Journal of ICSAR
ISSN (print): 2548-8619; ISSN (online): 2548-8600
Volume 10, Number 1; DOI: http://dx.doi.org/10.17977/um005v10i12026p242-253

Cross-Cultural Perspectives on the Development of Critical Thinking in Deaf Students: A Comparative Study between Indonesia and Finland

Fariyeni Fariyeni*, Nurhastuti Nurhastuti

Universitas Negeri Padang, Kota Padang, Indonesia
Email: *fariyeni1101@gmail.com

Abstract: This study examines how cultural context shapes the development of critical thinking skills in deaf students through a comparative cross-cultural analysis of Indonesia and Finland. Although critical thinking is recognized as a core 21st-century competency, it remains underexplored in deaf education, particularly from a cross-cultural perspective. The research employed a qualitative, descriptive, and comparative design. Data were collected through interviews, observations, and documentation, and analysed using comparative thematic analysis. Trustworthiness was ensured through source and method triangulation, peer debriefing with inclusive education experts, and member checking with participants. Participants included secondary-level deaf students, special education (SLB) teachers, and inclusive teachers in both countries. Findings reveal that education in Indonesia tends to be teacher-centred and hierarchical, limiting opportunities for dialogue and critical inquiry among deaf students. In contrast, Finland's egalitarian and student-centred educational culture—supported by bilingual education (Finnish Sign Language and written/spoken Finnish), technology integration, and phenomenon-based learning—offers stronger conditions for fostering critical thinking. Psychological factors such as self-esteem and resilience were found to be shaped by cultural practices and systemic support. This study provides one of the first cross-cultural analyses linking culture, deaf education, and critical thinking development. It underscores the importance of cultural accessibility, particularly in language and pedagogy, in promoting higher-order thinking skills among deaf students. The findings suggest that inclusive education in Indonesia could be strengthened through culturally responsive pedagogy, bilingual approaches, and technology-enhanced learning. The study also proposes a novel cross-cultural model connecting educational culture, language access, and psychological factors to the development of critical thinking in deaf students, and recommends further empirical research across diverse cultural contexts.

Keywords: Deaf education; Critical thinking; Cross-cultural; Indonesia; Finland; Inclusive education; Systematic literature review.

INTRODUCTION

Developing critical thinking skills is a key focus of 21st-century education because it forms the foundation for problem-solving, decision-making, and active participation in global society (Facione, 2020; UNESCO, 2021). However, for students with hearing impairments, particularly those who are deaf, these skills often develop differently due to limited communication access and the varied learning environments they experience (Marschark & Knoors, 2020; Qi & Mitchell, 2022). In a cross-cultural context, each country has a distinct approach to curriculum design, learning methods, and inclusive education policies (Ainscow, 2020). Indonesia and Finland, for example, display contrasting characteristics. Indonesia faces significant challenges related to limited resources and inclusive practices (Sunardi et al., 2021), while Finland is known for its student-centred education system that supports autonomous learning (Sahlberg, 2021). These differences in context provide an opportunity for a comparative study of how the two countries develop critical thinking skills in deaf students, as well as the implications for improving inclusive education practices globally.

Eldiva (2019) suggests that thinking also involves the ability to transform information in memory to form concepts, reason, think critically, make decisions, be creative, and solve problems. Critical thinking is one of the key 21st-century skills essential for students' cognitive, social, and emotional development (Brookhart, 2020; OECD, 2021). These skills are not only crucial for academic success but also for equipping individuals to face the complex challenges of modern society (UNESCO, 2021). Therefore, various educational systems around the world prioritize the development of critical thinking in their curricula and learning practices (OECD, 2021). For deaf students, developing critical thinking presents unique challenges. Communication barriers, limited access to spoken information, and the need for appropriate learning methods make the development of these skills occur differently than for hearing students (Marschark & Knoors, 2020; Qi & Mitchell, 2022). Nevertheless, critical thinking is crucial for deaf students as it enhances social participation, independence, and readiness for the workforce (Antia et al., 2020).

