The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

Understanding the professional identity of overseas Korean schoolteachers: The case of Korean transnational educators in one school in Southeast Asia

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DOI: https://doi.org/10.70830/iejcp.2401.19907

The professional identity of overseas Korean educators has hitherto not been studied. This article examines the professional identity of Korean teachers working in a Korean school in Southeast Asia. Through a qualitative case study exploring the teachers' experiences, challenges faced and perceptions of their roles as cultural ambassadors, the study demonstrates how teaching in an overseas Korean school enhances the teachers' sense of responsibility, commitment and professional development. Data was analysed through the lens of ecological systems theory. Findings indicate that personal factors, including teacher agency, flexible attitudes and external support, are crucial for teachers' meaningful overseas teaching and sense of professional fulfilment.

Keywords: professional identity; dispatched teacher; overseas Korean school; case study; ecological perspective

INTRODUCTION

The right to receive a Korean education is guaranteed by the Act on *Educational Support for Overseas Korean Nationals* for an increasing number of Koreans living abroad (Statistics Korea, 2023). However, 1,400 Korean teachers working at 34 overseas Korean schools in 16 countries face challenges in delivering this education, especially in unfamiliar environments (Lee et al., 2016). For one, they must consider overseas students' and parents' unique educational needs, which often differ from those in Korea.

Moreover, teachers' global employment experience affects their professional identity (Rosenfeld et al., 2022). Although considerable research has been devoted to teachers' professionalism and professional identity in general, less attention has been paid to the experiences of overseas Korean schoolteachers. Teachers' teaching experiences affect their job consciousness, job satisfaction and stress (Tubre & Collins, 2000), which in turn affects their quality of teaching and learning. To examine this phenomenon in-depth, we developed a qualitative study to examine overseas Korean teachers' experiences, teaching environment, and professional identity formation.

Our study explores the multi-layered context surrounding overseas Korean teachers and how they conduct their educational activities. It aims to understand the meaning and context of their teaching experiences and professional identity, including their perception of their roles, which previous studies have not covered. Moreover, while this study examines Korean teachers, understanding the professional identity of educators in transnational contexts has broader implications for overseas educators in other settings, including how diverse teacher identities intersect with factors such as professional training, personal qualities and cultural adaptation to the local and home settings, which has implications for equity and quality education in global and local contexts (Hauerwas et al., 2017). Specifically, the study focuses on one overseas Korean school in Southeast Asia. The guiding research questions for the study are:

1. How has teaching in an overseas Korean school shaped teachers' current professional identity?
2. What are the ecological variables affecting the professional identity of overseas Korean schoolteachers?

LITERATURE REVIEW

Professional identity is complex, dynamic and constantly changing. It is a concept derived from career identity (Edwards & Burns, 2016). Career identity is constructed through vocational exploration and commitment (Porfeli et al., 2011). For career identity to be recognised as professional identity, the job must be recognised as a profession. Therefore, studies on the professional identities of various professionals working in different environments have been conducted (Cruess et al., 2016). We review many of these below.

Teachers' professional identity

The view of teaching as a profession has changed with the times. In the past, teachers were considered professionals who conveyed content knowledge about subjects (Schulman, 1986). Since the 1980s, many countries have promoted neoliberal education reforms, including decentralisation, competition and efficiency (Macam, 2022; Verger et al., 2013). This has led to teachers playing a reduced role as professionals and instead as implementers of standardised curricula, which is related to teachers' de-professionalisation in the past 40 years (Frostenson, 2015).

However, a different perspective sees teachers as active professionals who reorganise the curriculum according to the situation and review lesson plans, refining education in this process (Craig & Ross, 2008). Among the elements of a teacher's professionalism, skill is methodical knowledge that enables the practice of education, and disposition is an inner aspect of an individual (NCATE, 2001). In addition, professional identity emphasises not only the function of professionals but also the ethical aspects (Hamilton, 2012). Moreover, as agents of educational change, teachers enhance their professionalism by actively reflecting on their teaching practices (Pantić, 2015; Tarosa, 2024).

Teachers' professional identity is formed when teachers answer the following questions: 'Who am I?', 'What am I doing in this classroom?' and 'Who do I want to be?' (Mockler, 2011; Rosenfeld et al., 2022). Therefore, understanding teachers' professional identity is important because it relates to how teachers perceive their roles, goals and work commitments. Furthermore, a teacher's identity is a key factor in determining what and how the teacher will

teach, and it is closely related to the teacher's practices (Lunenberg et al., 2007). Teachers' identity is also associated with the teachers' abilities (Day et al., 2005), job satisfaction and self-esteem (Beijaard et al., 2000).

In addition, teacher identity is shaped and reshaped by their previous experiences as students and preservice teachers. When reflecting upon their early experiences, many teachers attempt to replicate in the classroom the positive experiences they had in education when they were students and early-career teachers. This indicates 'the powerful interaction between personal histories and the contextual influences of the workplace' (Flores & Day, 2006, p. 230). The same goes for dispatched teachers who travel abroad to experience teaching in a new country and, in turn, enhance their teaching capacities and agency through overseas experience (Rosenfeld et al., 2022).

Previous studies have also revealed that teachers' professional identity relates to their roles concerning students, curriculum and their lives in and out of school (Beijaard et al., 2004; Reeves, 2018). Teachers are cultural beings influenced by their social and cultural contexts, broadly affected by societal culture and, more narrowly, by community influences, such as school and classroom culture (Langley et al., 2014). In other words, teachers' educational beliefs and identity are formed through interaction with society, and the social and cultural environment then influences teachers' identity formation, which is an important foundation for understanding teachers as active professionals today.

Additionally, with the increase in teacher mobility in recent decades (Toraman et al., 2020), studies on teachers' experiences and identities related to educator international mobility have been conducted. According to this trend, overseas and international schools provide students from various countries with different education tailored to the local culture and globalisation trend (e.g., see Santos, 2020, for a case from Hong Kong; and Gillies, 2001, for a discussion of American international schools around the world). Since mobile educators face a rapid change in their teaching environment (Bailey, 2015), the extant literature points out that agency and international learning experiences play a crucial role in shaping a teacher's professional identity (Armour et al., 2017; Colliander, 2018). This brings us to Korean overseas schools.

Education for overseas Koreans

In 2023, the global population of overseas Koreans was approximately 7.08 million, accounting for about 14% of the total Korean population (Ministry of Foreign Affairs, n.d.). Recognising the importance of developing global human resources, the Korean Ministry of Education emphasised the need to train and educate these seven million overseas Koreans to foster international talent in 2010.

Overseas Korean schools are educational institutions established outside Korea to provide education based on Korea's elementary and secondary curriculum. With approval from the Ministry of Education, these schools operate under the *Elementary and Secondary Education Act* to educate overseas Korean nationals (*Act on Consular Assistance of Protecting Overseas Korean Nationals*, 2020). As stated earlier, there are 34 overseas Korean schools in 16 countries. The number of enrolled students is approximately 13,580. Figure 1 shows the locations of these schools; most are located in East and Southeast Asia. The curriculum of each school mirrors Korea's domestic curriculum while also reflecting the characteristics of the host country and the demand for learning the local language (Overseas Education Institution Portal, n.d.).

Figure 1: Distribution map of overseas Korean schools

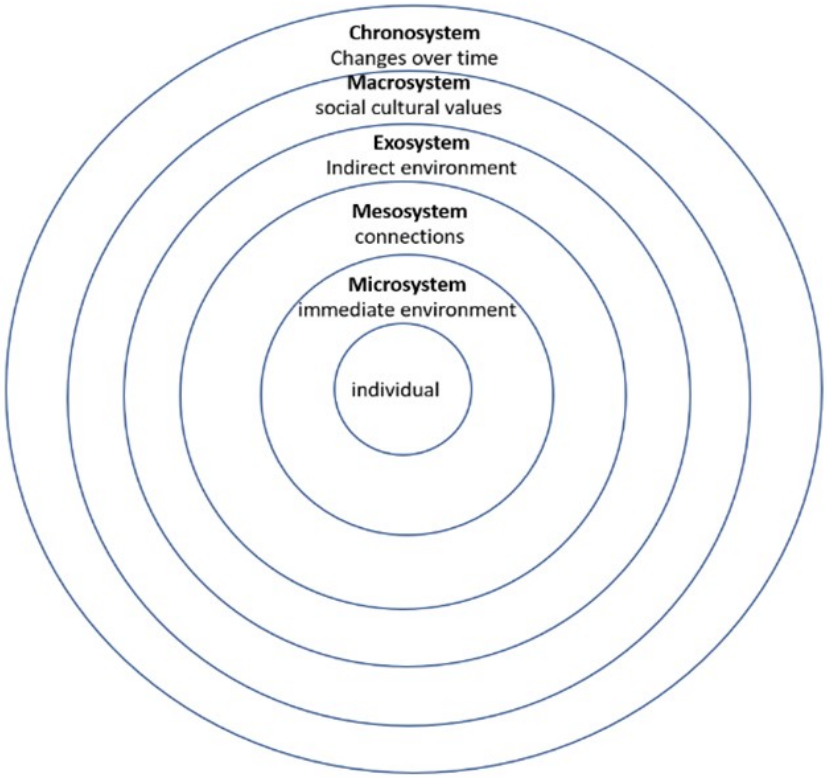
Source: Authors

There has been research on education for overseas Korean students focusing on students' educational experiences, curriculum and research on principals and teachers. Choi and Jo's (2015) study found that education in overseas Korean schools positively impacts students' academic achievement and college adaptation. Other studies suggest that the curriculum in these schools should be supplemented with aspects such as career education and regional understanding (Chang, 2018; Jang, 2020). Research on teachers in overseas Korean schools also highlights challenges in providing high-quality education due to limited resources (Youn & Chung, 2013). Additionally, concerns have been raised regarding the need to tailor education to the unique characteristics of students and regional contexts (Song, 2022).

Theoretical framework: Ecological perspective

Since teacher identity changes are multidimensional and dynamic, researchers have conducted studies about teacher identity in different settings, suggesting the importance of an ecological approach to teacher identity. In this sense, the ecological perspective is concerned with verifying the complementarity of humans and the environment and considering humans and the environment as interdependent. It emphasises the appropriateness of the fit between individuals and the environment, the mutual exchange between them and factors that support or hinder this exchange (Germain, 1973). Figure 2 illustrates the relationship between concepts in Bronfenbrenner's (Bronfenbrenner& Morris, 2006) ecological system theory, which highlights the need for insight into how the ecological environment surrounding the individual constitutes a holistic intersection of varying (micro-, meso-, exo-, macro- and chrono-system) contexts.

Figure 2. Bronfenbrenner's ecological system theory



Source: Bronfenbrenner, U., & Morris, P. A. (2006). The Bioecological Model of Human Development. In R. M. Lerner & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human development* (6th ed., pp. 793–828). John Wiley & Sons, Inc.

From the perspective of exploring the relationship between individuals and the environment to better understand human development (Bronfenbrenner & Morris, 2006), studies dealing with teacher development have also been conducted from this ecological perspective (Hofstadler et al., 2020; Wu & Liu, 2024). Therefore, we have adopted the ecological systems model to comprehensively examine overseas Korean teachers' professional development. This model will be further illustrated and applied in the findings and discussion sections.

METHODOLOGY

Since this study aimed to understand the development of overseas Korean schoolteachers' professional identity and the complex contexts that affect educators' identity formation, an in-depth qualitative research approach was employed. Qualitative research provides an understanding of complex problems and situations (Creswell & Báez, 2020). Specifically, we conducted a case study to focus on schoolteachers' perceptions of their identity development and the challenges they faced working at an overseas Korean school.

A case study is a research methodology that explores a particular case of a phenomenon based on various data, such as interviews and observations, to enable a deep understanding of the case within its naturalistic boundaries (Yin, 2009). The case in this study is Korean overseas schoolteachers' professional identity development at one school in Southeast Asia. Data was collected through interviews with four teachers from the school, along with document analysis of the research participants' teaching materials, the school's website content and research reports on overseas Korean schools.

According to Pugh (2013), people's motivation and professional development can be approached through in-depth interviews. The interviews in this study were conducted in Korean and were semi-structured. They were conducted twice per participant for an average of 51 minutes per session to explore the teachers' beliefs, attitudes, and teaching experiences. The interviews were conducted through Zoom. Open-ended questions were used so as not to confine the responses of the research participants. The first author, who conducted the interviews, used a flexible semi-structured approach, allowing her to adjust the order of questions in response to the participant's answers.

Interview questions focused on professional self-reflection, including becoming an overseas Korean schoolteacher, job satisfaction, difficulties, opportunities and conflicts, and strategies to overcome the challenges (see Appendix A). In addition, documents were used as supplementary data to further explain phenomena beyond the in-depth interviews. To this end, teaching materials, school websites and research reports on overseas Korean schools were collected and analysed. Together, this data supported methodological triangulation for a deep analysis of the relationship between the teacher's personal and professional experiences and the development of their teacher identity in the educational context of the study (Wenger, 1998).

Context, participants and selection criteria

The teachers who participated in this study worked at P School (a pseudonym used to conceal the school and participants' identities). P School is an official overseas Korean school approved by the Korean Ministry of Education and the local Education Bureau. It is a small school—offering elementary education—with 3-15 students per grade and a total student population of less than 50 students. There were few teachers in the school, and the majority (four) agreed to participate in this study. Since rapport between the interviewer and interviewees positively impacts data quality (Horsfall et al., 2021), the study targeted teachers from P School with whom the first author had established rapport. The selection criteria included being a current teacher in an overseas Korean school for at least one year at the time of the study. It was also critical that the educators had significant experience teaching in Korean schools in Korea prior to their overseas experience. This supported a deeper examination of the role of dispatched teachers' overseas experiences in further developing their professional identities.

The researchers were able to establish trust and better comprehend the teachers' experiences because the first author had already developed rapport—through educational professional development in Korea—with one of the teachers from P School before the study. This teacher served as a gatekeeper to introduce the first author to the other participants. Their ages, teaching careers, levels of education and years of teaching experience were diverse. As it was a small school, the sample represented the school at large. Table 1 provides further details.

Table 1: List of research participants

Interviewee	Gender	Age	Education level	Teaching Experience (years)	Teaching in an overseas Korean school (years)
1	M	30-39	MA	15	1.5
2	F	50-59	MA	27	2.5
3	F	40-49	MA	19	1.5
4	M	30-39	BA	14	1.5

Analysis

Following the transcription of the interview files, data was analysed through qualitative thematic analysis for emerging themes (Braun & Clarke, 2006). First, the transcripts were read multiple times to attain familiarisation with the data. Second, codes were identified. Third, similar codes were combined into categories, and then similar categories were combined to form the themes (Merriam, 2009). Once initial themes were derived, inconsistencies between interpretations were discussed and transcripts were re-read to check again whether the themes reflected the content and voices of the participants (a coding example is presented in Table 2 with further examples in Appendix B). Finally, the themes were shared with participants for member-checking to confirm the reliability and trustworthiness of the analysis (Nowell et al., 2017). The member-checking and methodological triangulation strengthened the confirmability and dependability of the findings (Lincoln & Guba, 1985).

Table 2. Example of interview content coding results

Themes	Categories	Codes
Responsibility for students' socialisation	Cultivating Korean identity	·Focusing on Korean and math classes ·The priority of my role is Korean education ·The priority of my role is teaching Korean culture ·A lot of time for preparation for Korean classes
	Education for understanding local culture	·Students are living in this country, not Korea ·Students should mingle with the local people ·Understanding the language and culture of this country, which are essential for living there.

Ethics

To protect participants from harm, the researchers received Institutional Review Board[1] approval before commencing the study. During data collection, the researchers ensured informed voluntary consent, confidentiality, anonymity and beneficence. They provided detailed information about the study's purpose, process, and measures to protect participants' rights and wellbeing. In addition, participants were informed that they could withdraw from the study at any time. Furthermore, participants' identities were strictly protected in the writing of the report, and results were shared with participants to ensure they benefitted from the research.

FINDINGS

Teachers who participated in this research talked about their experiences, reasons for applying to overseas Korean schools, and life as an educator at P School. Since professional identity encompasses all the teacher's knowledge, practices, and dispositions, the experiences of the participants related to the teacher's application and creation of knowledge and practices were included. To answer the first research question, this section presents the professional identities of overseas Korean schoolteachers in three categories: responsibility for students' socialisation, commitment to work and advancement as a teacher. The second research question is addressed in the final part of this section, which describes the contexts in which teachers form their professional identities.

[1] Seoul National University IRB No. 2307/004-013.

Responsibility for students' socialisation

Teachers aimed to help students socialise effectively, enabling them to interact with diverse people while maintaining their Korean identity. 'Socialisation' is a learning and social development process in which individuals interact with their surroundings (Coakley, 2017). P School students needed to adapt and thrive in both the Korean community and the local community. Thus, teachers focused on two aspects of socialisation: fostering a Korean identity and adapting to the local community.

Teachers at P School put significant effort into teaching Korean language and culture. Participant 1 explained, 'I try to teach students a lot about folk games that are popular in Korea'. Similarly, Participant 2 mentioned kimchi-making activities as part of experiencing Korean culture. Teachers also used their experience and expertise to implement educational methods for teaching Korean. For instance, Participant 1 employed peer teaching methods, Participant 3 emphasised reading education, and Participant 4 used quiz-solving activities to enhance students' Korean skills. Recognising that students raised in a bilingual environment might struggle with Korean, teachers tailored their approaches to improve students' language proficiency.

The educational goal of P School is to cultivate students' Korean identity while also fostering open-minded individuals who understand and appreciate diverse cultures. Teachers at P School did not view these two goals as conflicting; instead, they guided students to understand and engage with the local culture through the lens of their Korean identity. They emphasised the importance of educational support to help students comprehend the community and country in which they live, whether in Korea or elsewhere. For instance, Participant 2 mentioned that teachers invited students from other local schools to visit P School, providing opportunities for the Korean students to familiarise themselves with the local culture and interact with local peers through activities like cooking and playing together. Participant 4 also highlighted that the teachers organised world culture festivals at the school to encourage open attitudes toward various cultures.

