal* 71(4), 413–422. <https://doi.org/10.1093/elt/ccw098>.
- Kenny, D., & Doherty, S. (2023). Ethics and human agency in AI-assisted translation. *Translation Spaces*, 12(1), 1–21. <https://doi.org/10.1075/ts.22011.ken>.
- Kress, G. (2018). *Multimodality: A social semiotic approach*. Routledge.
- Kümmerling-Meibauer, B. (2018). *The Routledge companion to picturebooks*. Routledge.
- Lathey, G. (2016). *Translating children's literature*. Routledge.
- Liang, L., & Lu, S. (2025). The evaluation and reception of the translation quality of three translation modalities in live-streaming contexts: computer-assisted simultaneous interpreting, machine translation (MT) with human revision and raw MT. *The Translator*, 1–19. <https://doi.org/10.1080/13556509.2025.2494566>.
- Liu Kanglang. (2021). Artificial intelligence (AI) and translation teaching: A critical perspective on the transformation of education. *Int. J. Educ. Sci.* 33(1–3). <https://doi.org/10.31901/24566322.2021/33.1-3.1159>.
- Liu, S., Reynolds, B. L., Thomas, N., & Soyoo, A. (2024). The use of digital technologies to develop young children's language and literacy skills: A systematic review. *SAGE Open*, 14(1), 1–18. <https://doi.org/10.1177/21582440241230850>.
- Lowien, N., & Thomas, D. J. (2025). Multimodal reading interpretation: reading the world—reading the text. *Australian Journal of Language and Literacy*, 48(2), 141–160. <https://doi.org/10.1007/s44020-025-00080-2>.
- Mardiyah, A., Engliana, E., & Supadi, S. (2024). A study of bilingual children's storybooks "The Foos". *Transformatika: Journal of Language, Literature and Teaching*, 8(2), 341–359. <https://doi.org/10.31002/transformatika.v8i2.1627>.
- Medina, J.B. & Goddard, M.B. (2024). The effect of digital storytelling on english vocabulary learning in inclusive and diverse education. *IJELS International Journal of English Language Studies*. 6(1),110-118. <https://doi.org/10.32996/ijels.2024.6.1.11>.
- Miles, MB, Huberman, AM dan Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook*. Sage, London.
- Moneus, A. M. (2024). Artificial intelligence and human translation: A contrastive study based on legal texts. *Heliyon*, 10(6), e28106. <https://doi.org/10.1016/j.heliyon.2024.e28106>.
- Mutashar, M. K. . (2024). Navigating Ethics in AI-Driven Translation for a Human-Centric Future. *Academia Open*, 9(2), <https://doi.org/10.21070/acopen.9.2024.9407>.
- Nida, E.A. and Taber, C.R. (1969) *The Theory and Practice of Translation*. E. J. Brill, Leiden.
- Nikolajeva, M. (2014). *Reading for Learning: Cognitive Approaches to Children's Literature*. John Benjamins Publishing Company.
- O'Hagan, M. (2020). *Machine Translation and Translating Technology: A Review of Post-Editing Theory and Practice*. Routledge.
- O'Halloran, K.L. (2011) *Multimodal Analysis and Digital Technology*. In: Baldry, A. and Montagna, E., Eds., *Interdisciplinary Approaches on Multimodality: Theory and Practice*, Palladino, Campobasso, 21-34.
- Ollerhead, S. & Pennington, G. (2024). Starting small: Engaging young learners with literacy through multilingual storytelling. *Journal of Early Childhood Literacy*.

- <https://doi.org/10.1177/14687984241303390>.
- Oittinen, R. (2018). *Translating for Children*. Routledge.
- Pratama, A. D. Y. (2019). Translation of children's picturebook: Retorika. *Journal of Language Study*, 5(2), 168–176. <https://doi.org/10.22225/JR.5.2.1355.168-176>
- Putra, Y. S., et al. (2025). Efficacy of AI-based Text-to-Speech in Indonesian pronunciation training for foreign speakers (BIPA). *Journal of Educational Management and Instruction (JEMIN)*, 5(2), 479–492. <https://doi.org/10.22515/jemin.v5i2.12403>.
- Puurtinen, T. (2016). Simplification in translated children's literature. *Target*, 28(2), 240–260. <https://doi.org/10.1075/target.28.2.04puu>.
- Pym, A. (2014). *Exploring translation theories* (2nd ed.). Routledge.
- Shahmerdanova, R. (2025). Artificial intelligence in translation: Challenges and opportunities. *Acta Globalis Humanitatis et Linguarum*, 2(1), 62-70. <https://doi.org/10.69760/aghel.02500108>.
- Shimizu, A. Y., Havazelet, E., Smith, B.E., & Goodwim, A.P. (2025). Multimodal analyses and visual models for qualitatively understanding digital reading and writing process. *Education Sciences*, 15(9), 1135. <https://doi.org/10.3390/educi15091135>.
- Short, K. G. (2018). *Narrative as Research: Exploring the Stories of Classroom Life*. Routledge.
- Sukenti, D. (2025). Readability of bilingual children's storybooks in Indonesia. *J-LELC Journal of Language Education, Linguistics and Culture*, 5(3), 219-227. <https://doi.org/10.25299/j-lelc.2025.24087>.
- Tetrawan, A. D., Ayriza, Y., Hadiana, D., Anggono, T., Amalia, H. A. (2024). The effectiveness of storytelling in enhancing empathy in bilingual kindergarten students. *Insight: Journal of Psychology*, 26(1), 100-112. <https://doi.org/10.26486/psikologi.v26i1.3607>.
- Tour, E., and M. Barnes. (2022). Engaging english language learners in digital multimodal composing: pre-service teachers' perspectives and experiences. *Language and Education*, 36(3), 243–258. <https://doi.org/10.1080/09500782.2021.1912083>.
- Umar, F., Khosiyono, B. H., & Irfan, M. (2023). Bilingual-Based digital story telling innovation to grow the pancasila student profile for primary school. *JOLLT Journal of Languages and Language Teaching*, 11(4), 879-889. <https://doi.org/10.33394/jollt.v11i4.8830>
- Unsworth, L. (2020). Multimodal literacy and digital children's literature. *Language and Education*, 34(6), 509–526.
- Wang, H. (2025). Multimodal digital story telling as literacy learning and moral cultivation practices for university EFL students. *Arab World English Journal (AWEJ)*, 16(1), 366-383. <https://dx.doi.org/10.24093/awej/vol16no1.23>.
- Yang, C. (2024). The application and challenges of cross-cultural multimodal translation using AI. *Eurasian Journal of Applied Linguistics*, 10(3), 214–229. <http://dx.doi.org/10.32601/ejal.10320>.
- Yu, B. (2025). Pedagogical Insights from Multimodal Digital Story Production in English as Second Language Teaching. In M. M. Gu, Y. Liu, & C. F. Huang (Eds.), *Re-envisioning English-medium Instruction in K-12 Schools: Policy, Research and Practice* (pp. 39-59). Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-031-83002-0_3.
- Yuniarti, Y., & Yulian, R. (2022). Digital story telling based on multimodal elements on EFL learners' speaking performance. *Jurnal Pendidikan Indonesia*, 11(2). <https://doi.org/10.23887/jpiundiksha.v11i2.40217>.
- Zhang, E. D., & S. Yu. (2023). "Implementing digital multimodal composing in L2 writing instruction: A focus on developing L2 student writers." *Innovation in Language Learning and Teaching*, 17(4), 769–777. <https://doi.org/10.1080/17501229.2022.2135712>.