In a cross-cultural context, each country has a unique approach to developing critical thinking skills for students with special needs (Ainscow, 2020). Indonesia faces significant challenges in terms of limited resources, variations in the implementation of inclusive curricula, and the quality of special education services (Sunardi et al., 2021). In contrast, Finland is known for its egalitarian, student-centred education system, emphasizing autonomous learning that supports the development of critical thinking skills (Sahlberg, 2021; OECD, 2021). These differences in context are interesting to study further as they can enrich our understanding of best practices in inclusive education. Although there is a wealth of research discussing inclusive education or critical thinking skills in general, studies specifically comparing the development of critical thinking in deaf students between Indonesia and Finland are still very limited (Qi & Mitchell, 2022). Most studies focus on linguistic aspects, socio-emotional development, or general educational policy, without emphasizing critical thinking skills within a cross-cultural comparative framework.

This study aims to explore and compare how critical thinking skills are developed in deaf students in Indonesia and Finland. The primary focus of the study is to identify pedagogical approaches, learning strategies, and supporting and inhibiting factors that influence the development of these skills. The findings of this study are expected to contribute to the development of inclusive education practices, particularly in improving the quality of learning for deaf students. Furthermore, this research can enrich the international literature on cross-cultural perspectives in special needs education and provide practical recommendations for teachers, policymakers, and researchers in the field of inclusive education.

METHOD

This research uses a comparative descriptive qualitative approach with a cross-cultural comparative study model. Lakshmi (2022) states that qualitative methods aim to obtain meaningful data, where meaning refers to actual data. Therefore, qualitative research emphasizes meaning rather than generalization (Sugiyono, 2013). This research is a comparative descriptive study. Descriptive research is a research method that describes the object or subject being studied objectively. Descriptive research aims to accurately describe what actually happened. The findings of descriptive research are usually in-depth and detailed. In-depth because descriptive research is also conducted on other variables related to a particular problem (Hayati & Dahliana, 2019). Meanwhile, comparative research is research intended to determine and/or test the differences between two or more groups. Comparative research is research conducted to compare a research object, between different

subjects or different times, and find causal relationships (Syaripudin et al., 2013). The aim was to compare critical thinking development strategies in deaf students in Indonesia and Finland and to identify similarities, differences, and influencing contextual factors.

The subjects or participants in the study in Indonesia were special education (SLB) teachers, inclusion teachers, and deaf students at the secondary level. In Finland, they were special education teachers, inclusion teachers, and deaf students at the secondary school level. The participant selection technique used purposive sampling with the following criteria: teachers with at least three years of experience teaching deaf students, and students actively involved in discussion- or project-based learning. Yusuf (2020) emphasized that the purposive sampling approach is highly relevant for inclusive education research because it allows for the exploration of the experiences of individuals with contextual knowledge of the dynamics of inclusion in general and special education settings. This study was conducted from July to September 2025.

Data collection techniques used in-depth interviews with teachers and students to explore experiences, strategies, and challenges in developing critical thinking. Observations were conducted to observe the learning process in the classroom, including teacher-student and student-student interactions. Documentation of the curriculum, syllabus, modules, and related educational policies. The research instruments used were semi-structured interview guidelines, observation sheets (critical thinking indicators such as analysis, evaluation, reflection, argumentation), and document checklists (curriculum, policies, modules, and learning media).

The data analysis technique used comparative thematic analysis with the following steps: (1) Transcription of interview and observation data, (2) Open coding for grouping themes, (3) Comparative analysis to identify similarities and differences between the Indonesian and Finnish contexts, (4) Data triangulation to increase validity (interviews, observations, documents). To increase data credibility, triangulation combines information from various sources and data collection techniques (Denzim, 2021).

Validity and reliability were assessed using source and method triangulation, peer debriefing with inclusive education experts, and member checking with participants to confirm the data. Several verification methods, such as audit trails, source triangulation, and member checking, were used to ensure data validity. Source triangulation was conducted by comparing data from interviews, observations, and documentation to ensure the researcher's data interpretation was correct and relevant. Audit trails were also used to clearly record the research process, including data collection, analysis, and interpretation. This allows other researchers to replicate their work (Lincoln & Guba, 2021).