Education about the community and local language was also conducted to support better integration locally. According to the school website, P School conducts the 'understanding my hometown' activity as part of cultural diversity education. Here, the phrase 'my hometown' refers to the area where students currently live outside of Korea, where they grow up immersed in the community and learn about its history, language and culture. Education that emphasises local languages and adapts to the local community is a common part of the curriculum, not only in P School but also in other overseas Korean schools. This indicates that the education of overseas Korean schools is playing a role in helping students adapt to the local community, and P schoolteachers agreed with this education policy.

Commitment to work

P School is small, requiring each person to handle numerous responsibilities. Despite this, teachers at P School, selected as dispatched teachers, demonstrated a strong willingness to do whatever was necessary for their students. Unlike public schoolteachers in Korea, who must transfer to a different school within the province every five years, teachers dispatched to overseas Korean schools undergo a rigorous selection process involving three rounds of tests. In other words, the research participants feel a strong sense of pride and mission because they

applied directly and were selected through a rigorous screening process to work at this school rather than being assigned through a local rotation system.

Unlike Korea's educational system, which separates after-school activity instructors from regular class teachers, P School teachers are responsible for regular classes and after-school activities due to manpower shortages. For example, all students at P School participate in after-school activities, and all teachers must guide these activities after regular class hours. Participant 3 described this effort as follows:

> It's hard for everyone . . . it's hard to find instructors, and we just have to do it [after-school activities] ourselves. Teachers who come here are all talented and willing to do it [after-school activities] if the school situation calls for it. Even though it's hard, we just do it.

Participant 4 added that he had no complaints about the many tasks because he chose to apply to P School, fully aware of the school's situation. Having passed the examination and interview, he dedicated himself to his job with a sense of mission and responsibility. In addition, participants responded that their role is to guide students, ultimately to promote students' growth and happiness and that this idea is the same as when they were teaching in Korea. However, considering the learning environment at P School with insufficient learning materials and extracurricular opportunities outside of school, teachers showed their willingness to provide various experiences and academic guidance. Participant 2 thought that when teaching students locally, there are cases where students experience something for the first time in their lives at school, and through this, students learn. For example, while students in Korea can learn arts, sports, and other studies through private tutoring outside of school, students in the local context of this study do not have that option. Therefore, the teachers in P School did their best to provide these activities at school.

This demonstrates the teachers' dedication to providing high-quality tuition to their students in a context where many students cannot receive extra assistance, such as private tutoring outside of school. In Korea, these students would go to *hagwons* (private tutoring firms), which almost all youth attend in Korea, but this isn't available in the country of this study. Thus, the P School teachers provided this service. To this end, participants emphasised that providing various experiences to students is important. They stressed the importance of providing high-quality education to students beyond academic guidance and often integrated these with the existing curriculum. For example, Participant 4, who specialised in physical education, offered activities that students might not easily encounter locally. He used his expertise to introduce students to new experiences.

The school, which had been open for less than five years, faced a period of inactivity due to Covid-19. In this challenging situation, the research participants expressed that, despite the burden of setting precedents in their educational activities, they engaged in various initiatives through active interactions with colleagues, demonstrating a shared sense of responsibility. Participant 3 described her colleagues as 'people who are willing to do whatever needs to be done due to the school situation'. Participant 1 also noted that, compared to his experience in Korea, he felt more satisfied with his job performance because he regarded others' responsibilities as his own and shared the difficulties and burdens of work.

In Korea, an individual teacher's work is clearly separated, so the burden and challenges are managed independently. However, at P School, the members of the school organisation work together to address problems collectively. Participant 4 elaborated on the sense of teamwork among teachers:

> In Korea, when I am in charge of something and do something, it feels like I am the only one working hard, and others may have a bit of a feeling of 'I don't care what happens, I

> just do it that way'. Here, if you do something as the main task, it feels like everyone is in charge and shares responsibility. So I don't feel frustrated when I'm working on something.

Participant 4's perspective aligns with the findings of Fullan (2016), which suggest that cooperation can improve the ability to understand complex situations and adapt to change through dialogue between members. Here, Participants 1 and 2 highlighted the active communication among teachers. Participant 1 mentioned that rather than merely repeating previous educational activities, all teachers collaborated to review and improve existing programs through active communication. This collective approach fostered a sense of responsibility for their educational activities and a commitment to achieving high-quality education.

Furthermore, the scope of work for P School teachers extended beyond the school itself. They believed that, in addition to education, the school can serve as a focal point for the community. Participant 1 stated that it felt like the school was establishing itself as a base for the Korean community because the small Korean community focused on the education of students with hope and interest, and this was a feeling he did not have in Korea. Consequently, teachers participated in and cooperated with community events.

Advancement as a teacher

Teaching experience in overseas Korean schools facilitates professional growth for teachers. Collaborative activities and self-development efforts contribute to individual growth and help to foster a cooperative organisational culture.

Teachers enhanced their skills by confronting challenges unique to their overseas contexts. Sharing personal experiences and abilities became a process for addressing school tasks and growing together with colleagues. This cooperative teaching culture enabled teachers to broaden the scope of their work and develop their educational abilities. Participant 2 described her experience of facing unexpected challenges and collaborating with colleagues:

> Actually, all the teachers who come as dispatched are motivated and have excellent work skills. Teachers help each other well and cooperate well, so although it's hard work, I don't think there's any difficulty that I can't bear.

Teachers commonly said that their colleagues had special talents. In other words, one of the reasons for being selected as a dispatched teacher is to be able to teach students with special skills. Teachers at P School shared their specialties with fellow teachers and applied what they learned to teaching students. Participant 1 shared his experience with learning from his colleagues as follows.

> All teachers have different specialties. Some teachers are good at sports, and people whose musical knowledge is so deep that they write and compose their lyrics. I know how to do this and that, but there are things I learn by watching from the side that I don't know how to do. So, instead of teachers doing these things alone in each classroom, they now do them together with fellow teachers.

This mutual learning and sharing of expertise among teachers at P School illustrate the benefits of a collaborative and supportive teaching environment. Teachers emphasised education not only for students but also for themselves. They tried to learn, and these efforts were reflected in the class. In addition, teachers expressed responsibility and mission for education for overseas students by utilising their professionalism and specialties as dispatched teachers. In

this process, teachers autonomously sought to improve their professionalism and shared their expertise with colleagues through mutual learning and teaching.

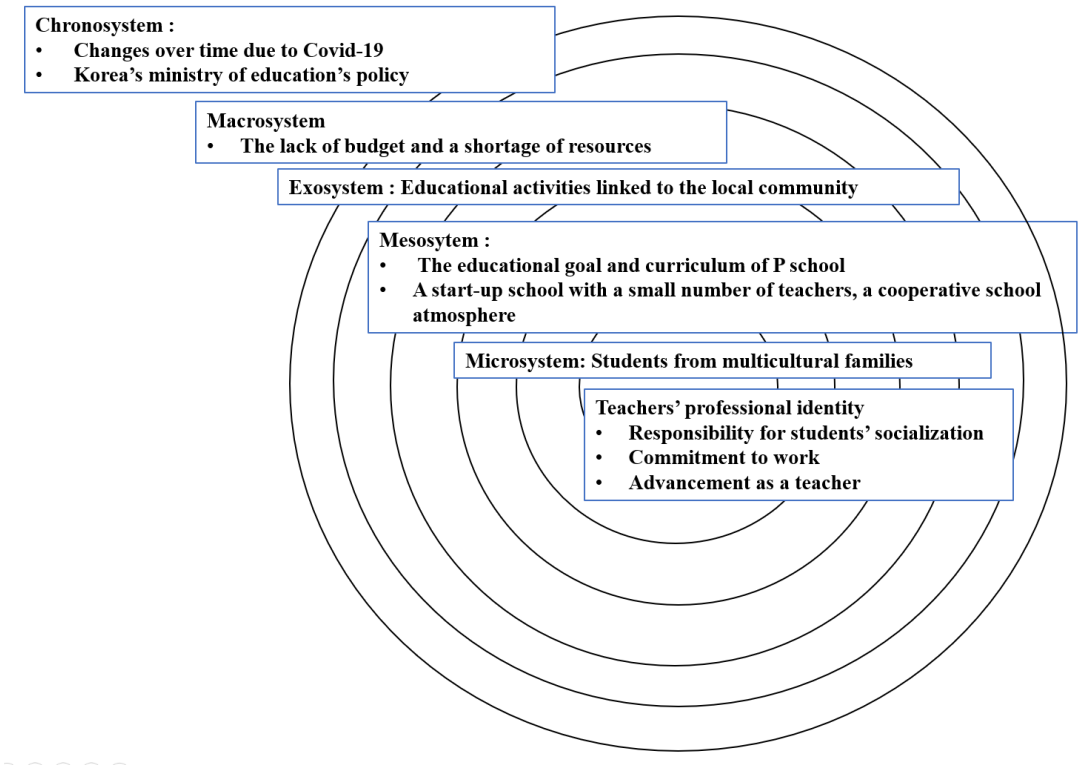
Teachers at P School answered that the scope of work is broader outside of school than when teaching in Korea. Teachers have difficulty promoting work within the school, using local communities, including Korean associations and local institutions, when designing and implementing curriculum. In this process, teachers communicate with various people and improve their interpersonal skills. Participant 4 answered that he had to communicate with a local company and the Korean community to promote School Sports Day, and this experience provided him with a chance to improve his communication skills.

Experience at overseas Korean schools also affected individual career paths. Participant 1 said he could consider his professionalism and career path while working at an overseas Korean school. While working at P School, he felt that his aptitude was handling administrative tasks or making educational plans from a macro perspective. He was good at it and said he could change his career path after returning to Korea.

Crossing classroom, school, and community contexts

Since this study was conducted from an ecological point of view, how the teachers interact with the various contexts surrounding the teachers was analysed. Figure 3 summarises teacher professional identity development at the different ecological levels.

Figure 3. The professional identity of teachers linked to various levels of the contexts



First, teachers often mentioned students' Korean proficiency in the classroom context, the microsystem. In the school, which has many students from multicultural families, students' Korean skills vary widely. Participants indicated that students' Korean proficiency is considered when teachers plan and conduct classes. Since students raised in a bilingual environment may not speak Korean fluently, teachers focus on improving students' Korean

language skills. These characteristics of students affected teachers' teaching methods, and teachers used a mixture of English and Korean during teaching.

The mesosystem level concerns the school curriculum. While overseas Korean schools follow the official curriculum set in Korea, schools nevertheless can assign an extra number of hours to foreign language learning considering the local circumstances (Overseas Korean Education Portal, n.d.). According to P School Curriculum Briefing Data, the number of English and local language classes out of 35 hours per week is 16, accounting for a large proportion of the weekly education. Teachers who teach according to the curriculum emphasise learning the local language and English.

Participants also mentioned that a cooperative atmosphere between fellow teachers and the principal influenced their teaching. In other words, the support of school management and cooperation with colleagues was a driving force behind the practice of goodwill and commitment to the teaching profession. Yet, at the same time, a lack of resources and a small budget influenced their heavy workload. One participant answered that the principal's support allows teachers to plan and implement creative and challenging educational activities instead of strictly following the existing curriculum. This teacher explained that the principal respected teachers' agency and decision-making, consistent with Ryan and Deci's (2000) research that curriculum restructuring is related to autonomy because teachers want to set their own goals and decide for themselves what is important and meaningful.

The exosystem pertains to the local environment beyond the school. At the community level, the participants agreed that trust and support from parents was vital. Teachers need to maintain appropriate relationships with parents and for parents to support the school and teachers (Hargreaves, 2000). P School teachers stated that their smooth relationships with parents, the principal and their colleagues significantly helped them focus on teaching students well.

The macrosystem refers to the broader cultural political economy in which the school is embedded. At the macrosystem level, the lack of budget and a shortage of resources leads to a heavy burden on teachers. One of the most critical issues facing Korean schools is the need for improved facilities and an adequate number of teachers, both of which are closely tied to government financial support. While the government budget for overseas Korean schools has grown, the increase in student enrolment has been much steeper, resulting in decreased education funding per school and per child (Park et al, 2022). Although P School teachers say their work is 'difficult but should be done with responsibility', they answered that more teachers are needed for the students' studies. Accordingly, the teachers wished that many more teachers would apply to work at the school to provide activities suited to the student's various levels and interests. Finally, at the chronosystem level, changes over time due to COVID-19 and other factors concerning Korean society's changing social and political characteristics influenced P schoolteachers. In particular, due to COVID-19, an online teacher training program was implemented using Zoom. Through this online training, pre-dispatched teachers could directly communicate with teachers currently dispatched at overseas Korean schools. Thus, before moving abroad, teachers could receive online training that better prepared them for integration into the local school and community. This shows the benefits of online learning to conveniently overcome the limitations of distance and learning for professional development (Ibrahim et al., 2022). In addition, the Korean Ministry of Education's policies played a crucial role. The Ministry develops textbooks tailored to regional characteristics and hiring policies. According to P School curriculum briefing materials, localised textbooks are used in social studies classes,

and experiential learning linked to these textbooks is conducted. P School teachers promoted students' systematic understanding of the local country by using localised textbooks developed through the Korean Ministry of Education's project to support learning materials for Korean schools abroad.

DISCUSSION

Regarding the first research question, the findings indicate that identity is formed and changed in multiple and dynamic ways within a particular context (Rodgers & Scott, 2008). This was evident in the experience of the research participants. For example, research participants with more than 10 years of teaching experience in Korea responded differently when comparing their teaching experiences in Korea and overseas Korean schools. They changed their teaching practices and attitudes, transforming their professional identities. The transformation of teachers' identities when working in schools abroad correlates with Flores and Day's (2006) findings in Portugal and Hauerwas et al.'s (2017) findings in Italy that cultural and contextual factors affect the identity of teachers and, as their teaching careers advance, the role perceived by them also changes. Thus, during their overseas service, Korean schoolteachers develop a sense of national pride and multicultural sensitivity that they do not feel when working in their country of origin. This has ongoing implications for equity and quality education in the overseas Korean schools where they work and in schools back in Korea when these educators return home. By becoming more aware and reflective on issues of equity and diversity, Korean overseas schoolteachers practicably learn about diversity and multiculturalism and how to promote it through education (see also Rodriguez et al., 2023; Zhang & Chan, 2023).

Additionally, the teachers at P School acknowledged the unique context of their environment and tailored their instruction accordingly. This approach aligned with previous research, indicating that a teacher's identity is closely linked to the context in which they teach (Beijaard et al., 2004; Reeves, 2018). In this sense, participants formed a wider professional network than in Korea, linking closely with school management and the local community and reflecting deeply on their professional lives as teachers. Unlike teachers working in Korea, overseas Korean schoolteachers work in foreign contexts with reduced teacher infrastructure and multi-layered human relationships within and beyond the local Korean community.

Regarding the second research question, which discusses the teachers' professional identity environment, the findings show that teachers must expand their concerns beyond the classroom toward the whole community. This indicates 'the importance of professional development in equipping educators with the skills and knowledge needed to collaborate effectively with community partners' (Zeng et al., 2024). According to Beauchamp and Thomas (2009), the characteristics of students, fellow teachers and principals can be influenced by the community and, in turn, influence the formation of a teacher's professional identity. For example, according to Kennedy et al. (2012), various interactions with the community influence teachers' perceptions and performance of roles. In this way, P schoolteachers overcome the lack of school resources to support students' educational activities by cooperating with the community. In the process, the teacher's sense of connectedness—with students, other educators and the community—affects their performance in the school (Langley et al., 2014). For instance, while working overseas, the teachers met many individuals from diverse cultural backgrounds, including local teachers, domestic parents and students, and international English teachers, which helped them cultivate an open mindset. This aspect of teacher development is related to Santos's (2020) research findings on teachers at an international school in Hong Kong. Santos found that teachers reported working across cultures and languages in an international school

helped prepare students to be future leaders. This contributed to a sense of meaning and expanded purpose in their work, thus motivating the teachers to continue working in the school.

In addition, teachers in this study enhanced their professionalism by actively leveraging resources and infrastructure of the local community into their classrooms with the awareness that they were members of that wider community. Education through continuous and active connection with local communities eventually leads to students' understanding of the region. In other words, teachers used local resources for regional understanding of education, and a virtuous cycle occurred in which education through connection with local communities helped students understand the region. This finding is related to Song's (2022) study, which examined Korean teachers who participated in developing localised textbooks in Cambodia. She found that teachers felt their professionalism in social education by connecting to the local community had improved. It is recommended, therefore, at the level of policy that schools and education bureaus prioritise enhancing further school-community relations by prioritising more community engagement in overseas settings.

Three key implications result from this study. First, educators can support their professional identity development through practising reflexivity (Pantić, 2015). In this study, teachers looked back on their educational activities and tried to improve their shortcomings by not repeating previous activities but by planning and implementing education to take into account the characteristics of students, schools, peer teachers, parents and communities.

Second, external support and policies must be provided to support teachers' professional development. Teachers want their students to have many experiences, grow physically and personally, and work hard to achieve this with a sense of responsibility and mission. However, educational activities have many restrictions due to a lack of support in the school environment. Therefore, it is necessary to improve the educational environment with more material resources to maximise the effectiveness of education.

Additionally, teachers carried out the many tasks assigned to them with a sense of responsibility, and this sense of responsibility and dedication was analysed as an element of the professional identity of teachers at overseas Korean schools. However, too much work given to teachers can lead to burnout (Farber, 2000), so finding ways to support teachers at Korean schools abroad is necessary. Teachers who participated in this study emphasised that mandatory training (from Korea) was not helpful to their educational activities and that localised training would provide more practical help for carrying out educational activities. Participants in the study said they could get practical advice and the assistance necessary to work well abroad by communicating online with overseas Korean school teachers via training prior to dispatch. According to the teachers, this training is practically helpful in supporting them in adapting to local life and the context-relevant needs of the school. We, therefore, argue for the need for further pre-departure teacher training in the future.

Third, teachers working at Korean schools abroad do not continue working as they previously did but adapt to the new environment and carry out their teaching duties flexibly. While guiding students in an environment completely different from Korea's educational environment, teachers faced various difficulties but tried to solve problems with an open mind. This is related to adaptive expertise, one of the elements of teacher expertise, especially the ability to respond to problems immediately and solve them skilfully (Horowitz et al., 2005).

Overall, teachers at P School conducted education to understand the local community and used appropriate educational materials. Since a teacher's teaching expertise is cultivated based on their own experiences and experiential knowledge in the context in which the teacher is located (Schön, 2017), the expertise of P School teachers is meaningful in developing their educator identity and professional acuity based on an understanding of the local setting.

CONCLUSION

This study explored teachers' professional identity in an overseas Korean school in Southeast Asia by examining their attitudes and practices toward school education. The study found that the professional identity of teachers who worked in Korea and then moved overseas to continue their teaching career was characterised by an inquiring attitude to produce and apply practical knowledge and a strengthening of their Korean identity. Though the teachers at P School encountered educational challenges due to a lack of resources (Youn & Chung, 2013), they collaborated with colleagues to provide excellent educational experiences to students. In an environment where the educational infrastructure is lacking, the support from the community, including the principal and parents, has a positive impact on the teachers' active educational activities. Overall, this study is meaningful for overseas Korean schools, providing insights into the professional identity development of educators who migrate to continue their educational activities overseas.

Before concluding, however, several limitations of the study should be noted. Since the study only involved the participation of four P School teachers, drawing generalisations from this small sample size is not possible. As consistent with qualitative research, the study's strength is its in-depth examination of the phenomenon of Korean overseas schoolteachers' professional development. Another limitation of the study is that since no participatory observation was made, the interaction between the research participants and the environment could not be observed. The study sought to mitigate this limitation through methodological triangulation, including analysis of school websites and teaching materials (De Fina & Georgakopoulou, 2011). Furthermore, because the interviews were conducted in Korean and the research was written in English, some meaning may have been lost in the translation from Korean to English. To compensate, the researchers used two translation programs and cross-examined the transcriptions and translations several times.

Additionally, it should be acknowledged that individual personality traits may have influenced the educators' decisions and professional identities, or their responses may have been influenced by how they perceived the interviewer, both of which necessitate a nuanced interpretation of the data and its implications. Here, the process of member-checking provided further reliability that the translation and interpretations presented herein are accurate and trustworthy. Finally, as the situation of overseas Korean schools differs by context, future research should examine comparative perspectives across overseas Korean school settings. These follow-up studies could examine convergent and divergent possibilities for teacher professional development across overseas Korean schools. This would enhance a comprehensive approach to the study of the professional identity development of dispatched Korean educators, contributing findings that would be useful both for Korean educators (at home and overseas) and other dispatched educators working in various settings. Overall, the present study indicates that personal factors, including teacher agency, flexible attitudes, and external support, are crucial for dispatched teachers' meaningful overseas teaching and sense of professional fulfilment.

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APPENDIX A

Interview Questions (Examples)

1. What made you interested in working at Korean schools overseas?
2. What is an impressive experience for you working at an overseas Korean school?
3. What are the enjoyable things to do while working at an overseas Korean school?
4. What are the difficulties of working in an overseas Korean school?
5. What is the difference between your teaching experience in Korea and teaching experience abroad?
6. What do you think students, parents, colleagues, and the principal expect from you?
7. What do you consider when designing and conducting classes?

8. If you could organize and run the curriculum as you wish, what kind of classes would you like to teach?
9. What are your priorities when working?
10. What policies have helped you in your teaching experience? What policies need improvement?

Interview questions may vary depending on the research participant's circumstances and the interview context.

APPENDIX B

Themes	Categories	Codes
Responsibility for students' socialization	Cultivating Korean identity	· Focusing on Korean and math classes · The priority of my role is Korean education · The priority of my role is teaching Korean culture · A lot of time for preparation for Korean classes
	Education for understanding local culture	· Students are living in this country, not Korea · Students should mingle with the local people · Understanding the language and culture of this country, which are essential for living in this country.
Commitment to work	Willing to work	· Selected as a dispatched teacher-willing to show my competence and expertise · Focusing on academic guidance as well as providing various experiences · The priority of my role is to promote students' growth · Happy to see students' improvement
	Sharing the high sense of responsibility	· Increased responsibility for performing tasks - plan and practice · Being a superman · High autonomy
Advancement as a teacher	Development through collaborative action	· Colleagues like a team member or a comrade · Colleagues with different teaching experiences in different regions · Cooperative atmosphere among teachers · Dealing with unexpected situations in unfamiliar environments
	Self-development	· Effort for self-improvement · Learning leadership · Understanding the difference · Being open-minded ·Learning interpersonal relationship
Crossing classroom, school, and community contexts	Microsystem	· Large academic gap between students ·Many students from multicultural families. ·Level-focused teaching according to students' Korean level · Promoting peer teaching
	Mesosystem	· Teach after school classes · High workload

Themes	Categories	Codes
		· A school that emphasizes English education · A school that emphasizes multicultural sensitivity · A school that emphasizes Korean identity · A start-up school · A small-sized school · Parents want language education · Lack of human resources
	Exosystem	· Parents who trust and respect their teachers · Parents who trust and respect their teachers · No malicious complaints from the parents

The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

The role of e-learning platforms in enhancing teaching effectiveness in Fijian schools: Challenges and strategies for improvement

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DOI: https://doi.org/10.70830/iejcp.2401.210876

E-learning platforms are revolutionising education by enhancing the efficacy of instruction; however, they can only achieve their full potential if significant challenges are addressed and effective improvement strategies, such as professional development, infrastructure enhancement and technical support, are implemented. This study aimed to investigate the readiness of teachers in Fijian schools to adopt e-learning platforms. It also sought to identify the necessity for e-learning platforms in schools, the factors that impede their implementation and strategies to improve teaching and learning through these platforms. Data were collected from 100 participants, including 20 school principals, 40 teachers and 40 students, through questionnaires and interviews. Qualitative data were analysed in accordance with the research questions, and quantitative data were analysed using descriptive statistics. The study found that e-learning platforms enhance education by fostering 21st-century skills and improving teaching methodologies. However, challenges such as inadequate resources, insufficient teacher training and unreliable Internet and electricity hinder its full implementation. The study suggests that targeted solutions, including professional development for teachers, investment in reliable infrastructure and continuous support, should be provided to enable schools to maximise e-learning's benefits and create a more innovative educational environment.

Keywords: *e-learning; teaching effectiveness; e-learning platforms; 21st-century skills; Fiji*

INTRODUCTION

In the digital era, it has become essential to integrate e-learning platforms into educational settings, which has fundamentally transformed traditional teaching practices. Assessing teachers' preparedness to utilise these platforms is crucial for successfully implementing and enhancing students' learning experiences. Although there is a global push for the adoption of

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e-learning, it is necessary to establish the need for such platforms in the Fijian context, considering the unique educational challenges of this region.

E-learning, also referred to as electronic learning or web-based training, constitutes instruction accessible at any time and from any location via the Internet or a corporate Intranet, delivered to students and other learners through a browser (Lutkevich, 2020). An e-learning platform serves as a virtual learning environment that employs information and communication technologies to enhance the teaching and learning process. It comprises various tools that enable users to interact, communicate and collaborate online. These tools may encompass discussion forums, live chat, video conferencing, online quizzes, interactive learning materials and digital assessments, among others (Pérez, 2023). The adoption of e-learning platforms enables quality education to be provided to all students, making teaching and learning more engaging for teachers and students.

Providing teachers with the necessary training to use e-learning platforms effectively is essential to foster an effective teaching and learning process in all schools, regardless of their geographical location. Effectiveness is the degree to which e-learning platforms improve student learning outcomes, increase engagement and facilitate efficient teaching strategies (Anderson, 2008; Clark & Mayer, 2016). Numerous studies have assessed teachers' readiness to adopt e-learning platforms, revealing that varying levels of preparedness are influenced by factors such as technological competence, access to training, attitudes toward technology and online collaborative learning (Çınar et al., 2021; El Alfy et al., 2016; Kaushik & Agrawal, 2021; Shaikh et al., 2023; Shaikh et al., 2024). These studies highlight the impact of e-learning platforms on student academic achievement because they provide access to detailed information and learning resources. However, the reluctance of some teachers to adopt e-learning platforms due to a lack of knowledge and skills or comfort with traditional teaching methods poses a challenge.

E-learning platforms have been shown to improve academic performance by providing students with extensive information about their studies (Mothibi, 2015). However, it is crucial for teachers to fully understand the functionalities and daily use of these platforms in classrooms to motivate their students. Despite this, some teachers who prefer traditional teaching methods resist using e-learning tools due to a lack of knowledge and skills.

This study contributes to the body of knowledge by addressing the limited research on the adoption of e-learning in the Fijian context, particularly in rural and urban school settings. This study addresses the gap in the literature regarding e-learning adoption in Fiji, particularly by examining the perspectives of principals, teachers and students together, which has been limited in prior research. Unlike previous studies, which often focus on developed countries, this research provides a comprehensive understanding of Fiji's unique challenges and opportunities for implementing e-learning platforms. By incorporating qualitative and quantitative data, this study offers nuanced insights into teachers' readiness, infrastructure gaps and potential strategies for effectively integrating technology into education. It expands existing research by contextualising global findings within the Fijian setting, thus offering implications for other developing regions facing similar educational and infrastructural limitations. This is one of the few studies to examine the perspectives of principals, teachers, and students collectively, thereby ensuring a holistic view of Fiji's e-learning landscape. The following research questions guided this study:

1. Why do teachers use e-learning platforms in Fijian schools?

2. What are the specific context-related factors that hinder the promotion of quality e-learning platforms in Fijian schools?
3. How can teachers deliver effective teaching and learning through e-learning platforms in Fijian schools?

LITERATURE REVIEW

E-learning platforms significantly influence the teaching and learning processes. The 21st-century educational system is designed to prepare children for future employment opportunities by fostering their complete development. E-learning uses electronic technology to access educational programs beyond traditional classrooms. E-learning has replaced traditional methods of instruction and learning due to its convenience and use. According to Abdelaziz et al. (2014), e-learning is a means of communication and information exchange in education, allowing teachers and students to connect using electronic devices. Kong and Song (2015) explain that e-learning is needed in the school system to foster the development of skills and knowledge among students so that they can use e-learning devices meaningfully when employed. It is important to understand that e-learning platforms drive our education system forward as children prepare for the future. Furthermore, Al-Emran and Teo (2019) assert that e-learning provides solutions and opportunities to disseminate knowledge and information, facilitate learning and enhance the performance of students and teachers through the development of new knowledge and skills.

Furthermore, most 21st-century children do not want to learn the traditional blackboard and chalk methods. Today, education needs to be changed drastically so that the education system is on par with the rapidly growing society of the 21st century. Leow et al. (2016) advocate for integrating the technological advancement of e-learning devices and other online software applications into the school system to transform them into 21st-century digital learning classrooms. E-learning platforms in schools eliminate teacher-centred classrooms and move to learner-centred classrooms, where learners can have self-directed learning and become problem solvers (Yesil & Aras, 2024). Therefore, we also need to train our teachers to become ambassadors for e-learning in our schools so that they can teach children confidently.

Teachers need to use e-learning platforms in schools.

E-learning platforms have become integral to modern education by offering various tools for enhancing teaching and learning. E-learning accommodates diverse learning approaches by using the extensive interactive content available on the Internet (Songkram, 2015). Teachers must continuously enhance their knowledge and abilities to effectively use e-learning platforms so that teaching and learning in their schools are relevant and responsive. Implementing e-learning platforms in schools enhances the delivery of high-quality education by allowing learners and teachers to access a wealth of information related to their teaching and learning. According to Rawashdeh (2021) and Gameil and Al-Abdullatif (2023), e-learning platforms foster interactive learning environments that allow teachers to provide accessible content at any time and location. El-Sabagh (2021) highlighted that e-learning supports personalised learning, catering to students' individual needs through adaptive content delivery.

E-learning provides much-needed effectiveness for teachers, allowing them to maximise the potential for individual learning curves and styles within the classroom. Wargadinata et al. (2020) note that e-learning is very effective for teaching and learning because it provides opportunities for students to learn about various electronic gadgets and applications,

which are useful for their schoolwork and future employment opportunities. Similarly, Aboderin (2015) and Ferriere and Ailincai (2022) suggest that e-learning is needed in the education system because it motivates teachers to integrate and use e-learning tools to positively boost the teaching and learning process towards a 21st-century knowledge-based society. Students learn better when their teachers use innovative and creative methods. Technology must be integrated into the classroom to ensure that students are fully engaged in the lesson.

The flexibility of e-learning allows for a blended learning approach that combines online resources with traditional classroom instruction. This approach ensures continuity of education, particularly during crises such as the COVID-19 pandemic when remote learning becomes essential (Ibrahim et al., 2023; World Bank, 2021). Furthermore, Adeshola and Agoyi (2022) argued that integrating e-learning platforms improves student engagement and motivation because these platforms often include multimedia content and interactive assessments.

Principals must emphasise the importance of e-learning platforms in developing skills of the 21st century, improving lesson delivery and fostering technological literacy among students in schools (Kalyani, 2024). According to Encarnacion et al. (2021), e-learning platforms help teachers improve classroom learning efficiency by providing quick and easy access to information that helps students keep up with modern educational strategies.

Successful implementation of e-learning in schools requires adequate infrastructure and training. Teachers must develop the digital literacy skills necessary to effectively use these platforms (Maphosa & Bhebhe, 2019). Additionally, Liu (2021) postulated that, without proper support, e-learning can exacerbate the digital divide, disadvantaging students from underprivileged backgrounds. Therefore, although e-learning platforms offer significant benefits, their implementation must be carefully managed.

Obstacles preventing teachers from promoting quality e-learning platforms in schools

Many factors prevent teachers from promoting high-quality e-learning platforms in educational institutions. One major challenge is the inadequacy of infrastructure, including unreliable Internet services and insufficient digital devices (Qazi et al., 2022). Similarly, Adarkwah (2021) posits that a lack of electricity, knowledge and skills, e-learning resources and Internet connectivity hinders teachers from implementing e-learning in their classrooms. Teachers also face limited training and technical support, adversely affecting their ability to integrate technology effectively into the classroom (Al-Araibi et al., 2018). Furthermore, Chandra et al. (2024) state that digital literacy disparities among teachers further hinder their confidence in using e-learning platforms, resulting in their failure to effectively deliver lessons through multimedia and other e-learning platforms.

According to Singh et al. (2021), budgetary constraints prevent educational institutions from acquiring and maintaining high-quality e-learning tools. Resistance to change and preference for traditional pedagogical methods among some teachers also hinder the adoption of innovative learning technologies (Watty et al., 2016). Additionally, privacy and security concerns about online platforms discourage teachers from fully embracing digital learning environments because they appreciate the potential exposure of student data to breaches (Mouawad, 2020).

Providing effective teaching and learning via e-learning platforms in schools

Effective teaching through e-learning platforms requires the strategic integration of technology with pedagogy. Alqurashi (2019) and Hover and Wise (2020) posited that teachers must adapt their instructional methodologies to suit digital environments, incorporating interactive tools such as quizzes, videos and discussion forums to enhance engagement. Haleem et al. (2022) echoed similar sentiments by stating that e-learning platforms enhance lesson delivery, foster deeper conceptual understanding and boost the students' learning capacity through multimedia tools such as videos and audio.

A critical component of successful e-learning is the design of structured, clear and user-friendly courses. Xu et al. (2020) emphasised the importance of well-organised content that facilitates independent learning while providing timely feedback to students. Furthermore, Chand et al. (2022) and Tagimaucia et al. (2024) highlighted the importance of blended learning, which integrates online and face-to-face instruction to enhance flexibility and learning outcomes.

Teachers must also possess digital literacy to provide effective e-learning skills. Lukas and Yunus (2021) stated that without adequate training in digital tools, teachers may find it difficult to use their full potential. Dhillon and Murray (2021) and Morris and Mwaraksurmes (2024) suggested that ongoing professional development and access to resources are crucial for improving teachers' e-learning competencies. Finally, Azionya and Nhedzi (2021) emphasise the need for equitable access to technology, as disparities in access can hinder the effectiveness of e-learning platforms for all students.

THEORETICAL FRAMEWORK

This study's theoretical framework draws upon the Technology Acceptance Model (TAM) and Constructivist Learning Theory. TAM describes how users adopt and use technology, particularly emphasising the importance of perceived usefulness and simplicity as critical determinants of engagement with e-learning platforms (Davis, 1989). Although there are more recent alternatives to TAM, this study maintains TAM as the preferred model due to its strong empirical support, simplicity, and applicability in adopting educational technology. TAM has been extensively validated in various technological environments, making it a dependable framework for understanding teachers' participation in e-learning opportunities. Furthermore, its emphasis on perceived usefulness and user-friendliness continues to be relevant in modern digital learning environments, where user acceptance is a critical determinant of successful implementation (Venkatesh & Bala, 2008).

Constructivist learning theory posits that learning is an active process in which learners acquire knowledge through interaction and engagement (Chand, 2023). This theory explains the need for adequate support structures that facilitate teachers' understanding and effective use of e-learning tools. By integrating these frameworks, this investigation explores the impact of preparation and support systems on the engagement of teachers with e-learning technologies.

RESEARCH METHOD

This study adopted a mixed methods design, combining qualitative and quantitative approaches to comprehensively explore the role of e-learning platforms in improving teaching effectiveness in Fijian schools. The mixed methods approach was selected because it allowed the integration of statistical analysis with rich, contextual data, providing a well-rounded understanding of the research problem. Quantitative data were collected through structured questionnaires, while

qualitative data were collected through semi-structured interviews. This approach enhanced the validity of the findings by triangulating data from multiple sources.

One hundred participants were involved in the study: 20 school principals, 40 teachers and 40 students. Participants were randomly selected from 10 schools within a single Fiji education district. Although unnamed for confidentiality, this district includes urban and rural schools and was chosen for its diversity in school types and student populations. The study included four government schools and six community schools. Of the 10 schools, five were urban, and five were in rural areas.

Participant codes were assigned to maintain confidentiality and ensure traceability of the data sources during analysis; principals were coded as P1–P20, teachers as T1–T40, and students as S1–S40. This coding allowed for a clearer distinction between perspectives during data interpretation.

Structured questionnaires were distributed to all 100 participants. The questionnaires addressed core themes, such as teacher digital readiness, infrastructural and training challenges and perceived benefits of using e-learning platforms. The questionnaire contained closed-ended questions (to generate quantifiable data) and open-ended questions (to gather qualitative insights). The emphasis was placed on issues relevant to the Fijian context, such as digital divide concerns, language barriers and localised training support.