The research ethics include informed consent, anonymity and confidentiality, and adherence to international research ethics and relevant institutions. The thematic analysis model developed by Braun and Clarke (2006) was used to analyse the data. This model involves identifying key themes from observation and interview data. This method requires the data to be coded and grouped into categories or themes related to the research objectives. To understand the phenomenon under study, each emerging theme is thoroughly examined. To gain a better understanding, the researcher explores and compares how critical thinking skills are developed in deaf students in Indonesia and Finland. The researcher will connect the analysis findings with existing theories on inclusive education. Thus, this analysis not only provides an in-depth understanding of the problem but also provides theoretical contributions that can enrich the literature on inclusive education.

FINDING AND DISCUSSION

Finding(s)

This study yielded several important findings regarding cross-cultural perspectives on the development of critical thinking skills in deaf students in Indonesia and Finland. Based on interview data, observations, and documentation, six main themes emerged, as shown in Table 1, 2, 3, 4, 5, 6.

Table 1. Learning Orientation

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Orientation	Teacher-centred to student-centred	Completely student-centred
The role of teachers	Primary source of knowledge	Facilitators and learning partners
Method	Lectures, exercises, memorization	Inquiry, projects, collaboration
Evaluation	Focus on results/exams	Focus on process and reflection
Class culture	Hierarchical	Egalitarian (equality) and dialogical
Access for the deaf	Limited, direct instruction dominant	Inclusive, technology access and open dialogue

Table 2. Discussion Culture

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Discussion pattern	Limited, dominant teachers	Open, active students
Student participation	Passive, waiting for instructions	Active, free to express opinions
Culture of criticism	Minimal, considered impolite	Fair enough, appreciated as part of learning
Discussion results	Focus on true-false answers	Focus on the thought process and arguments
Deaf students	Lack of space to voice ideas	Technology-enabled and fully inclusive

Table 3. Language and Access

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Language	BISINDO/SIBI, not the same	Bilingual: Sign Language and Finnish
Teacher	Limited, many are not yet fluent in sign language	Professional teachers and translators available
Technology	Minimal, still conventional	Sophisticated, digital access and interactive media
Access discussion	Limited, more instructions	Open, equal to regular students
The impact of critical thinking	Hampered by communication barriers	Facilitated, optimally developed

Table 4. Curriculum

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Orientation	Contents: Competence (in transition)	Cross-disciplinary phenomena
Strategy	Memorize, practice, start project P5	Inquiry, collaboration, real projects
Evaluation	Learning outcome test	Process, Reflection, Higher other thinking skills
Teacher	Instructor: start facilitator	Facilitator, learning partner
Impact on deaf students	Limited access, critical not optimal	Inclusive, Higher other thinking skills are fully facilitated

Table 5. The Role of Teachers

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Teacher position	Knowledge center	Facilitator, mentor
Method	Instructions, lectures, drilling	Inquiry, collaboration, reflective
Relation	Hierarchical	Egalitarian, dialogical
Focus	Learning outcomes (exams)	Process, Higher other thinking skills, problem solving
Impact on deaf students	Passive, direct instruction dominant	Participatory, full access exploration

Table 6. The Impact of Critical Thinking on Deaf Students

Aspect	Indonesia (in transition)	Finland (fully Inquiry-based)
Focus on studying	Memorization, reproduction of information	Analysis, evaluation, problem solving
Critical opportunity	Limited	Spacious and structured
Language and access	Sign language problems, limited teachers	Two languages and inclusive technology
The role of teachers	Instructive	Exploration facilitator
Impact on critical thinking	Underdeveloped	Develop optimally

Discussion(s)

The results of this study indicate that the development of critical thinking skills in deaf students is strongly influenced by the educational system that supports their learning process (Ainscow, 2020; OECD, 2021). In Indonesia, the dominant teacher-centred learning orientation and the lack of a culture of open discussion result in deaf students receiving fewer opportunities to hone their analytical and evaluative skills (Bjork, 2020; Sunardi et al., 2021). Communication barriers, such as the limited use of a uniform sign language and the lack of trained teachers, further limit the opportunities for students to actively participate in the learning process (Marschark & Knoors, 2020; Qi & Mitchell, 2022). As a result, learning practices tend to emphasize memorization and reproduction of information, making it difficult for deaf students to develop more complex problem-solving skills (Brookhart, 2020). In contrast, in Finland, a fully student-centered educational environment with an inquiry-based learning approach provides deaf students with ample access to express opinions, discuss, and explore various perspectives (Sahlberg, 2021; OECD, 2021). The support of a bilingual system (Finnish sign language and Finnish), trained teacher facilitators, and the use of educational technology enable them to fully engage in learning (Marschark & Knoors, 2020). These conditions encourage deaf students in Finland to develop critical, analytical, and evaluative thinking and develop creative solutions to various real-world problems (OECD, 2021). Thus, the differences in educational approaches in the two countries directly influence the extent to which deaf students' critical thinking skills can optimally develop.