In addition, 30 semi-structured interviews were conducted to collect qualitative data. These included 10 principals (from five urban and five rural schools), 10 teachers (evenly distributed by school type and location) and 10 students (five from government schools and five from community-managed schools). The interview questions focused on real-life experiences with e-learning tools, challenges in integration, training adequacy and student engagement. These interviews were essential to capture the nuances of implementation and the contextual factors that affect the uptake of e-learning.

Quantitative data were analysed using descriptive statistical techniques, with frequency distributions and percentages reported. Key findings were presented in tables and graphs to ensure clarity and transparency. The qualitative data from open-ended responses and interviews were analysed using thematic analysis. Emerging themes were categorised according to relevance to the research questions, such as ‘infrastructure limitations’, ‘teacher competency gaps’ and ‘student motivation and access issues.’ Data coding for themes followed a systematic process to ensure inter-coder reliability and consistency.

Integrating quantitative and qualitative data allowed for a comprehensive understanding of how e-learning platforms are used in different school types and geographical settings in Fiji. This methodological triangulation strengthened the credibility of the findings and informed context-specific strategies to improve digital education delivery in Fijian schools.

Ethical consideration

Before the study, consent forms were distributed to all participants to confirm their agreement to participate. Participation in this study was voluntary; therefore, no individuals were compelled to participate. All participants were fully informed of their rights and responsibilities throughout the study. Participants were also informed that providing personal information on the surveys was voluntary and explicitly asked to respond to all questions. However, they

retained the absolute right to refuse to answer any question they desired. Participants were assured that their identities would not be disclosed in any part of the study. Data collected from the participants were securely stored in a locked cabinet according to the ethical standards adhered to in any study.

RESULTS OF THE STUDY

All participants answered the same questions, allowing direct comparisons across respondent groups. Tables 1 to 5 summarise results from the quantitative data.

Principal's views on the need for teachers to use e-learning platforms in schools

The principals were asked to explain the most important need for e-learning in schools. Their responses ranged from developing 21st-century learning skills in children to effective lesson delivery, developing children toward technology literacy, creative and innovative teaching styles, and accessing e-learning material online.

Table 1 shows that principals most frequently cited '21st-century learning skills' (30%) as the primary reason for using e-learning tools, followed by 'effective lesson delivery', 'developing children towards technology literacy' and 'creative and innovative teaching styles' (20% each). Only 10% mentioned access to e-learning materials as the main reason. This highlights that principals highly value skills that prepare students for modern, digital contexts.

Table 1: Principals' views on the reasons the teachers should use e-learning tools

Why should teachers use e-learning tools?	Frequency	Percentage (%)
Effective delivery of lessons.	4	20
Develop children towards technology literacy.	4	20
Develop 21st-century learning skills in children.	6	30
For creative and innovative teaching styles.	4	20
Have access to e-learning material online	2	10

Teachers' views on the need for e-learning platforms

In line with the principal's perspectives, teachers were asked to explain the necessity of utilising e-learning platforms in schools. Their responses included facilitating comfortable, efficient and expeditious learning, preparing students for 21st-century learning methodologies, improving lesson delivery, boosting students' learning capacity, improving conceptual understanding, enabling teachers to share resources via online platforms and introducing innovation and creativity to teaching and learning materials.

Table 2: Teacher responses on the reasons for using e-learning tools

Why should teachers use e-learning tools?	Frequency	Percentage (%)
E-learning makes learning comfortable, easy, and fast.	13	33
Train children to get used to 21st-century learning habits.	12	30
E-learning tools are the best mode of delivery of lessons.	17	43
E-learning improves students' learning ability.	10	25
E-learning improves the standard of understanding concepts.	5	13

Why should teachers use e-learning tools?	Frequency	Percentage (%)
Teachers can share resources through online platforms	2	5
E-learning brings innovation and creativity to teaching and learning resources.	2	5

Table 2 reveals that the most commonly cited reason (43%) was that e-learning tools offer the best mode of teaching. This is followed by preparing students for 21st-century learning (30%) and making learning comfortable, easy and fast (33%). On the contrary, only 5% of teachers identified innovation and creativity or resource sharing as primary benefits, indicating a possible underappreciation of these aspects.

Although Table 1 highlights that 20% of the principals emphasised creative and innovative teaching styles, only 5% of the teachers did so, suggesting a gap in understanding the creative potential of e-learning tools that may require targeted training.

Student perspectives on e-learning

Table 3 shows the rating of reasons students provided for valuing the e-learning tools. The highest-rated benefit, cited by 36% of students, was improved engagement through interactivity. This suggests that students are drawn to digital platforms' dynamic and responsive nature, which helps them maintain attention and interest in learning tasks. A further 30% of the students reported that e-learning improves their understanding of complex topics through multimedia tools, such as videos, animations and simulations. These resources help them visualise and more easily grasp the abstract or difficult content, a benefit particularly relevant in subjects like mathematics and science.

Another 24% of the students valued e-learning because it allows for independent and self-paced learning. This theme is less prominent in the responses from principals and teachers, but highly significant for the students. This preference reflects a desire for autonomy and flexibility in how, when and where they engage with content, traits aligned with modern student-centred learning philosophies. Only 10% cited that e-learning makes learning more enjoyable, although this still underscores the affective benefits of technology integration.

Table 3: Student perspectives on e-learning

Why do students value e-learning tools?	Frequency	Percentage (%)
Improves engagement through interactivity	18	36
Enhances understanding of complex topics via multimedia	15	30
Allows for independent and self-paced learning	12	24
Makes learning more enjoyable	5	10

The students' greater emphasis on autonomy and interactive participation reveals a notable factor in learner expectations. While principals and teachers prioritised e-learning for lesson delivery, technological literacy and innovation, students focused more on the direct impact of these tools on their learning experience, highlighting the need for teachers to align their teaching strategies with what students find most beneficial.

These findings support the constructivist theoretical framework, which posits that learners actively construct knowledge through experience and interaction with their environment. The strong student preference for interactive and self-directed learning environments underscores the relevance of e-learning tools for promoting constructivist learning. It also suggests that for e-learning to be fully effective, implementation strategies must be grounded in students' lived experiences and learning preferences, not solely on teacher convenience or institutional goals.

Factors limiting the implementation of e-learning

Across all participant groups, principals, teachers and students, several key barriers to the effective implementation of e-learning were identified, including a lack of electricity, Internet connectivity problems, inadequate resources, insufficient training opportunities and gaps in knowledge and skills related to e-learning tools.

Table 4 shows a comparative analysis of these challenges. The data show that the 'lack of e-learning resources' was the most reported barrier identified by principals (85%), teachers (78%) and 68% of students, confirming that inadequate access to devices and platforms is widespread. Internet connectivity issues were a shared concern, reported by 55% of principals, 65% of teachers and a significant number (70%) of students, making it the most common obstacle among the three groups. Lack of electricity was mentioned by 30% of principals, 28% of teachers and 35% of students, indicating that infrastructural challenges remain prominent, especially in rural areas.

Another important concern was the lack of skills and knowledge, with 80% of principals, 63% of teachers and 45% of students acknowledging it as a challenge. This suggests that while teachers may need targeted professional development, students also need guidance in effectively using digital tools for learning. Furthermore, 80% of principals, 70% of teachers and 50% of students highlighted the lack of training, underlining the need for system-wide capacity building.

Table 4: Comparative analysis of barriers to e-learning implementation

Barriers to e-learning implementation	Principals' views (%)	Teachers' views (%)	Students' views (%)
No electricity	30	28	35
No internet connection	55	65	70
Lack of e-learning resources	85	78	68
Lack of skills and knowledge on the use of e-learning	80	63	45
Lack of training on e-learning platforms	80	70	50

Strategies for effective teaching through e-learning

In response to these challenges, principals, teachers and students were asked to suggest strategies to improve the adoption of e-learning. Their responses included professional development for teachers, provision of sufficient resources, motivational support and education on the benefits of e-learning. The students also emphasised the need for improved teacher skills in using e-learning tools, better resource availability and inclusive teaching practices that help them understand how to engage with digital platforms effectively.

Table 5 rates the importance of these recommendations. Professional development emerged as the top recommendation in all groups, with 60% of teachers, 50% of principals and 55% of students highlighting it. Motivation and encouragement were also important: 40% of the principals, 35% of the teachers and 40% of students mentioned this as a way to improve the adoption of e-learning. Furthermore, 25% of principals, 30% of teachers and 35% of students indicated the importance of educating teachers about the benefits of e-learning. Resource provision was supported by 30% of the principals, 40% of the teachers and 45% of students, reflecting a widespread concern about the availability of the necessary tools and devices.

Table 5: Principals', teachers' and students' views on strategies to motivate teachers to use e-learning

Strategies to motivate teachers to use e-learning	Principals' views (%)	Teachers' views (%)	Students' views (%)
Encourage teachers to learn the benefits of e-learning.	25	30	35
Professional development for teachers in e-learning.	50	60	55
Provide teachers with sufficient e-learning resources.	30	40	45
Motivate and encourage teachers to use e-learning freely and upgrade their skills.	40	35	40

Qualitative analysis and themes

Qualitative data complements the quantitative findings, offering deeper insight into stakeholder perspectives. Three core themes emerged from the responses of principals, teachers and students: (1) perceived benefits of e-learning platforms, (2) barriers to the implementation of e-learning platforms and (3) strategies for effective teaching through e-learning. These themes provide a nuanced understanding of the factors influencing e-learning integration and echo the broader patterns revealed in the survey data.

1. Perceived benefits of e-learning platforms

Across all groups, participants described several advantages of using e-learning tools, which were categorised under three subthemes: access to resources, engagement, interactivity, and flexibility and autonomy.

Access to resources.

School leaders, particularly in remote locations, observed that e-learning platforms reduced the gap in learning resources between urban and rural schools.

> E-learning platforms reduce resource mismatches in rural areas by providing access to modern educational materials. This is particularly helpful for science and mathematics. (P4, Rural school)

> We no longer rely solely on textbooks; teachers and students can now access updated global content online. (P12, Semi-urban school)

Engagement and interactivity

Teachers noted that the interactive nature of digital platforms helped maintain students' interest and improved learning outcomes, especially in abstract or technical subjects.

> E-learning tools promote the use of interactive media, increasing student participation and maintaining interest among learners, particularly in difficult subjects. (T36, Urban school)

> Students become more engaged when lessons include animations or simulations. They learn faster and retain more. (T9, Rural school)

> These tools have helped weaker students who don't usually speak up. With videos and quizzes, they feel more confident. (T18, Urban school)

Flexibility and autonomy

Students appreciated the ability to learn at their own pace, review lessons and access multimedia content anytime, particularly outside the classroom.

> I enjoy using e-learning tools because they make studying more enjoyable, especially when I can watch videos to understand new topics. (S29, Year 11)

> Sometimes, I don't fully understand a topic in class, but with e-learning, I can go back and revise on my own. (S6, Year 12)

> I like the freedom it gives. I can study when I feel ready, even at night or on weekends. (S16, Boarding school)

2. Barriers to the implementation of e-learning platforms

Despite the benefits, participants identified several challenges, grouped into the subthemes of infrastructure limitations, insufficient training and confidence, and resource access issues.

Infrastructure limitations

Principals and students particularly highlighted unreliable electricity and poor Internet connectivity, especially in rural and island schools.

> One of the most significant obstacles encountered is the lack of reliable electricity. Without power, devices are useless. (P6, Rural school)

> Internet access is not consistent. Sometimes, it is down for the whole day. (P17, Maritime school)

> Sometimes the Internet is too slow or does not work. It's frustrating when we cannot finish assignments. (S30, Urban school)

Insufficient training and confidence

Teachers reported limited opportunities for hands-on training and expressed discomfort using digital tools without adequate preparation.

> We lack sufficient training on how to use these e-learning devices. Some of us are hesitant to incorporate them into our classrooms. (T28, Rural school)

> Even though I want to use these tools, I'm not confident enough. I'm afraid I might teach something wrong. (T13, New graduate)

> I have attended one workshop, but it was not enough to use everything confidently. (T2, Urban school)

Resource access issues.

Students shared concerns about the limited availability of devices at school or home, which affected their ability to fully engage with e-learning content.

> There are only a few computers in the lab, and sometimes, we don't get the opportunity to use them. (S16, Year 12)
>
> Not all of us have smartphones or laptops. We often have to share, which makes it hard to complete the job. (S35, Year 12)
>
> My family cannot afford a tablet or a good phone, so I rely on printed notes or the teacher's explanation. (S8, Rural school)

3. Strategies for effective teaching through e-learning

The participants proposed several strategies to address these challenges and support the integration of e-learning, which fell into three categories: training and professional development, resource provision and inclusive student support.

Training and professional development

Principals and teachers emphasised the need for regular, ongoing training to improve teacher confidence and competence.

> Continuing professional development programs are crucial to ensure that teachers are competent in using these modern tools appropriately. (P9, Semi-urban school)
>
> Workshops should be held more frequently, with follow-up sessions. Just one training session doesn't help much. (T14, Urban school)
>
> We need training in local contexts, not just theoretical presentations. (T36, Rural school)

Resource provision and system support

The availability of reliable infrastructure, government funding and digital learning platforms was considered critical to successful implementation.

> Government support is essential for providing necessary resources such as the Internet, devices and maintenance. (P20)
>
> If the platforms are user-friendly and aligned with our syllabus, teachers will be more willing to use them. (T18)
>
> Every school should have a dedicated IT support person. It would solve many technical delays. (T40, Urban school)

Inclusive student support

Students stressed the importance of clear guidance and training on using e-learning tools to participate confidently.

> Teachers should clearly explain how to use the online platforms. Sometimes, I feel left out because I don't understand them. (S3)
>
> We should have sessions just for students to learn to navigate and use the apps and sites. (S34, Year 11)
>
> When teachers use e-learning tools well, it helps us. But if they don't, we get confused and stop trying. (S19, Year 12)

The qualitative findings reveal a more complex picture of how e-learning is experienced across different stakeholder groups. While principals and teachers emphasise professional training and infrastructure, students pay attention to access, usability and autonomy. These narratives reinforce the quantitative results and demonstrate the importance of a collaborative, inclusive approach to advancing digital education that addresses systemic barriers and learner needs.

DISCUSSION

The findings of this study reaffirm the central role that e-learning platforms play in modernising education in Fiji, especially from the perspective of principals, teachers and students. Consistent with the work of Kalyani (2024), the principals in this study stressed that e-learning platforms are not just supplementary tools but essential drivers for cultivating 21st-century skills, enhancing instructional delivery and fostering technological literacy among learners. They viewed these platforms as bridge tools, especially in rural areas where traditional learning resources are often scarce. This aligns with the broader educational goals observed in digitally advanced nations such as Singapore and South Korea, where e-learning forms the backbone of future-ready schooling systems.

However, a recurring concern was the insufficient professional preparation of teachers in the technical and pedagogical aspects of e-learning. This gap undermines the potential envisioned by school leaders. It is consistent with trends observed in other developing contexts, including sub-Saharan Africa and Southeast Asia, where inadequate training continues to limit the effectiveness of digital initiatives. For the aspirations to be fully realised in classrooms, a strong focus on capacity-building for teachers is essential, both in using tools and designing instruction that maximises digital platforms.

From a global perspective, the results also resonate with findings by Al-Emran and Teo (2019), who argued that e-learning supports the dissemination of knowledge and the development of teacher and student competencies. Our study further supports the work of Haleem et al. (2022), highlighting the effectiveness of multimedia elements such as videos and interactive tools in improving student understanding. The students in this study echoed these benefits, often referencing visual and audio content that made learning more engaging, accessible and effective.

Teachers in this study acknowledged the convenience and flexibility of e-learning platforms but expressed less confidence in using them as tools for creative or student-centred instruction. This aligns with studies, such as those from India and the Philippines, that found many teachers use technology for content delivery rather than to foster inquiry-based or collaborative learning. Encarnacion et al. (2021) also found that e-learning can increase instructional efficiency, but only if teachers are equipped with the right pedagogical strategies to harness it effectively. The implication here is clear: professional development must extend beyond technical training to include training in digital pedagogies that encourage innovation, interactivity and learner autonomy.

Students' views added a unique layer to the findings. While principals and teachers focused primarily on instructional improvements, students valued the autonomy, accessibility and self-paced nature of e-learning platforms. This signals a critical shift in educational priorities. Today's learners are increasingly drawn to personalised, technology-driven learning environments. Their emphasis on flexibility and engagement reinforces the need for e-learning designs that cater not only to curriculum requirements but also to student expectations and learning styles, underscoring the need for inclusive platform development that prioritises content relevance and user experience.

Despite these promising insights, the study confirms that infrastructural and logistical constraints remain formidable barriers among stakeholder groups. Consistent with Adarkwah's (2021) findings, the lack of reliable electricity and stable Internet connectivity severely restricts access to e-learning, particularly in rural schools. Teachers and students reported disruptions in access and frustrations with device limitations; challenges that point to systemic inequities requiring targeted interventions and policy reforms. Without addressing these basic infrastructure deficiencies, the benefits of e-learning cannot be realised equitably.

Finally, echoing the findings of Dhillon and Murray (2021), our study underscores the importance of ongoing professional development for teachers and school principals to support meaningful integration of e-learning. Without consistent and structured training in digital pedagogy, there is a risk that technology will continue to be used superficially, limiting its impact on teaching and learning. Evidence from South America and Eastern Europe supports this claim, demonstrating that digital tools rarely lead to meaningful educational transformation without sustained capacity building. Therefore, investing in human capital through continuous training and mentorship must accompany infrastructure upgrades to unlock the full potential of e-learning in Fiji.

CONCLUSION, LIMITATIONS AND IMPLICATIONS

This study investigated the need for teachers in Fijian schools for e-learning platforms, their readiness to adopt e-learning platforms, the factors that impede the implementation of e-learning and strategies to improve teaching and learning through these platforms. The results demonstrate that e-learning platforms are increasingly recognised by principals, teachers and students in Fiji as powerful tools for transforming educational delivery. Principals acknowledged that e-learning provides critical access to quality resources, particularly in underserved rural schools with limited physical materials. Teachers saw e-learning as a means of enhancing engagement, introducing innovative teaching methods and supporting differentiated instruction. Students, meanwhile, valued the flexibility of self-paced learning, the ability to revisit content through multimedia and the more enjoyable, interactive nature of digital platforms. These findings reflect a broader shift toward learner-centred and constructivist approaches in education enabled by digital technologies.

The study also revealed several significant barriers that hinder the effective implementation of e-learning. In all stakeholder groups, challenges, including unreliable Internet connectivity, frequent power outages, lack of access to devices and limited digital literacy, were consistently reported. Teachers, in particular, highlighted a lack of confidence and insufficient training as key impediments to adopting e-learning tools. Students expressed frustration with inconsistent access and a lack of support in navigating digital platforms, while principals stressed infrastructural and funding limitations that prevent full-scale integration. These challenges point to the need for coordinated efforts to improve access, capacity and confidence in using technology in the education system.

The findings of this study should be interpreted in light of certain limitations. First, the study was confined to the Fijian education context, where infrastructure, policies and socioeconomic conditions differ significantly from other regions. This limits the generalisability of the findings beyond similar settings. Second, the sample size, particularly of teachers and principals, was modest and may not fully represent the diversity of views across the education sector. Third, the study relied primarily on self-reported data collected through interviews and questionnaires,

which can introduce bias and fail to capture actual classroom practices or learning outcomes. Fourth, while the study acknowledged infrastructure constraints such as the Internet and electricity, it did not delve deeply into the economic or logistical challenges schools face in overcoming these barriers. Fifth, data collection was conducted in person, potentially excluding individuals who could not participate due to travel or time constraints. Sixth, although student perspectives were included, the study did not incorporate the views of policymakers or IT personnel who are instrumental in shaping and supporting e-learning infrastructure. Finally, the study's cross-sectional nature captures stakeholder perceptions at one point in time. It may not reflect changes in attitudes or practices as digital learning becomes more widespread.

The findings of this study have important implications for educational policy, school leadership and classroom practice. First, the study underscores the urgent need for investment in basic infrastructure, including reliable electricity, Internet connectivity and access to digital devices, especially in rural and disadvantaged areas. These are the foundational requirements for e-learning platforms to function effectively and equitably. Furthermore, school leaders and educational authorities must prioritise ongoing professional development for teachers, equipping them with the knowledge, skills and confidence necessary to integrate technology into their teaching practices. Tailored training programs, mentorship and peer support networks could serve as sustainable models to build teacher capacity.

Equally important is the need to support students using e-learning tools. The study found that students often felt left behind due to unclear instructions or a lack of guidance on using platforms effectively. Teachers should receive training in using digital tools, scaffolding students' digital literacy and designing inclusive, accessible learning experiences. The study also points to the benefits of hybrid teaching models, which combine traditional and digital methods, cater to different learning styles and ensure continuity of education in times of disruption.

At the policy level, inclusive planning involving principals, teachers and students in decision-making will be critical to ensuring that e-learning solutions are relevant, sustainable and context-appropriate. Future research should broaden the scope of investigation by including more diverse participants, incorporating longitudinal data and examining the role of external stakeholders such as policymakers and IT support teams. Overall, this study provides a foundation for improving the adoption of e-learning and creating a more dynamic, equitable and resilient education system in Fiji.

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The International Education Journal: Comparative Perspectives Vol. 24, No. 1, 2025
http://iejcomparative.org

Challenges of initiating international cooperation in secondary education: Exploring a Thailand-Indonesia school partnership program

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DOI: https://doi.org/10.70830/iejcp.2401.18540

A school partnership program between Thailand and Indonesia is part of an agenda for an educational cooperation policy and 21st-century adaptation to the global context. This study examines the conditions and challenges for the program implemented in Thai pilot schools. Documents, policy texts and statements were analysed, 17 in-depth interviews were conducted, and seven school visits were undertaken. Stakeholders from centralised locations and schools were selected by purposive sampling. Results show significant gaps between policy design and practice. Local, central and external factors were identified as challenges with school practitioners lacking the necessary English language and information and communication technology skills to implement the program. Slow replacement of transferred and retired staff, lack of consistency in execution by the central authority, insufficient budget allocations, discontinuous monitoring and evaluation, and regulations unconducive to arranging certain activities were further challenges. Uncontrollable external situations, especially the change of government in 2014 in Thailand, changed the impetus of educational policy. In addition, the COVID-19 pandemic led to the suspension of international cooperation activities. The findings from this study suggest that schools should be encouraged to participate in initial steps to bridge the gaps between policy design and planning and actual practice to achieve mutual understanding.

Keywords: international education cooperation; Secondary education; school partnership programs; COVID-19 impact on education

INTRODUCTION

Closer cooperation in education with the Association of Southeast Asian Nations (ASEAN) member states is a priority for Thailand. The Thai Government has attempted to achieve such cooperation by establishing culture-bridge programs and strengthening good relations with ASEAN countries and other nations (Policy Statement of the Council of Ministers, 2011). One such project, launched in 2011, was a school partnership program between Thailand and Indonesia. The program differed from previous schemes, such as the Spirit of ASEAN and ASEAN Education Hub (Thailand Office of the Basic Education Commission [Thailand OBEC], 2012a) by including two key ideas: 1) cooperating with international agencies, that is,

the Southeast Asian Ministers of Education Organization Regional Open Learning Center (SEAMOLEC) and the Indonesian Ministry of Education to design policy and program operations, rather than relying solely on Thailand designing and implementing the program; and 2) addressing broader issues to promote 21st–century adaptation and the global context in the ASEAN studies curricula rather than focusing on learning the languages and cultures of member states. Other ASEAN countries have also prepared pan-ASEAN education. For instance, Singapore aims to be an Asian leader in international education, and Malaysia focuses on information technology, science and English (Thailand OBEC, 2012b).

The Thailand-Indonesia school partnership program reworked previous projects to reflect the context of changing world and regional events. Digital (Lee & Kim, 2023) and environmental education (UNESCO, 2017) are globally critical (Buasuwan et al., 2020). The new vision in the *Education 2030 Incheon Declaration* states that sustainable development education must build environmental awareness by revising curriculum contents on environmental degradation, conservation and natural disasters (UNESCO et al., 2016). In doing so, connectivity and cooperation among neighbouring countries are essential; the European Union serves as an integration model for ASEAN countries. Intra-EU cross-border educational cooperation has been widely encouraged to support dynamic new development ideas for the 21st-century ideas and remains strategically significant (European Communities, 2006). The challenge of the Thai school partnership program is to achieve its goals as Thailand's first policy to promote school-level international cooperation during the ASEAN Community era.

Although stakeholders universally accept the need to promote international education cooperation and learn about a range of global issues, the program's design may be impracticable. McKenzie et al. (2008) listed the critical success factors required for educational cooperation:

- All parties must follow a two-way process.
- There must be high-level political support.
- Strong ties with education provider networks must exist.
- The timeframe for implementation must be reasonable and practical.
- The coordinating groups should be equipped with sufficient suitable resources.
- The Primary parties must share roles equally.

The Organization for Economic Co-operation and Development (OECD) (2006) defined 'partnership' as an agreement for collaborative action to benefit all parties involved when a single party cannot achieve the same results. All actors must develop a specific context equally. In this way, partnership becomes an effective means for overcoming formal structures while connecting different interest groups more equitably.

Previous studies show the limitations of international cooperation between schools and between universities. A survey of the views of young people in Thailand and Malaysia towards the ASEAN Community revealed a lack of understanding and institutional weakness challenging regional cooperation (Benny, 2016). At the university level, intra-ASEAN student mobility faces challenges, especially with regard to sustainable funding and harmonisation and being mainly government-driven (Chao, 2020). Khalid et al. (2019) indicated that students' lack of language and communication skills preparedness impedes cross-cultural learning for intra-regional university exchanges. Only Singapore promotes international academic cooperation, while other countries emphasise education quality. Prateeppornnarong (2020) argues that ASEAN member states pay less attention to educational cooperation than security or political cooperation. Regional student mobility is essential for cooperation. The 'Spirit of ASEAN' scheme created by the Thailand OBEC was a potential launching pad for promoting regional

cooperation in basic education. However, financial constraints, language barriers, and society's complexity remain fundamental challenges to the initiative.

Viennet and Pont (2017) state that the education policy implementation process is expected to change the education system in accordance with policy objectives and must adjust to institutional contexts and societal impacts and trends. The Education Grantmakers Institute (2011) notes that continuous efforts by state and local agencies and schools must transform education policy to confront social complexity, leading to concrete and improved student outcomes (Honig, 2006).

The context, input, process and product (CIPP) model was developed to examine 21st-century policy performance. This appraisal model reflects a dynamic approach that supports policy, project and activity decision-making by using proof and improvement to reveal multi-dimensional results (Stufflebeam & Coryn, 2014). A checklist of achieved goals and guidelines of scheme enrichment and a post-completion summary are essential features. The CIPP model is commonly applied in educational contexts; for example, it was shown to help professional teaching and curriculum improvement by evaluating language education (Sopha & Nanni, 2019). In assessing a welfare school system, the model revealed difficulties in maintaining standards, thus requiring further improvement to the system (Aziz et al., 2018).

As noted, the Thailand-Indonesia partnership program challenges Thai pilot schools to operate a program designed to advance international cooperation with Indonesian schools and macro-level engagement in a tripartite pattern. This study examines the difference between design and action to reveal the challenges and outcomes Thai pilot schools face. The research findings should facilitate further educational policy implementation analysis to help formulate guidelines for better-achieving policy implementation and decision-making in educational cooperation to meet Thailand's educational standards and the ASEAN Community's goals.

CONCEPTUAL BACKGROUND AND RESEARCH CONTEXT

International education cooperation

International education cooperation is the central theme of the Thailand-Indonesia school partnership program, inspired by the *ASEAN Charter 2008* goal to connect educational cooperative efforts locally, nationally and internationally.

International education cooperation means two or more parties from different countries collaborate for educational purposes. Educational cooperation may occur at any school level and category. It may be implemented governmentally, institutionally, or between officials and schools (McKenzie et al., 2008). Success factors of educational cooperation occur when all parties recognise cooperation as a two-way process, there is high-level political support, there are connections with ministers and national provider networks, the operational framework contains diverse elements mutually promoting and supporting one another, and the administrative division is equipped with sufficient and suitable resources (Amstutz, 1999; McKenzie et al., 2008; Paulo, 2014).

International cooperation in education has been increasingly promoted in the ASEAN community and global society, especially since the 2000s. Most countries' collaborative activities focus on higher education (Chao, 2020; Khalid et al., 2019). In basic education, a Spirit of ASEAN scheme was created in pilot schools in Thailand to raise awareness of regional

cooperation. Yet resources remain a major issue (Prateeppornnarong, 2020). However, the advantages of international education cooperation may gradually be achieved at individual, institutional, and governmental levels (Zouliatou & Hongwu, 2019).

In the ASEAN Community, educational cooperation originated from the *ASEAN Charter 2008*. Article 1.10 states that ASEAN aims to develop human resources through closer cooperation in education, lifelong learning, science and technology to empower ASEAN people and strengthen the ASEAN Community (ASEAN Secretariat, 2008). In the ASEAN Socio-Cultural Community Blueprint (ASCC) frameworks, education became one of ASEAN's most pressing issues and one of six major regional human development cooperations, later encouraging regional and global cooperation in education (ASEAN Secretariat, 2009a). The *Cha-Am Hua Hin Declaration on Strengthening Cooperation on Education* agreed to take necessary actions to strengthen the role of education in establishing the ASEAN Community under political, security, economic and socio-cultural bases (ASEAN Secretariat, 2009b). The ASEAN work plan on education likewise seeks to raise ASEAN Community awareness, open access to quality education, facilitate cross-border exchange and internationalise education by promoting diverse sectors of ASEAN to benefit education. The programs listed in the plan include developing cooperation and using ICT for education (ASEAN Secretariat, 2012).

Crossing national boundaries, the EU uses educational cooperation initiatives as forms of integration. European Communities (2006) reported that education and training became central to the EU economic and social strategy for building a knowledge-based European society. Interconnected knowledge-based societies in EU countries have educated citizens in innovation, entrepreneurship and dynamism (Khalid et al., 2019); the Erasmus and Comenius programs are examples. Investing in human resources through education and training remained a priority in the Lisbon strategy to promote economic prosperity, social cohesion and civic engagement (European Communities, 2006). Examples of educational cooperation in the EU include the successful Bologna Process, which harmonised higher education across European countries and inspired the ASEAN Community to seek closer cooperation in education (Dhirathiti & Sonsri, 2019). Likewise, the cross-border collaboration of local authorities between Poland and neighbouring countries (Slovenia, the Czech Republic, and Germany) enabled innovations to resolve problems (Dołzbłasz, 2013; Więckowski, 2002).

Adhering to ASEAN goals and global trends while benefiting from international educational cooperation, Thailand initiated a school partnership with Indonesia, as discussed in the next section.

School partnership program between Thailand and Indonesia

Educationally enhancing the ASEAN Community's capability is vital for building national human resources, matching evolving conditions and adapting to ASEAN societal aspirations (Department of ASEAN Affairs, 2011). Therefore, the Thai government supports the development of education to bolster the knowledge and awareness of teachers, students and the general population.

The Thai Government announced a policy to drive educational cooperation towards the ASEAN Community to inspire school participation. Thailand OBEC launched projects, including Spirit of ASEAN, with 30 sister schools, 24 buffer schools and 14 ASEAN focus schools. Other projects comprise 163 ASEAN learning schools, 14 education hub schools and 23 Thailand-Indonesia partnership program schools (Thailand OBEC, 2012b). The latest program is a joint project between Thai and Indonesian secondary schools. It established a framework for cooperation and strengthening relations with ASEAN countries and international

agencies for educational development (Thailand OBEC, 2012a). Unlike previous projects, the latest program has a distinct agenda and design for implementation, as summarised in Table 1.

Table 1. Comparison of policy design between previous projects and the Thailand-Indonesia school partnership program

Previous projects	Thailand-Indonesia partnership school program
Initial phase: develop equipped infrastructure. 1. Establishing ASEAN Study Center 2. Teaching intensive English and languages of ASEAN 3. Developing curriculum of ASEAN studies 4. Using ICT in teaching and learning 5. Encouraging living in a multicultural society	1. Initiated cooperation with international agencies; SEAMOLEC and the Indonesian Ministry of Education 2. Responded to adaptation in the 21st century and the global context: - Organising learning activities to integrate the content of human values-based water, sanitation, and hygiene education and climate change, such as global warming, species loss, water scarcity, and population growth developed by SEAMEO, SEAMOLEC and UN Habitat. - Conducting learning activities on common values and gender sensitivity to prepare students for being good ASEAN citizens. - Providing Indonesian and Thai language study through the SEA-Edu Net System with ICT use
Next phase: continue the missions 1. Promoting educational cooperation with ASEAN countries and other regions 2. Strengthening relationships with neighbouring countries, ASEAN and other regions 3. Adapting to the 21st century and global context	

English language proficiency and expertise in digital technologies are essential requirements for educational institutions in Indonesia. Future national achievements depend on the public attainment of these skills to boost societal learning and economic development (Rahabav & Souisa, 2021). Since 2014, the productivity of Indonesia's public schools has generally increased but at a rate less than that of other ASEAN nations, requiring an analysis of policies and programs to improve overall education productivity and quality (Simamora et al., 2019).

Consequently, Indonesian schools have attempted to improve the country's education systems in the past two decades by changing from a formerly centralised education authority to one that involves many central, provincial, district and school-level actors (World Bank, 2020). Indonesian provincial and district educational offices manage and implement Ministry of Education and Culture policies. They consider each area's unique characteristics, local necessities and context. Provincial administrative organisations have additional duties to develop personnel and educational facilities to provide basic education regionally (International Bureau of Education, 2006). The objective of assessing the partnership program is to review policy decision-making and initiate revisions depending on performances and conditions (Sullivan et al., 2014; Theodoulou & Kofinis, 2004).

Contemporary educational policy

Policy implementation means transforming goals and objectives into action (Khan & Khandaker, 2016). Viennet and Pont (2017) describe it as a meaningful, multidirectional transformation process, enacting specific policies to potentially affect the education system on different levels. Several educational system actors, including policymakers and implementers, may influence it. The emerging policy implementation perspective that combines top-down and bottom-up concepts is more appreciated than the two individual approaches separately (Mugambwa et al., 2018).

In contemporary educational policy implementation research, Honig (2006) presents key factors in three interactive dimensions: 1) a policy design consisting of objectives, goals and policy instruments; 2) people or target groups in and outside the education system; and 3) places, underlining where the actual implementation occurs. Previously, only government organisations were considered, but more recently, the focus has expanded to include institutional environments. Viennet and Pont (2017) describe effective policy implementation as comprising smart policy design; inclusive stakeholder engagement; conducive institutional, policy and societal context; and coherent implementation strategy. OECD (2018) defines education as a process of transforming diverse specific policy objectives to educational change.

As noted, the CIPP model is widely accepted and used to study implementation performance (Stufflebeam & Coryn, 2014). It is a dynamic model supporting 21st-century evaluations of decision-making about assessment targets of policies, projects or activities. It assesses achievements of aspects affecting decision-making, especially project progress, improvements and achievements, and provides an overview of the project upon its completion. It was developed to improve models for evaluating US educational programs in the late 1960s. The model was later applied to diverse extracurricular contexts, including social, business and military programs (Al-Shanawani, 2019). Because it is flexible and prescriptive, it can be designed for the formative appraisal of improvements and summative evaluations of expected accountability (Tuna & Basdal, 2021). However, Tan et al. (2010) argued that the CIPP model has practical limitations in complex and irregular situations and involving stakeholders may be time-consuming and costly, making estimations difficult.

Various studies have confirmed that the CIPP model is accepted as a conceptual research framework in educational contexts. For example, Sopha and Nanni (2019) used CIPP to research language education, Aziz et al. (2018) applied CIPP to examine the quality of a welfare system at school, and Al-Shanawani (2019) benefited from CIPP to improve a self-learning curriculum for kindergarten. In non-formal education, Rahabav and Souisa (2021) researched institutional governance by framing CIPP as a basic theory to improve the quality of the Fourth Industrial Revolution (4IR).