The learning orientation in Indonesia currently still tends to be teacher-centred, where the teacher serves as the primary source of knowledge and students tend to passively receive information (Bjork, 2020). Although the Independent Curriculum (Curriculum Merdeka) has begun to shift the paradigm toward student-centred learning, practice in the field remains highly variable and often remains focused on direct instruction and test scores (Kemendikbudristek, 2022). This situation limits the scope for students, including deaf students, to explore and develop critical thinking skills (Brookhart, 2020). In contrast, in Finland, the learning orientation is entirely student-centred, with an inquiry-based learning approach (Sahlberg, 2021). Teachers act as facilitators, encouraging students to ask questions, experiment, and find answers through exploration (OECD, 2021). This dialogic and reflective learning environment provides ample opportunities for deaf students to practice critical thinking actively and independently (Ainscow, 2020). Implications for the development of critical thinking: In Indonesia, the greatest challenge lies in the limited opportunities for students (especially deaf students) to ask questions, argue, and reflect (Sunardi et al., 2021). Therefore, critical thinking is still in its early stages of development. Finland's inquiry-based and egalitarian learning environment provides ample space for students (including deaf students) to practice critical thinking, construct arguments, and develop creative solutions (OECD, 2021).

The culture of discussion in Indonesian schools is relatively limited (Bjork, 2020). Students tend to be passive, awaiting teacher direction, and are less accustomed to expressing opinions or engaging in academic debates (Sunardi et al., 2021). The hierarchical relationship between teachers and students often makes criticism or differences of opinion considered inappropriate, thus limiting opportunities to practice argumentative skills (Ainscow, 2020). This situation further suppresses the participation of deaf students who have communication barriers (Marschark & Knoors, 2020). Meanwhile, in Finland, a culture of open and participatory discussion has become ingrained in educational practice (Sahlberg, 2021). Teachers and students interact egalitarian, allowing everyone, including deaf students, to freely ask questions, criticize opinions, and explore ideas (OECD, 2021). This atmosphere that encourages critical dialogue provides ample space for developing critical thinking skills from an early age (Brookhart, 2020). The implication in Indonesia, however, is that this limited discussion culture means students (especially deaf students) rarely practice presenting arguments or evaluating others' perspectives (Sunardi et al., 2021). As a result, critical thinking skills develop more slowly. In Finland, however, open, reflective, and participatory discussions train students to question, analyse, and evaluate information (OECD, 2021). For deaf students, this strengthens self-confidence and enhances critical thinking skills through authentic interactions (Antia et al., 2020). Yet, educational culture plays a role in mediating opportunities for deaf children to practice critical thinking skills (Ainscow, 2020).

In Indonesia, language barriers and access remain major obstacles for deaf students (Marschark & Knoors, 2020). The use of Indonesian Sign Language (BISINDO) and the Indonesian Sign Language System (SIBI) is not yet uniform, creating confusion, while most teachers in inclusive schools lack adequate sign language competency (Sunardi et al., 2021). The lack of trained teachers and limited learning technology make it difficult for deaf students to engage in classroom interactions on an equal footing (Qi & Mitchell, 2022). In contrast, Finland implements a bilingual education system, using Finnish Sign Language alongside spoken and written Finnish (Marschark & Knoors, 2020). Advanced technological support and the availability of professional teachers and translators ensure deaf students have full access to communication throughout the learning process (OECD, 2021). This overcomes communication barriers, making it easier for deaf students to develop critical thinking skills through dialogue, collaboration, and exploration (Antia et al., 2020). Consequently, in Indonesia, the constraints of sign language and the lack of trained teachers make it difficult for deaf students to access discussion, argumentation, and in-depth reflection (Sunardi et al., 2021). Consequently, the development of critical thinking is slowed. In Finland, however, the bilingual system and technological support provide deaf students with full access to learning interactions (Marschark & Knoors, 2020). This allows them to think more openly, critically, and on an equal footing with their peers (OECD, 2021). Without access to communication, children struggle to develop analytical, evaluative, and problem-solving skills (Qi & Mitchell, 2022).