METHODOLOGY

Research design

Data for this study was gathered from multiple sources: in-depth interviews, school visits and document analysis. The population and scope of the study covered 23 Thai pilot schools. The study used the four dimensions of the CIPP to the model: setting policy goals and target groups (context); working plan and resources (input); action on the ground (process); and outcomes and feedback (product). This research questions, therefore, aligned with the key themes of the four appraisal dimensions:

1. To what extent were the policy and program designed to match the education contexts and its objectives internationally, nationally and locally?
2. How do the policy implementers set practical plans and allocate resources to meet the essential needs of beneficiaries?
3. How did the program operation mobilise cooperation and confront challenges?
4. How far does the program contribute to achieving policy goals and objectives?

Data collection

Honig (2006) advises that the effective approach to examining policy implementation is to consider the views of top-down and bottom-up players. As Pulzl and Treib (2007) note, studying the implementation and its success is contingent on intertwined state-level bureaucrats and street-level actors (see also Gerring, 2004). Key informants were chosen by purposive sampling, with the selection process including criteria showing the proper level of content knowledge and involvement for the policy and program. This means that the interviewees had been responsible for the program at the macro/micro level for at least three years and/or were involved in at least one program project/activity.

The semi-structured interview questions for different categories of participants were validated by three experts: a professor of education, a professional official of the Education Service Area Office in Thailand, and a specialised teacher experienced in ASEAN Community projects. In-person or online interviews were arranged, depending on the individual situation, between December 2020 and December 20 after gaining ethical approval for the study. However, the frequent transfers of interviewees to other schools and the discontinuous responsibilities of practitioners hindered the data collection process. School directors were also required to rotate responsibilities to other schools as scheduled by ministerial regulation. Each time, the study interview plan had to be adjusted, and new implementers sought out who matched the criteria. In some cases, online interviews were arranged to facilitate the process.

Dunn (2004) suggested that public policy analysis should have a sample size of between 10 and 30 depending on the complexity of policy problems and the nature of the issue. This research involved 17 interviewees from different organisations, as shown in Table 2. Interviewees comprised international, national and local policy-relevant stakeholders. Key actors of the top-down and direct bottom-up players were prioritised to reveal essential insights into the process of translating policy into practice.

Table 2. Participants list

Organisation	Policy and program responsibility
7 State implementers and relevant policy stakeholders	
1. SEAMOLEC Jakarta 2. SEAMEO Secretariat Bangkok 3. Embassy of the Republic of Indonesia, Bangkok 4. Consulate of the Republic of Indonesia, Songkhla 5. Thailand Ministry of Education, Office of International Affairs	1. Director of the Partnership School program 2. Supports ICT personnel and program coordinator 3. Education and Culture Attaché (University professor assigned embassy duties)

Organisation	Policy and program responsibility
6. Thailand Ministry of Foreign Affairs, Department of ASEAN Affairs/ Division of Social and Culture 7. A Thai university - Indonesian lecturer in Indonesian language and culture	4. Consul - completed a 3-year period on duty and returned to Indonesia on 1 December 2021. 5. Policy development unit and international cooperation support in education 6. Senior Diplomat, Serving in Thailand ASEAN administration. 7. Helps to match partner schools and coordinating Indonesian schools to visit Thailand
10 Practitioners	
1. Thai school 1, School director (Promoted in 2021) 2. Thai school 2, Vice principal for academic affairs 3. Thai school 3 (2 persons) **3.1** Secretary of ASEAN Study Center **3.2** Assistant Secretary of ASEAN Study Center 4. Education Service Area, Area 1 northern Thailand 5. Indonesian school 1, Vice Principal for Academic affairs 6. Indonesian school 2, English Teacher 7. Indonesian school 3, Vice Principal for Academic affairs 8. Indonesian school 4, Principal 9. Indonesian school 5, Headmaster	1. Originally responsible for the partnership program 2. Originally responsible for the ASEAN projects in school **3.1** Carrying out ASEAN functions in school from the start **3.2** Responsible for the partnership program and teaching Indonesian language and culture 3. Supervisor and OBEC committee of the working group for policy driving the school towards ASEAN Community 4. Mathematics teacher and working on the sister school project and partnership school program 5. Responsible for the sister school project and partnership school program 6. Physics teacher responsible for the sister school projects and the partnership school program 7. Mathematics teacher responsible for the sister school project and the partnership school program 8. Responsible for international cooperation work and the sister school project

Additional data was obtained during seven school visits and observations in southern Thailand. The visits were carried out to examine the operational context and conditions. Schools were selected through pre-study of documents, performance reports and suggestions by interviewees. The schools visited were actively implementing the ASEAN plan and performing well, as indicated in the interviews and from Thailand OBEC. Data was gathered at these schools through observation, note-taking, informal discussions, photographs and school reports. Official documents, such as policy texts and statements, policy planning and operational guidelines, and policy reports, were analysed. Evidence gathered during visits and national and regional government ASEAN policy texts were included in the analysis, which also involved in-depth interviews aimed at concrete policy outcomes and feedback.

Data analysis

Data analysis began by transcribing written notes and audio recordings of interviews, school visits, observations and documents and cross-checking them for accuracy and reliability. The transcripts data were then coded using the study framework, followed by comparing findings from the various data sources. Such triangulation of multiple sources of secondary data and interview data improves qualitative data reliability data (Li, 2006).

FINDINGS

Policy implementation and its problematic process

Findings are that there are significant shortfalls in the two levels of implementation necessary for program success: central policy design and school program operation. Table 3 summarises the findings.

Table 3. Comparing the implementation process and the gap between macro and micro settings

Central design and planning	Action in schools
1. Beginning period – moulding school model Preparing hardware, software, and peopleware infrastructure and policy tools with high budgetary support to promote the program, especially online learning.	Prosperous era Receiving attention, cooperation and participation from stakeholders joining the program and activities, especially before entering the ASEAN Community in 2015.
2. Middle period – strengthening schools Building networking schools by jointly organising activities, but the action and budget began to decrease after entering the ASEAN Community in 2015.	Stagnant era Other school policies launched by a new military government in 2014 were prioritised, so the program was not fully implemented.
3. Currently – driving according to school ability The program existence is promoted, but the new plan does not mention international education cooperation; the COVID-19 pandemic suspended ASEAN Community activities.	Self-reliance era The program was driven according to the readiness of each school, relying on teachers who consider the program useful and timely with its focus on technological skills

Table 3. shows that the central design and school action show discrepancies in each implementation period. However, the program had some initial success owing to the allocation of a good budget from central authorities to prepare ICT infrastructures in schools, produce guidelines for implementers and organise workshops and training for teachers. Teachers and students participated in program activities, and schools cooperated with the central authority during the period of entering the ASEAN Community in 2015. However, the program began to wane after Thailand became a member of the ASEAN Community. The central authority sought to build and transmit school networking and organise activities in the strengthening schools phase, but budgets for the program decreased, and schools did not fully implement the program in the face of other policy demands. In this second phase (stagnant era), schools also faced a

new challenge that required them to implement the central authority-mandated analytical ASEAN Curriculum Sourcebook.

Currently, the program is driven according to a school's ability to do so. The new education plan does not mention any ASEAN Community educational cooperation scheme, and there is no related budget allocation. In this self-reliance period, the program is driven according to the context and readiness of each school. Some schools still run activities paid for by their own budgets and rely on teachers who consider the program useful. Teachers today also gain more skills with ICT, which is accessible and easy to use, allowing them to organise low-cost online activities. The concept of international cooperation has begun to deteriorate as the new government focuses on other policies, and the program was suspended during the COVID-19 pandemic.

Outcomes and challenges occurring during policy implementation

Practices and challenges occurred on three levels: tripartite cooperation, policy and program administration at the central level and school action. Table 4 summarises activities and outcomes.

The policy program began as a trilateral cooperation between Thailand, SEAMEO, and SEAMOLEC. Indonesia cooperated with communication and by helping schools join in activities with Thai institutions. Agreements were signed between SEAMOLEC and Thailand and between Thai and Indonesian schools. OBEC and 23 participating schools signed an agreement for program management in Thailand. The central authority planned for resource distribution and budget allocations and produced guidelines for program operation. At the basic level, 23 Thai schools were paired with 41 Indonesian schools to form partnerships. However, in this context, the design was limited to top-down implementation, and pilot schools did not truly participate in the policy and program planning process, though central agencies collaborated in organising workshops for Thai and Indonesian schools to discuss and share ideas, create action plans, link curriculum and develop collaborations. SEAMEO and SEAMOLEC created an online blog to transmit and communicate among the three parties. Simultaneously, partner schools mutually drafted action plans and practice activities, especially formal visits and using ICT for learning. However, inadequate resources and facility support from central and partner schools highlighted different infrastructure and resource readiness.

In the action process, unequal cooperation roles revealed Thailand as the policymaker working with SEAMOLEC on implementation. By contrast, Indonesia merely helped schools join activities with Thai schools. SEAMEO maintained a centralised communication system with schools, providing advice, guidance and feedback. During program management, Thailand faced uncontrollable external situations from flooding, a coups d'état and the COVID-19 pandemic. Political changes caused a relative reduction in state funding support, with execution inconsistencies, budget insufficiencies, monitoring and evaluation discontinuity, and regulations unconducive to arranging certain activities.

Meanwhile, pilot schools had to deal with inadequate teacher capacity, especially in English language instruction and ICT skills, global outlook, knowledge about policy-program implementation and the international cooperation paradigm. This was why few teachers communicated through a blog. Teachers were also substituted after job transfer and retirement. A significant lack of coordination between the central authority and schools and between Thai and Indonesian schools occurred due to a learning schedule mismatch and different semesters in the two countries.

Table 4. Partnership school program - performance and challenges

Macro level	Micro setting
Context analysis - International level: an agreement between SEAMOLEC and Thailand, not actual trilateral cooperation. - National level: an agreement between Thailand OBEC and participating schools, but top-down design.	- 23 Thai schools were paired with 41 Indonesian schools to form the partnership, with schools not fully participating in decision-making.
Input formulation - Allocating inadequate resources and facilities. - Organizing workshops for teachers discontinuously. - Developing an online platform for communicating among the three parties but with fewer participants.	- Partner schools mutually plan and practice activities but faced different school infrastructure and resource readiness.
Process and practice - SEAMEO-SEAMOLEC maintains a centralized communication but appeared unequal cooperative roles. - Thailand faced uncontrollable external situations such as flooding, coups d'état, and the COVID-19 pandemic, causing inconsistent implementation. - Discoordination between central and schools.	- Fewer teachers joining a web blog run by SEAMEO-SEAMOLEC. - Insufficient teacher capacity relevant to the program, and teacher shortages. - Discoordination between Thai and Indonesian schools.
Products and outcomes - SEAMEO-SEAMOLEC achieved goals and has succeeded as an implementing partner. - Thailand was initially successful, but the program continued to decline, and international cooperation activities were halted after COVID-19 pandemic.	- Schools achieved basic goals, but failed in the ultimate goals. - Practitioners proposed revitalizing the program and encouraged continued action.

As a result, products and outcomes did not progress as planned. SEAMEO and SEAMOLEC achieved goals and planned activities with an annual performance evaluation and have succeeded as an implementing partner. Subsequently, cooperation was extended for five years, from 2011 to 2015. Thailand was initially successful during these years, but the program's popularity has continued to decline. After the COVID-19 outbreak, international cooperation activities were halted. The program has achieved its basic purposes: school matching, agreement and action plans and future mutual exchanges. In school settings, only basic goals were attained: exchanging knowledge, language, and culture, making formal visits, making mutual study trips, using ICT to communicate, and organising activities among schools. Ultimate goals not achieved included the exchange of teachers and students and the transfer of credits between partner schools. However, a few schools outdid the predicted results due to good environmental learning practices and outreach for wider extracurricular cooperation, particularly civil society.

DISCUSSION

Policy design consistent with the social context will be accepted by schools and become feasible for implementing the program

All interviewed indicated strong acceptance of the program from all interviewees, indicating agreement on the policy and program benefits as well as challenging new initiatives, which helped to widen secondary education outlooks. Implementers reflected on the importance of having appropriately harmonious policy design and planning with conditions during the intense prioritised preparation before entering the ASEAN Community. This context made the policy acceptable and feasible to implement. Viennet and Pont (2017) asserted that smart policy design provides a framework for effective policy implementation. Messages from a logical policy may be clearly communicated to engage stakeholders and build consensus about directions for attaining goals. There is also the potential for strengthening support for policy by reducing the number of anti-policy stakeholders. Honig (2006) affirmed that designing policy choices influences target groups' implementation in their own right to support or oppose a policy. Therefore, the accepted policy design impacts education and delivers better student outcomes. Contemporary objectives must cohere with the context, addressing new challenges and including target groups from schools and communities, supported by national and international agencies with policy tools, resources, and involvement from all stakeholders. The program design also coheres with Keast and Mandell's (2013) note on realising the need to change thought and practice habits to inspire collaboration among different parties and meet goals.

OECD (2006) discussed the partnership principle and agreement that benefits all parties involved. In principle, this Thailand-Indonesia school partnership program was designed to enable equal cooperation and roles, with the two nations planning to exchange students and teachers to learn about shared cultures and values (McKenzie et al., 2008). Like other projects in Thailand's policy driving education cooperation towards the ASEAN Community, most were accepted for policy design. The Spirit of ASEAN, for example, although new and involving multiple agencies, had clearly specified goals in the implementation process. This allowed schools to use it as a guide for setting objectives (Chaisorn & Viseshsiri, 2014). Thaijongrak (2017) argued that when top-down policies remain unclear, teachers face problems as practitioners. As Mwaraksurmes (2024) stated, without articulated policy to guide teachers, they are left on their own and structural problems remain buried.

Budget is a major input factor in implementing international cooperation in secondary education

Policy and program implementation began successfully, but when annual budgets decreased, many activities were interrupted, and some schools could only retain activities by relying on their own budgets. Serious budgetary limitations also caused inadequacies in school personnel, activity materials and other program-supporting facilities. The findings concerning the importance of sustainable funding for program success are consistent with Signe's (2017) suggestion that access to funding and resources is a prerequisite for successful policy implementation. Capital alone cannot lead to success, but lack of funding will weaken a policy implementation strategy. Adequate funding is thus significant to implement policy and programs properly for accessing quality basic education (Rohoana, 2023). In addition, providing other resources consistently is essential for policy implementation, including personnel, training and support (Edwards, 1980; Honig, 2006; Meter & Horn, 1975). However, some pilot schools coped with funding restrictions by fundraising. Schools sought sponsorship from nongovernmental organisations (NGOs), the private sector, and civil society to support

activities. Some schools received support from alumni associations and foundations, while others benefited from locally situated international environmental NGOs.

Other projects have also faced budget limitations, hindering Thailand's international education policy drive towards the ASEAN Community. Budget problems caused frequent staff changes or understaffing in some schools, obstructing knowledge transfer, including insufficient training and innovation development, and network expansion. As a result, projects were ineffective. Budget allocation was directly tied to political policies that were inconsistent with the demands of each locality, so goals were not met (Chinsettawong, 2014; Nitjarunkul et al., 2014; Somphong & Isarankura NA Ayudhaya, 2011; Thamrongthanyawong et al., 2016; Wongboonsin, 2013). Even in promoting the Education for All initiative in various nations, the government grants frequently fall short of covering basic operational expenses due to the limited policy provisions (Rohoana, 2023).

Practitioner capacity and active cooperation impacts the success of policy and program implementation

Teacher knowledge and skills challenged program operation, especially in English and using ICT for communication and learning management. Like other projects in Thailand's policy to integrate into the ASEAN Community, teachers with positive attitudes about developing ideas linked to international cooperation and willingness to follow policies established centrally had difficulties understanding new concepts (Jinerawat et al., 2017; Niemted, 2016; Nitjarunkul et al., 2014; Thaijongrak, 2017). Teachers had difficulties acquiring knowledge about the ASEAN Community as a new paradigm (Siangwan et al., 2015). The project could have been effective if teachers had the knowledge and understanding of international education cooperation, policy implementation, and the required skills, especially in English communication and using ICT for learning. Thus, prioritising teacher training and development is essential for sharper teaching and learning as fundamental components of sustainable educational advancement (Mwaraksurmes, 2024). Frequent changes in assigning project responsibility among teachers also impacted implementation continuity and interrupted activities (Kaewkumkong & Sen, 2019).

Nevertheless, there was good practice among some schools seeking cooperative networks among domestic and international agencies. Konkina et al. (2015) stated that teachers and students had skills to interact with people from different cultures. Over the long term, a mechanism may evolve to mitigate societal extremism, where policy success requires a concerted effort between relevant government agencies, NGOs, and others. This agrees with McKenzie et al. (2008), who proposed that the educational cooperation success factor results from all parties being fully aware that each country's organisation institution has mutual cooperative support, expecting assistance, advanced political assistance, ministerial connections, and a national network of education providers. Diversified networks may increase opportunities for cooperation and support policy resources, as Tullao et al. (2015) suggested.

Significantly, international cooperation in education tends to be increasingly promoted in the ASEAN Community and globally. ASEAN Community official documents, including the charter, blueprints, declaration on strengthening cooperation, and work plans on education (ASEAN Secretariat, 2008, 2009a, 2009b, 2012), show significant encouragement of mutual educational connections. In the EU, education and training became a central theme of building a knowledge-based European society. Cooperation in education and training was developed

and later accepted since 2005 and remains a priority in the Lisbon Strategy (European Communities, 2006). Other works supported positive conditions of educational cooperation: Dhirathiti and Sonsri (2019) highlighted the *Bologna Process* as the most successful of higher education harmonisations in the EU as a central platform for cross-regional educational cooperation. Dolzblasz (2013) and Wieckowski (2002) found that Poland, the Czech Republic, Slovakia and Germany promoted cooperation in interconnected areas to help each other overcome problems and involve local governments.

Pilot schools only reached basic product dimensions but remain far from attaining ultimate policy goals

Policy implementation was successful in the early stages, but the program has not yet achieved the goal of exchanging students and teachers and credit transfer between partner schools. This is partly because the two sides are not continuously coordinating, and plans for joint activities were halted or incompletely achieved by frequent teaching replacements due to transfers and retirement along with limited language, communication and ICT skills. There were also difficulties in coordinating with Indonesian schools since the two nations share different semester schedules and ill-matched requirements. Also, there was a lack of coordination, clarity and consistent support from the central authority. Most tellingly, political changes in 2014 in Thailand resulted in lower fiscal support as the new government allocated funds for its own policies; the program began to weaken and be ignored. As SEAMEO-SEAMOLEC plans were to support only the first five years of the policy program implementation, its popularity continued to decline. Edwards (1980) noted that clear communication, accuracy and consistent objectives are essential for policy implementation.