The Indonesian education curriculum has historically been more content-oriented, with an emphasis on memorization and mastery of material (Bjork, 2020). The shift toward competency began with the 2013 Curriculum and was reinforced in the Merdeka Curriculum, which emphasizes flexibility, collaborative projects, and the development of the Pancasila Student Profile (Kemendikbudristek, 2022). However, implementation still faces obstacles such as limited teachers, facilities, and a tradition of exam-oriented learning (Sunardi et al., 2021). Meanwhile, the Finnish curriculum is phenomenon-based, where students learn through interdisciplinary themes that connect various subjects (Sahlberg, 2021). This model

encourages collaboration, inquiry-based learning, and the development of higher-order thinking skills (HOTS) (OECD, 2021). For deaf students, this approach provides a more meaningful learning experience because they can connect learning to real-world phenomena and hone analytical, evaluative, and contextual problem-solving skills (Marschark & Knoors, 2020). The implication is that the Indonesian curriculum has moved toward competency and HOTS, but remains burdened by content traditions and implementation limitations (Kemendikbudristek, 2022). Deaf students often do not receive equal opportunities to develop analytical and argumentative skills (Sunardi et al., 2021). Meanwhile, in Finland, with its collaborative phenomenon-based curriculum, deaf students are fully facilitated to connect knowledge with reality, collaborate, and hone high-level critical thinking skills (OECD, 2021). A phenomenon-based and inquiry-based curriculum is more effective in facilitating critical thinking than a content-oriented curriculum (Brookhart, 2020).

The role of teachers in Indonesia is still dominated by their position as knowledge centres (Bjork, 2020). Teachers primarily deliver material in an instructive manner, while students act as recipients of information (Sunardi et al., 2021). The hierarchical culture also makes classroom interactions one-way and limits opportunities for active student participation (Ainscow, 2020). Although there is a push to transform the role of teachers into facilitators in the Independent Curriculum, this practice has not yet been fully realized (Kemendikbudristek, 2022). This contrasts with Finland, where teachers consistently act as learning facilitators (Sahlberg, 2021). Teachers accompany students in the exploration process, encourage open discussions, and provide space for students to ask questions and find solutions (OECD, 2021). The egalitarian relationship between teachers and students creates a learning environment conducive to critical thinking, where deaf students are fully supported to actively participate in knowledge exploration (Ainscow, 2020). The implication in Indonesia is that dominant teachers mean that deaf students are given less space to practice expressing opinions, evaluating arguments, and reflecting (Sunardi et al., 2021). In Finland, teachers act as facilitators, creating a dialogic, open, and inclusive learning environment, enabling deaf students to be more active in exploration, argumentation, and critical thinking (OECD, 2021). The academic implications in Indonesia are that deaf children often miss opportunities to practice critical thinking due to communication barriers, a passive discussion culture, and the dominant role of teachers (Marschark & Knoors, 2020). Meanwhile, in Finland, an inclusive, inquiry-based, and phenomenon-based learning environment not only fully engages deaf children but also encourages them to become analytical, evaluative, and solution-oriented thinkers (Sahlberg, 2021). Critical thinking in deaf children develops optimally when there is a collaborative ecosystem (teachers, technology, and policy) (Ainscow, 2020).