Additionally, schools faced external challenges hindering continuity, especially the 2011 floods, the 2014 change in government, which altered educational policy impetus, and the COVID-19 pandemic, leading to the suspension of international cooperation activities. Like other projects, central support and enthusiasm declined as they grew less urgent. The new government supported other policies unconnected with educational cooperation with ASEAN countries (ASEAN Secretariat, 2008). The importance of buffer schools between Thailand and Cambodia diminished (Kaewkumkong & Sen, 2019). Meter and Horn (1975) found a correlation between external factors in economic, social, and political conditions and policy implementation. Jan (2017) argued that the key interests of ASEAN countries were centred on improving economic efficiency by strengthening the education sector. It can be then concluded that the main factor behind the ASEAN educational cooperation process is economic.

CONCLUSION

Implementing a school partnership program between secondary schools in Thailand and Indonesia in response to Thailand's policy driving educational cooperation with ASEAN countries differed from previous project launches. The program was implemented in cooperation with SEAMEO, SEAMOLEC, and Indonesian institutions. Significantly, the scope of content extended beyond knowledge of the ASEAN Community and learning languages and cultures of ASEAN countries. Instead, this program promoted learning about the environment, shared values and gender sensitivity. Also, ICT and e-learning were key mediums for promoting the program. Practitioners and stakeholders recognised the policy and program design as consistent with the preparatory context for the ASEAN Community and response to global agendas. However, challenges remained in other dimensions of implementation. This study of Thai pilot schools indicated that input factors affected the operational process. Although practitioners intended to execute the policy and program, their capacities and skills were

inadequate for effective practice. Language skills and ICT ability were especially wanting, as well as understanding the policy implementation paradigm and a vision of international cooperation in education. Hence, in the product aspect, only the initial goal of program implementation succeeded. Ultimate goals, including teacher and student exchange and student credit transfer between partnership schools, remained unrealised. The program also faced challenges from external factors during its operation, especially the 2011 Thailand floods, the 2014 Thai coup d'état and the COVID-19 pandemic since late 2019.

Although the policy program faced diverse challenges in creating international cooperation in secondary schools, lessons learned during implementation may be found for future recommendations and practical implications. Significantly, practitioners expressed a need for the program to be revived and continued because all stakeholders demonstrated good cooperation. Based on practitioner input, key factors determining school success were sufficient budget, professional coordination, operational continuity and digital technology. Likewise, the strategy of practical inference from the CIPP model should create a concept of effective policy-program implementation. For context design, equal international tripartite roles and school participation in planning should be prioritised. A sufficient budget and other resources to facilitate the program are also essential. The quality and quantity of implementors must be strengthened to drive the smooth practice process. Finally, policy products should be balanced between ambitions and the real-world context for short-term and long-term perspectives. These findings may be useful for interested implementers and policymakers in educational development and international cooperation. However, this research was limited by the data collection from macro and micro-level implementers, who were frequently substituted or transferred, impacting the continuity of their responsibilities. Therefore, gaps of discontinuous information could lead to random errors in data analysis.

ACKNOWLEDGEMENTS

This work was supported by the National Research Council of Thailand (NRCT) in 2020 with the Grant number วช.อว.(อ)(ภอ)/520/2563.

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The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

Exploring the intricate relationship between educators' pedagogical content knowledge and student achievement: A case study of a rural primary school in Western Fiji

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DOI: https://doi.org/10.70830/iejcp.2401.20360

This research investigates the relationship between educators' Pedagogical Content Knowledge (PCK) and student achievement in mathematics. As education continues to evolve, understanding how teachers' specialised knowledge impacts the effective transmission of mathematical concepts is crucial. This study explores the role of PCK in influencing students' academic success, focusing on various dimensions and implications in the teaching-learning process. Through an analysis of pedagogical practices and their correlation with student outcomes, this research aims to offer insights into the critical factors that influence success in mathematics education. This small-scale study examines how one teacher in Fiji demonstrated PCK in teaching mathematics. The participants included a Year 7 mathematics teacher and her class of 40 students. Data were collected using a peer observation tool and interviews. Findings revealed that key elements of PCK—such as teacher preparedness, student engagement and teacher-student relationships—were effectively applied in her lesson study. The study underscores the importance of these elements for enhancing student learning outcomes. It provides valuable information on how teachers can use PCK to improve student achievement in mathematics.

Keywords: pedagogical content knowledge (PCK); lesson study; student achievement

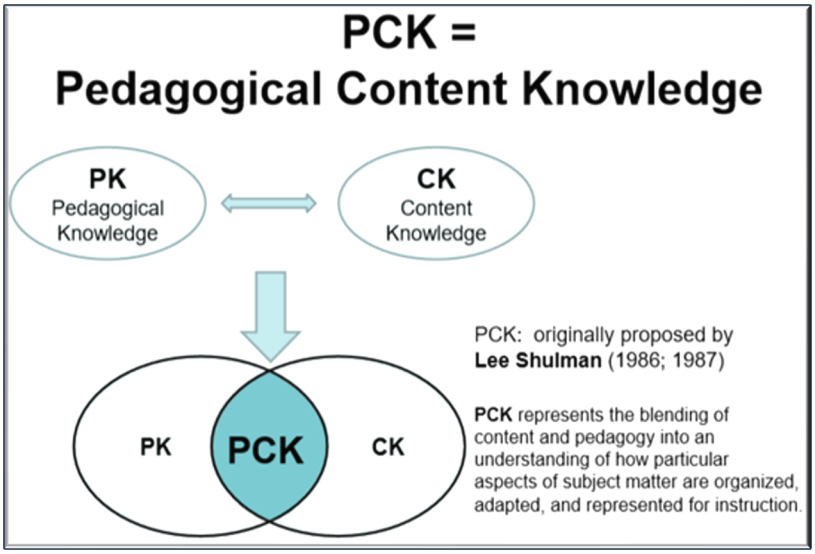
INTRODUCTION AND BACKGROUND

Effective mathematics teaching requires teachers to possess a deep understanding of Pedagogical Content Knowledge (PCK). According to Shulman (1987), PCK involves blending content knowledge with pedagogy to enhance the representation of specific topics and issues, making them accessible to learners of varying abilities and interests.

As noted by Leinhardt (1986), an effective mathematics teacher must possess strong content knowledge and a solid understanding of instructional methods to effectively transfer mathematical understanding. Sullivan and Mousley (1994) emphasise that teachers need to integrate content knowledge with appropriate pedagogical strategies to ensure effective teaching. A teacher with a solid grasp of PCK is more likely to deliver lessons effectively and respond to students' questions in ways that promote understanding.

The Cockcroft Report (1982) asserts that numeracy involves not just familiarity with numbers but also the ability to apply mathematical knowledge confidently in real-life contexts. According to the Ministry of Education, Heritage and Arts (MEHA, 2015), Fiji's national numeracy rates are concerning, with 42.5% of Year 4 students, 39.2% of Year 6 students, and 38.8% of Year 8 students meeting numeracy standards. This data highlights the need to explore PCK elements that can support teachers in improving students' foundational mathematical understanding.

Figure 1: Pedagogical Content Knowledge



Source: http://www.hamk.fi/aokk)

As discussed in the literature review, effective mathematics teaching relies on several PCK elements, including teacher content knowledge, preparedness, use of relevant resources, collaborative learning, student engagement and positive teacher-student relationships. This study investigates how PCK elements can be applied to mathematics teaching to enhance student learning outcomes. The central research question is: How does a teacher demonstrate pedagogical content knowledge in teaching mathematics?

LITERATURE REVIEW

As highlighted in the introduction, the need for a stronger foundation in basic mathematical skills is a significant factor contributing to the poor performance of students in Fiji. To improve students' performance in mathematics, teachers must demonstrate a deep understanding of PCK. According to Shulman (1986), effective teaching requires compound professional knowledge, encompassing subject matter knowledge, pedagogical knowledge, curricular knowledge and PCK. A teacher proficient in these areas displays various elements of PCK, such as subject matter expertise, preparedness, provision of relevant resources, student engagement, collaborative learning and fostering positive teacher-student relationships. These

elements are supported by research in the field and are essential for promoting quality teaching and learning in mathematics.

Mwaraksurmes (2024) explored factors influencing lesson planning among mathematics teachers in Vanuatu secondary schools, focusing on challenges in implementing student-centered learning. The study, involving lesson plan analysis and interviews with 20 teachers in Port Vila, highlighted the need for enhanced support in designing and enacting student-centered approaches within Vanuatu's educational context. This research sheds light on teacher readiness and pedagogical influences in the Pacific region.

Pedagogical content knowledge

To refine and advance students' thinking, teachers must possess appropriate PCK. Shulman and Grossman (1988) define PCK as the knowledge of how to represent specific subject matter topics that cater to students' diverse abilities and interests. Graeber (1999) emphasises the importance of subject matter knowledge, such as content knowledge in mathematics, as essential for teaching. Kennedy (1998) further asserts that teachers should know the subject matter and understand how to teach it effectively.

Ball (2000) echoes this sentiment, highlighting that PCK involves the 'how' of teaching, which is developed through qualifications and school experiences. Duschl and Gitomer (1997) argue that teachers must clearly understand content and pedagogy to meet students' learning needs. Additionally, Darling-Hammond and McLaughlin (1995), Garet et al. (2001) and Sparks and Hirsh (1997) suggest that the Ministry of Education (MOE) should offer teachers opportunities and support to continuously improve their pedagogical practices. Such initiatives will empower teachers to deliver lessons effectively, ensuring productive responses to students' learning needs.

Shulman (1987) identified several critical elements of PCK, including knowledge of the subject matter, student's understanding of the content and implications for teaching specific subjects. Ball et al. (2001) agree that PCK includes selecting tasks, presenting and explaining tasks, facilitating classroom discussions, addressing student responses and analysing student difficulties. Magnusson et al. (1999) further elaborated on PCK, stating that it involves the ability to organise and adapt subject matter to accommodate the interests and abilities of diverse learners. Teachers' ability to transform subject matter knowledge into effective teaching strategies is central to fostering deep student understanding. A teacher equipped with explicit PCK can deliver more effective mathematics lessons, motivating students and encouraging collaborative learning. The use of appropriate resources and pedagogies is crucial for achieving high-quality teaching outcomes.

Lesson study as a pedagogy

In the context of teacher education, lesson study is an instructional strategy that can significantly enhance teachers' PCK. Shulman (1986) argued that professional teaching requires content and pedagogical knowledge. Lesson study is a method that facilitates the development of these essential components. Cerbin and Kropp (2006), Murata (2011), and Stigler and Hiebert (1999) advocate for lesson study as an effective means of improving teachers' PCK through collaborative learning and professional development. Depaepe et al. (2013) emphasised that lesson study fosters collaborative learning and mentorship, which

enhances teachers' pedagogical knowledge. Lewis (2005) supports this idea by noting that lesson study offers multiple pathways for teachers' learning.

Murata (2011) suggested that teachers should engage in shared questions regarding their students' learning, plan lessons together, observe student responses and discuss their findings. Collaborative discussions help improve teachers' thinking and practices, including enhanced subject matter knowledge, instructional skills and ability to observe students, and the development of professional networks. Furthermore, lesson study creates a more robust sense of motivation and efficacy among teachers and improves preparedness through the development of lesson plans and teaching resources. Dela Cruz and Punzalan Magno (n.d.) note that lesson study contributes to teachers' effectiveness because it directly influences student achievement. Shaw et al. (2022), in their comparative study of mathematics teaching across the United States and England, identify persistent tensions between conceptual and procedural approaches in curriculum design and delivery. These tensions resonate with the Fijian context, where lesson study enabled the teacher, in this case, to deliver structured, student-centered mathematics instruction that prioritised conceptual clarity while reinforcing procedural fluency. By embedding collaborative discussion and refinement opportunities, lesson study fosters pedagogical innovation that directly enhances PCK and student learning outcomes.

During lesson study, when students work in groups, they develop multiple problem-solving approaches. This process enhances PCK by fostering teachers' competencies in delivering conceptual understanding and problem-solving skills. Collaborative learning fosters a sense of ownership among students and promotes a collegial relationship in the classroom. Through lesson study, teachers become more prepared with each lesson they revisit, leading to more effective teaching practices.

Elements of PCK

Research has demonstrated that teacher preparedness is a key predictor of successful mathematics lessons. Urdan and Schoenfelder (2006) found that teachers' self-confidence, linked to their professional conduct, also positively affects student achievement. Studies by Monk (1994) and Saderholm and Tretter (2008) highlight that teacher content preparedness significantly impacts student performance. Proper planning is at the core of teacher preparedness, and substantial research shows that planning must be done ahead of time for effective teaching (Zaidatol et al., 2000; Johnson, 2007; Wandberg & Rohwer, 2003). Effective planning ensures student learning objectives are met, and the teaching process is productive. Additionally, preparing valid and relevant teaching resources contributes significantly to lesson delivery. Using well-prepared teaching materials is essential for enhancing student achievement, as evidenced by research from Adeogun and Osifila (2008) and Esu et al. (2004), who demonstrated that teaching resources facilitate effective lesson delivery and help students grasp abstract concepts.

Teacher preparedness extends to the creation of engaging resources that support student-centered learning. Using appropriate resources, such as worksheets and collaborative tasks, ensures students are actively engaged in learning.

Bomia et al. (1997) defined student engagement as the active participation of students in their learning activities, which directly correlates with academic success. Research by Skinner et al. (2008) and Fredricks et al. (2004) indicates that student engagement is a critical factor in achieving academic success because students who are engaged are more likely to perform well. Student engagement, fostered by teacher preparedness and resource availability, leads to increased motivation, a positive classroom climate and improved learning outcomes.

Building positive teacher-student relationships is also crucial for fostering a conducive learning environment. Studies by Bryson and Hand (2007) and Boynton and Boynton (2005) show that teachers who show interest in their students' success and provide continuous support are more likely to create a positive learning atmosphere. Brown (2010) and Bartlett (2003) further argue that positive teacher-student relationships combined with a supportive learning environment lead to increased motivation and student achievement.

Collaborative learning

Collaboration among students is vital for enhancing classroom learning. MacMath et al. (2009) emphasized that collaboration fosters mathematical understanding and increases confidence in mathematics. Suurtamm, Quigley, and Lazarus (2015) argued that a collaborative learning environment enables students to explore and share ideas, promoting deeper understanding and greater self-confidence. Similarly, Fleming (2000) highlighted that collaboration enhances problem-solving skills by improving coordination and cohesion among group members. Roschelle and Teasley (1995) defined collaboration as the mutual engagement of students in a joint effort to solve problems, which builds a rich learning context where students can contribute to and learn from one another's mathematical thinking. Collaborative learning encourages teamwork, strengthens personal relationships, and supports the development of math talk, where students can explain, evaluate, and build on one another's ideas. This social learning context is essential for fostering deeper understanding and problem-solving abilities.

The literature underscores the critical role of PCK in improving the effectiveness of mathematics instruction. Teachers who possess a deep understanding of both content and pedagogy are better equipped to support student learning, especially in foundational areas like mathematics. Implementing strategies such as lesson study and fostering collaborative learning environments can further enhance teachers' PCK and improve student outcomes. Effective teacher preparation, supported by thoughtful planning, valid resources, and positive teacher-student relationships, is essential for creating engaging and successful mathematics lessons.

METHODOLOGY

The research approach employed to explore PCK was grounded in a qualitative design to capture a deep, nuanced understanding of the phenomenon. Qualitative research is particularly effective in investigating human behaviour, beliefs and experiences within their natural context because it provides rich, detailed insights rather than relying on numerical data. According to Rubin and Rubin (2005), qualitative research focuses on creating comprehensive narratives that reflect the complexity of human experiences. This methodology is inherently explanatory and open-ended, enabling the exploration of multiple perspectives through interviews and other narrative-driven techniques. The data collected in this study was valid and reliable, grounded in teachers' lived experiences with PCK, ensuring an authentic and meaningful representation of the subject under investigation.

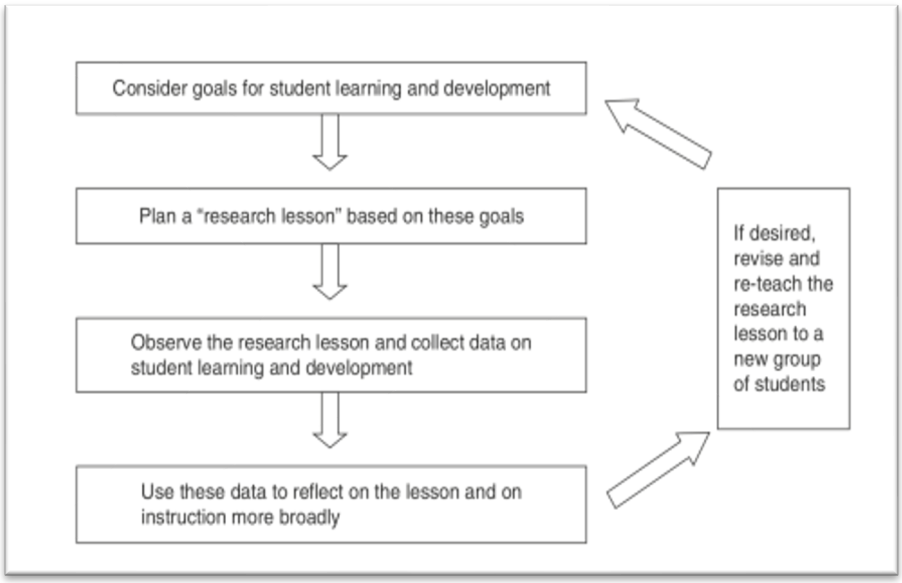
The study was conducted at a semi-rural primary school in Lautoka, Fiji, where the participants consisted of a Year 7 mathematics teacher and her class of 40 students. The teacher employed lesson study as her pedagogical approach. This context provided an ideal setting to explore how PCK was integrated into the classroom and how it influenced the teaching and learning processes. The teacher's lived experiences and the students' perspectives were central to understanding the practical application of PCK within this specific educational setting.