Psychological implications in Indonesia: deaf children are prone to low self-esteem due to limited participation (Antia et al., 2020). This impacts their confidence in critical thinking. A hierarchical educational culture and limited language access often lead deaf children to feel insecure and considered "less capable" (Marschark & Knoors, 2020). Low self-esteem discourages them from asking questions and expressing opinions, thus hindering the development of critical thinking (Antia et al., 2020). Sign language is not yet fully accepted in formal schools, and bilingual access is limited, hindering cognitive representation and the expression of ideas (Qi & Mitchell, 2022). Critical thinking is difficult to develop without a rich language (Marschark & Knoors, 2020). Deaf identity is sometimes considered a "deficiency" rather than a cultural identity, leading deaf children to experience marginalization (Ainscow, 2020). Negative identities reduce motivation for critical thinking (Antia et al., 2020). In Finland, full support increases a sense of agency, making children

more confident in expressing ideas and debating (Sahlberg, 2021). Psychological factors (resilience, self-efficacy), or the ability to bounce back and adapt to adversity, stress, or trauma, are closely linked to educational culture and available access (OECD, 2021). An egalitarian/equality culture and bilingual support enhance a sense of self-worth, making deaf children feel equal to their hearing peers, resulting in high self-esteem, and the courage to criticize, discuss, and solve problems (Ainscow, 2020). A bilingual system (sign language and written/spoken language) provides full access to information, enhancing analytical, argumentative, and evaluative skills (Marschark & Knoors, 2020). Recognizing deaf identity as part of cultural diversity empowers deaf children to take pride in their identity and feel empowered to express their opinions (Qi & Mitchell, 2022). This positive identity strengthens their ability to reflect and express their opinions. A striking comparison of the cultural perspectives of Indonesia and Finland on the critical thinking skills of deaf children can be seen in Figure 1.

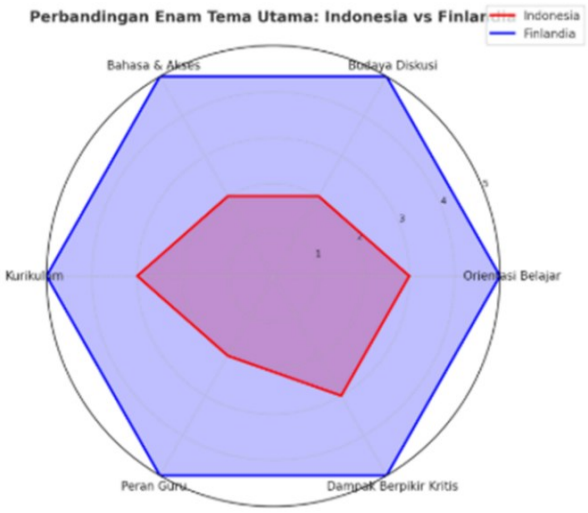

Figure 1. Comparison of six main themes of the Cross-cultural perspective on the development of critical thinking in Deaf students

Theoretical Implications

This study offers several important theoretical contributions to the field of inclusive and special education. First, it reinforces and extends constructivist and inquiry-based learning theories by showing that the cultural context of education, particularly the contrast between teacher-centred and student-centred orientations, plays a significant role in shaping how knowledge is constructed. In the context of deaf students, the findings suggest that inquiry-based approaches can effectively foster critical thinking when they are supported by adequate language access and meaningful facilitation. In addition, this study contributes to the development of bilingual or bi-bi (bilingual-bicultural) theory in deaf education. The findings highlight that access to both sign language and the national language is not only a matter of communication, but also a key foundation for cognitive and metacognitive development, including higher-order thinking skills.

Furthermore, the study expands the theoretical understanding of inclusive education, particularly through the lens of Universal Design for Learning (UDL). The comparison between Indnesia and Finland indicates that the application of UDL principles, such as providing multiple forms of representation, engagement, and expression, combined with technological support, significantly enhances access to higher-order thinking activities. This

suggests that accessibility should not be viewed merely as a matter of physical or ethical inclusion, but as an essential epistemic condition for cognitive development. The findings also contribute to theories of critical thinking development by demonstrating that higher-order thinking skills are not solely shaped by formal curricula, but are deeply influenced by classroom culture, pedagogical practices, and the availability of accessible communication channels. In this sense, critical thinking emerges as a socially and culturally mediated process.

From a methodological perspective, this study also offers value by illustrating the potential of a cross-cultural research approach in special education. By combining document analysis, classroom observation, in-depth interviews, and the analysis of sign language interactions, this research demonstrates the importance of culturally sensitive and multimodal methods in capturing the complexity of learning experiences among deaf students.

Practical Implications

Beyond its theoretical contributions, this study also provides practical insights for improving inclusive education practices. At the policy level, there is a clear need to strengthen the recognition and standardization of sign language as a legitimate language of instruction. Ensuring consistent access to sign language is crucial for providing deaf students with equal opportunities to engage in knowledge construction. In addition, inclusive curricula should more explicitly incorporate higher-order thinking skills through approaches that are visually accessible and linguistically inclusive. This effort needs to be supported by adequate resource allocation, including investment in teacher training, sign language interpreters, and assistive technologies.

At the school level, the findings suggest the importance of adopting bilingual and inquiry-based learning models that are adapted to the visual and communicative needs of deaf students. Collaborative approaches, such as co-teaching between general teachers and sign language specialists, can help ensure that all students are able to participate meaningfully in classroom activities. Schools also need to prioritize the development and provision of adaptive learning materials, including visual resources, captioned videos, and interactive digital tools that support engagement and understanding.

In classroom practice, the role of the teacher needs to shift from a transmitter of knowledge to a facilitator of learning. This includes the use of dialogic teaching strategies, such as Socratic questioning, that encourage students to analyse information, evaluate evidence, and express their ideas. Practical strategies may include the use of visual thinking routines, structured small-group discussions, and peer-mediated learning, where deaf and hearing students collaborate in clearly defined roles. To support this process, formative assessment practices should be strengthened through the use of clear and observable indicators of higher-order thinking, particularly in project-based learning contexts.

Teacher training and professional development also emerge as key priorities. All teachers should have at least a basic level of sign language competence, while special education teachers require more advanced training. In addition, professional development programs should focus on inquiry-based pedagogy in deaf education contexts, including strategies for scaffolding, managing visual discussions, and conducting performance-based assessments. Training in assistive technology is equally important, particularly in the use of captioning tools, visual learning software, and video-based reflection practices.

Technology and learning materials play a crucial role in supporting these efforts. The use of bilingual multimedia resources, such as sign language videos with captions and interactive simulations, can significantly enhance access to learning. At the same time, adequate infrastructure, including internet access, digital devices, and reliable captioning systems, needs to be ensured to support equitable participation.

The involvement of families and the deaf community is another important aspect. Empowering parents through basic sign language training and encouraging their involvement in supporting learning at home can strengthen the overall learning ecosystem. Collaboration with the deaf community, including deaf educators and professional interpreters, is essential to ensure that educational practices are culturally responsive and grounded in lived experiences.

To ensure the effectiveness of these efforts, systematic monitoring and evaluation are needed. This can include both quantitative and qualitative indicators, such as levels of student participation, performance on higher-order thinking tasks, teacher competencies, and the availability of accessible learning resources. Evaluation methods may involve pre and post assessments, student portfolios, classroom discourse analysis, and feedback from stakeholders. Finally, all efforts must be guided by strong ethical considerations, particularly by avoiding deficit-based perspectives and instead focusing on the potential and rights of deaf students. Meaningful involvement of the deaf community in all stages of program design and evaluation is essential to ensure inclusivity and respect.

Priority Action Recommendations

In terms of implementation, several priority actions can be considered across different time frames. In the short term, pilot programs can be introduced in selected classrooms using bilingual and inquiry-based models, accompanied by the development of higher-order thinking assessment rubrics and basic sign language training for teachers. In the medium term, these initiatives can be expanded to a wider range of schools, supported by the development of bilingual multimedia resources and the integration of critical thinking assessments into local curricula. In the long term, sustained efforts are needed to advocate for national-level policies, including the standardization of sign language, the establishment of certification systems for deaf educators, and the allocation of long-term funding to support inclusive education systems.

CONCLUSION

This research shows that the development of critical thinking skills in deaf students is strongly influenced by the cultural context and educational practices prevailing in each country. In Indonesia, the dominant teacher-centred learning orientation, limited discussion culture, language and access barriers, and teachers' role as transmitters of knowledge significantly limit deaf students' opportunities to practice critical thinking. While the curriculum shift toward a competency-based approach through Merdeka Belajar (Freedom to Learn) has provided new opportunities, its implementation has not fully addressed the specific needs of deaf students.

In contrast, Finland demonstrates that a fully student-centred, inquiry-based education system supported by a culture of open discussion, bilingual education, and the role of teachers as facilitators has successfully created a learning environment conducive to the development of critical thinking. A phenomenon-based curriculum emphasizing collaboration and HOTS further strengthens deaf students' analytical, evaluative, and problem-solving skills.

Thus, this cross-cultural comparison underscores the importance of a paradigm shift in education in Indonesia, particularly in empowering deaf students through equal language access, strengthening a culture of discussion, and transforming the role of teachers. This research provides theoretical contributions in broadening understanding of the relationship between cultural context, educational access, and the development of critical thinking, as well as practical implications in the form of policy recommendations, curriculum design, and more inclusive and effective pedagogical practices.

REFERENCES

Ainscow, M. (2020). Promoting inclusion and equity in education: Lessons from international experiences. *Nordic Journal of Studies in Educational Policy, 6*(1), 7–16. https://doi.org/10.1080/20020317.2020.1729587

Antia, S. D., Jones, P. B., Reed, S., & Kreimeyer, K. H. (2020). Academic status and progress of deaf and hard-of-hearing students. *Journal of Deaf Studies and Deaf Education, 25*(4), 1–14. https://doi.org/10.1093/deafed/enaa014

Bjork, C. (2020). Local responses to decentralization policy in Indonesia. *Comparative Education Review, 64*(2), 1–20. https://doi.org/10.1086/707567

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa.

Brookhart, S. M. (2020). *How to assess higher-order thinking skills in your classroom* (2nd ed.). ASCD.

Denzin, N. K. (1978). *The research act: A theoretical introduction to sociological methods* (2nd ed.). McGraw-Hill.

Eldiva, F. T. (2019). Project based learning in improving critical thinking skill of children with special needs. *Advances in Social Science, Education and Humanities Research*, *296*, 349–354. Atlantis Press. https://doi.org/10.2991/icset-19.2019.70

Facione, P. A. (2020). *Critical thinking: What it is and why it counts*. Insight Assessment.

Hayati, R., & Dahliana, S. (2019). *Penelitian deskriptif dalam Pendidikan [Descriptive research in education]*.

Kemendikbudristek. (2022). *Kurikulum Merdeka dan implementasinya [The Merdeka Curriculum and its implementation]*.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.

Marschark, M., & Knoors, H. (2020). *Educating deaf learners: Creating a global evidence base*. Oxford University Press. https://doi.org/10.1093/oso/9780190054045.001.0001

OECD. (2021). *21st-century readers: Developing literacy skills in a digital world*. OECD Publishing. https://doi.org/10.1787/a83d84cb-en

Qi, S., & Mitchell, R. E. (2022). Large-scale academic achievement testing of deaf and hard-of-hearing students: Past, present, and future. *Journal of Deaf Studies and Deaf Education, 27*(2), 120–135. https://doi.org/10.1093/deafed/enab046

Qi, S., & Mitchell, R. E. (2022). Large-scale academic achievement testing of deaf students. *Journal of Deaf Studies and Deaf Education, 27*(2), 120–135. https://doi.org/10.1093/deafed/enab046

Sahlberg, P. (2021). Finnish education reform and its implications. *Educational Research for Policy and Practice, 20*(1), 1–8. https://doi.org/10.1007/s10671-020-09268-1

Sugiyono. (2013). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D [Educational research methods: Quantitative, qualitative, and R&D approaches]*. Alfabeta.

Sunardi, S., Yusuf, M., Gunarhadi, G., Priyono, P., & Yeager, J. L. (2021). The implementation of inclusive education for students with special needs in Indonesia. *International Journal of Inclusive Education, 25*(2), 1–15. https://doi.org/10.1080/13603116.2020.1742582

Sunardi, S., Yusuf, M., Gunarhadi, G., Priyono, P., & Yeager, J. L. (2021). Inclusive education in Indonesia. *International Journal of Inclusive Education, 25*(2), 1–15. https://doi.org/10.1080/13603116.2020.1742582

UNESCO. (2021). *Reimagining our futures together: A new social contract for education*. UNESCO Publishing.

Yusuf, M. (2020). Purposive sampling dalam penelitian pendidikan inklusif [Purposive sampling in inclusive education research]. *Jurnal Pendidikan Khusus, 4*(1), 45–56.