Lesson study

Lesson study, when implemented effectively, has significant positive implications for teaching. Originating from Japanese elementary education, it involves a cycle of identifying a teaching problem, planning the lesson, teaching and observing it, recording observations for analysis, revising the lesson and teaching it again (Lewis & Tsuchida, 1998). According to Hiebert et al. (2002), lesson study emphasises improving teaching practices and building knowledge through a collaborative, reflective process. Stigler and Hiebert (1999) note that it encourages teachers to work together, share ideas and reflect on their practices, requiring considerable time and commitment. As a reflection-driven method, lesson study promotes continuous revision and improvement of teaching practices.

The iterative nature of this process is captured in the lesson study cycle (see Figure 2), which illustrates the stages of planning, teaching, observing, and refining.

Figure 2: The lesson study cycle



Source: Murata, A. (2011). Introduction: Conceptual overview of lesson study. In L. C. Hart, A. S. Alston & A. Murata (Eds.), *Lesson study research and practice in mathematics education* (pp. 13–24). Springer.

In the context of this study, the teacher identified a specific teaching problem, planned the lesson and delivered it with the researcher observing. The researcher used a peer observation tool to assess the strengths and weaknesses of the lesson. Following the observation, feedback was shared with the teacher, who then reflected on the findings before proceeding to the second phase of the lesson.

Data collection tools

Data for this study were gathered through pre- and post-lesson interviews and peer observation of a mathematics lesson focusing on the teacher's pedagogical practices. The participant was approached informally and voluntarily agreed to take part. All interviews were conducted outside official school hours to ensure minimal disruption to the teaching schedule.

Interviews, as Kvale (2003) notes, are effective tools for collecting rich narrative data and exploring participants' perspectives in depth. This study used open-ended questions, allowing the teacher to reflect on her pedagogical approach. Each session was audio-recorded and later transcribed to maintain accuracy and authenticity, as recommended by Duranti (2007).

The pre-lesson interview, lasting six minutes, was held in the morning. It focused on the teacher's intended teaching strategies and the rationale for her chosen approach. The interview aimed to capture her planning process and pedagogical intentions.

The lesson was then observed using a structured peer observation tool during official teaching hours. Although video recording was initially considered, MEHA policy prohibited this method, prompting the use of a detailed observation framework instead. Peer observation, identified by Harris et al. (2008) as a key strategy for enhancing teaching quality, enabled a comprehensive review of the lesson in action.

The observation tool included a scoring rubric with four levels—ranging from 'not evident' to 'very evident'—across several categories: lesson organisation, content knowledge and relevance, presentation, collaborative learning activities, implementation, instructional methods and student responses. Each area featured clear indicators and space for comments to provide formative feedback. The 40-minute observation also captured student engagement, particularly during group work, offering further insight into the effectiveness of the pedagogy.

A follow-up interview was conducted the next day, lasting four minutes. This session focused on the teacher's reflection and her PCK, clarifying elements observed during the lesson. Additional questions were included to address initial data gaps and support comparisons with existing literature.

This approach to data collection was particularly effective in fostering open dialogue because the teacher felt at ease sharing her insights. However, a notable limitation was the additional preparation time required, which placed some demands on the teacher's schedule.

Ethical considerations

Ethical protocols were carefully observed throughout this study to protect the rights and well-being of all participants in line with the principles outlined by Eisenhauer and Wynaden (2001). The research was conducted only after securing all necessary approvals, ensuring full compliance with institutional and governmental requirements.

Initial ethical clearance was obtained from Fiji National University (FNU), followed by formal approval from the MoE because the study involved classroom observation of both teachers and students. The necessary documentation—such as the university approval letter, consent forms and a copy of the birth certificate—was submitted to facilitate this process.

Once official permissions were granted, the Head of School and the participating teacher provided their informed consent. Subsequently, consent forms were distributed to 20 Year 7 students accompanied by detailed explanations of the study's purpose.

Parents were also required to provide written consent for their children's participation. The process was transparent and designed to ensure understanding and voluntary involvement. One student was absent during the lesson observation; the remaining students participated willingly.

Year 8 students were supervised by the Head Teacher during the 40-minute lesson observation, ensuring student safety and duty of care.

All participants were informed—using age-appropriate language—of their rights, including the freedom to withdraw from the study at any point without consequence. No student chose to withdraw, and the observation proceeded without disruption.

Data collection occurred over two days after the teacher requested additional preparation time. Throughout the study, MoE policies and procedures were strictly followed to uphold ethical standards. Participants' autonomy and comfort were prioritised, and no coercion was involved in any research phase.

To maintain confidentiality, all interview recordings and observation data were securely stored on a password-protected computer. The teacher received feedback from the interviews and lesson observation, while students were only given feedback related to the observed lesson. Data analysis focused on identifying recurring patterns and insights into the role of PCK in mathematics instruction.

As part of the dissemination process, a final copy of the research report will be submitted to the school and MoE. Following MoE policy, the report will be archived in their research library and accessible to Ministry and Government officials. MoE also reserves the right to publish the report or an edited version for broader educational use.

Data security

The interview and audio-recorded data were stored on a secured computer with password protection. The findings of the lesson observation were shared with the students and the teacher. However, the interview data were only shared with the teacher to maintain confidentiality. The participants were informed that their responses would contribute to understanding key aspects of PCK in mathematics lessons. Data analysis was conducted by identifying patterns in the responses, with a focus on the effectiveness of the teacher's pedagogy and PCK.

Analysis of data

The data was thematically analysed, a qualitative method that involves identifying patterns or themes within the data (Braun & Clarke, 2006). This approach is considered flexible and suitable for analysing the diverse aspects of learning and teaching. Thematic analysis helps recognise key patterns or themes from the data collected.

Braun and Clarke (2006) provided a six-phase framework that guided the data analysis process: familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing reports.

The first step in the analysis was familiarisation with the data. This process allowed for a comprehensive understanding of the content gathered from interviews and the peer observation criteria tool. The audio-recorded interview was transcribed, and the data obtained from the peer observation tool was reviewed to extract relevant information. The next step involved generating initial codes, where interesting data components were organised under various headings, such as creativity, interest, good listening skills, teaching aids, student engagement, preparedness, pedagogy, group work, organisation, peer learning and effective lesson delivery.

The third step focused on searching for themes, where the distinct codes were categorised into potential themes. These included content knowledge, teacher preparedness, resources, student engagement, collaborative learning, student-teacher relationships, practical lessons and time management. During the fourth phase, these themes were reviewed and refined.

The final themes identified were content knowledge, teacher preparedness, resources, student engagement, collaborative learning and student-teacher relationships. Relevant data about these themes were revisited and reorganised to enhance understanding and contribute to the research's goals.

The fifth step involved defining and naming the themes, which helped to highlight the most significant themes emerging from the data. These themes were analysed further to group key ideas and identify patterns. Finally, the sixth step consisted of the final analysis and preparation of the written report, which is presented in the findings and discussion.

FINDINGS AND DISCUSSION

As discussed in the introduction, PCK is crucial for effective teaching and student achievement because it depends on the teacher's knowledge of the subject matter, teaching practices, and beliefs about effective teaching. In this study, the teacher applied Lesson Study as her pedagogical approach, ensuring that key elements of PCK, such as teacher preparedness, student engagement and student-teacher relationships, were evident throughout the lesson. This section explores the PCK elements contributing to effective teaching and high student achievement.

Teacher preparedness

A teacher's PCK is closely linked to effective lesson preparation, which in turn enhances productive learning. Hill et al. (2005) emphasise the importance of teachers' PCK in mathematics and its impact on student learning.

Ogar (2006) further supports this by stating that a teacher's understanding of pedagogy and subject matter significantly influences students' learning outcomes. According to Hill et al. (2004), PCK is essential for a teacher's success in the classroom.

In this study, it was evident that the teacher demonstrated strong knowledge of fractions, particularly in converting mixed fractions to improper fractions and vice versa. The teacher's preparedness was clear during the Lesson Study process. In the interview, the teacher stated, 'I thoroughly investigated the pedagogy and concept, and then I prepared my lesson. I did this to be better prepared for my lesson.'

The teacher also explained that she chose the Lesson Study approach because it provided a step-by-step process that helped students understand the concept and stay engaged throughout the lesson, which was observed in practice.

Peer observation revealed that the lesson was well-structured, and the teacher effectively clarified the concepts. She provided relatable, real-life examples to illustrate the lesson. For instance, she explained the concept of fractions by comparing the arrangement of people in an assembly—shorter individuals in the front and taller ones in the back. She likened this to proper fractions, where smaller numbers represented the numerator and larger numbers the denominator. This comparison helped students grasp the concept of improper fractions. The teacher also took the time to define key terms and concepts, such as the difference between numerator and denominator, when one of the students appeared confused.

Furthermore, the teacher had prepared a detailed lesson plan, which Borich (2007) describes as a crucial tool for achieving lesson objectives and enhancing teaching effectiveness. The lesson plan serves as a guide for teachers, helping them stay focused and ensuring that the lesson objectives are met. In the interview, the teacher explained, 'I told my students at the beginning about the expectations and clearly outlined the lesson objectives'. The objectives, which included helping students identify and convert mixed and improper fractions, were communicated clearly to the students at the start of the lesson.

The lesson plan also addressed the cognitive, psychomotor and affective domains, ensuring a holistic approach to learning. The teacher utilised the Mathematics Syllabi and Textbook for Year 7 as references to structure the lesson and ensure that the objectives were aligned with the curriculum.

Teacher preparedness in the classroom: Exploring PCK in mathematics instruction

PCK serves as a vital framework for improving the quality of mathematics instruction. It encompasses a deep understanding of the subject matter, and the pedagogical strategies required to make this knowledge accessible and meaningful to students.

This study examined the role of PCK in a Year 7 mathematics classroom, focusing on blackboard management, teacher preparedness, student engagement, collaborative learning and the teacher-student relationship. The observed mathematics instruction aligns with trends in international education research that advocate for a balance between conceptual understanding and procedural skill-building. As Shaw et al. (2022) discuss, meaningful mathematics teaching in the 21st century must move beyond rote learning to embrace instructional approaches that develop reasoning, communication and problem-solving skills. In this study, the teacher's use of blackboard design, real-life analogies and differentiated group activities reflect this shift toward more inclusive and responsive pedagogies.

Additionally, the Lesson Study model enabled ongoing refinement of teaching strategies through a cyclical, evidence-based approach to professional learning. This aligns with Hunter's (2022) analysis of Lesson Study as a powerful tool in mathematics education, where collaborative inquiry and reflection lead to enhanced pedagogical content knowledge (PCK) and more responsive instructional practices. In contexts such as the Pacific, where educational systems often operate with limited resources, Lesson Study fosters locally driven, school-based innovations that empower teachers as agents of change and contribute meaningfully to broader conversations on educational improvement and sustainability.

Teacher preparedness and classroom design

Classroom arrangements and lesson preparation are key indicators of teacher preparedness and PCK. Mohanan (2000) describes classroom design as 'built pedagogy', where the layout mirrors educational philosophies and supports social interaction. The observed classroom was a spacious and well-organised environment that supported effective teaching practices. The teacher thoughtfully planned seating arrangements and prepared diverse resources, including charts, worksheets and models aligned with lesson objectives.

According to Awiotua-Efebo (2001), teaching aids—ranging from textbooks to natural objects—are integral to effective instruction. The teacher demonstrated this by strategically using visual aids to support the lesson on Proper, Improper and Mixed Fractions. Her preparedness reflected a clear grasp of content and pedagogy.

Lundahl, C. (2022) highlighted that collaborative learning provides students with immediate support and feedback from peers, fostering a supportive environment that enhances motivation. The study emphasized that such environments encourage students to celebrate achievements together, thereby strengthening their engagement and interest in the learning process.

Blackboard management as a pedagogical tool

An often-overlooked aspect of instructional delivery is blackboard management, a critical component of PCK, especially in resource-limited settings where digital tools are not always available. Gagne et al. (1993) and Chauhan (2011) emphasise that organising visual materials enhances clarity and facilitates real-time concept reinforcement.

In the observed lesson, the teacher's blackboard was logically divided into sections: one for objectives, another for group responses and a section for summaries. She used different coloured chalk to highlight key terms and visually distinguish between types of fractions. This structured approach supported cognitive processing and accommodated diverse learning styles.

Moreover, the teacher's blackboard layout evolved through participation in a school-based lesson study, where peer feedback enhanced her visual presentation strategies. Zeichner and Liston (2013) argue that effective board work reveals a teacher's planning, pacing and ability to anticipate student difficulties—attributes demonstrated in this case. Fernandez and Yoshida (2004) advocate integrating blackboard strategies into teacher professional development and lesson study cycles to improve teaching effectiveness. Holden (2020) investigates the implementation of online lesson study cycles among primary school teachers, utilizing digital tools to facilitate collaborative planning, observation, and reflection highlights how such collaborative processes can lead to the refinement of instructional strategies, including the use of blackboard layouts, as teachers engage in peer feedback and shared practices.

This aligns with your observation that the teacher's blackboard layout evolved through participation in a school-based lesson study, where peer feedback enhanced her visual presentation strategies.

Fostering student engagement and motivation

Student engagement, defined by Axelson and Flick (2010) as the level of involvement and motivation students bring to learning, is a key outcome of effective PCK. The teacher began her lesson with words of encouragement and a motivational quote: 'The mediocre teacher tells, the good teacher explains, the superior teacher demonstrates, the great teacher inspires'. This helped create a positive emotional climate, leading to active student participation.

The teacher's use of positive reinforcement, such as 'Well done' and 'Great effort', especially toward students with lower learning abilities, aligned with Winter's (2011) findings that supportive feedback promotes motivation and sustained interest. Students demonstrated high levels of engagement during collaborative group tasks involving the differentiation of fraction types, highlighting the strong relationship between motivation, active participation, and improved learning outcomes (Johnson & Johnson, 2020; Hwang & Chang, 2022).

Collaborative learning and constructive communication

Collaborative learning, another facet of PCK, was evident through the teacher's use of mixed-ability group work. Dillenbourg (1999) and Otero (2015) highlight the importance of peer interactions in enhancing learning. The teacher grouped students to encourage peer support, provided differentiated worksheets, and guided joint problem-solving.

This approach promoted the development of communication and critical thinking skills, as supported by Van Boxtel, Van der Linden, and Kanselaar (2000). The collaborative

environment also nurtured meaningful teacher-student and peer relationships, contributing to sustained academic engagement.

The role of teacher-student relationships in learning

A strong teacher-student relationship enhances academic and social development. Freeman (2015) noted that such relationships significantly influence learning outcomes. During the lesson, the teacher created a caring and inclusive environment, ensuring that all students had an opportunity to contribute. Her metaphor, 'Teachers are like needles, and students are like threads. Both come together to create something beautiful students' successes captured the essence of her supportive approach.

Davis (2003) further emphasised that teacher care and responsiveness stimulate student motivation and intellectual growth. The teacher's positive rapport with students in this classroom cultivated a culture of trust, effort and achievement.

This case study highlights the transformative role of PCK in mathematics instruction. From meticulous lesson planning and effective blackboard use to fostering engagement, collaboration and strong teacher-student relationships, the observed practices exemplify how PCK can enhance teaching quality and learning outcomes. Although limited to a single case, these insights offer valuable implications for teacher education, especially in rural and resource-constrained contexts.

A strong teacher-student relationship significantly enhances both academic and social development. Recent studies have reaffirmed that such relationships are pivotal in influencing learning outcomes. For instance, a study by Ma et al. (2022) found that teacher-student relationships positively correlate with academic performance, with parental involvement moderating this relationship. Furthermore, research by Chamizo-Nieto et al. (2021) highlighted that emotional intelligence and flourishing, influenced by teacher-student relationships, play a crucial role in academic achievement among adolescents. In the observed lesson, the teacher fostered a caring and inclusive environment, ensuring all students had opportunities to contribute. Her metaphor, 'Teachers are like needles, and students are like threads. Both come together to create something beautiful students' successes,' encapsulated her supportive approach.

Future research should explore the application of PCK across diverse settings to better understand its impact. Moreover, teacher training programs should prioritise PCK development through integrated strategies, such as lesson study, collaborative planning and reflective teaching practices. Policy efforts should also support the systemic incorporation of PCK in curriculum and professional development frameworks to improve mathematics education in the Global South and beyond.

RECOMMENDATIONS

This study emphasises the critical role of PCK in enhancing mathematics education in Fiji. To strengthen the quality of mathematics education, it is essential to integrate PCK systematically into pre-service and in-service teacher education. The following recommendations are proposed to foster an effective implementation of PCK and improve student learning outcomes:

1. **Strengthen teacher education and professional development:**

   In collaboration with the MoE, teacher training institutions should prioritise PCK as a fundamental component in pre-service and in-service teacher education programs. Teacher

training should focus on developing the skills needed to transform content knowledge into engaging, contextually relevant lessons that address the diverse needs of learners. Additionally, professional development programs should include strategies for managing classroom dynamics, using formative assessments to guide instruction and differentiating teaching to meet varying student needs.

2. **Encourage collaborative learning and cluster-based support**:

   Professional development should be designed to encourage collaborative learning environments. The establishment of (PLCs within school clusters can foster peer learning, enabling teachers to share best practices, co-plan lessons, observe one another's teaching, and provide constructive feedback. Collaborative workshops and peer-learning sessions will support teachers in developing their PCK and offer opportunities for ongoing professional dialogue that enhances teaching practices.

3. **Provide sustained and practical support**

   Teachers require ongoing access to practical support for PCK to be effectively integrated into everyday teaching practices, including providing teaching resources, digital tools, sample lesson plans and continuous mentorship from experienced educators. School leaders should actively ensure that teachers receive the guidance they need to apply PCK in the classroom. Such support will enable teachers to refine their teaching strategies and improve their instructional effectiveness over time.

4. **Embed monitoring, feedback and reflective practice**

   To promote the continuous development of PCK, it is essential to incorporate systematic classroom observations and feedback mechanisms into the school culture. Administrators and curriculum advisors should regularly observe lessons and provide feedback on the effective use of PCK. Teachers should also be encouraged to engage in reflective practices such as journaling, peer reviews and self-assessment. These reflective activities will allow teachers to critically assess their teaching practices, identify areas for improvement, and make adjustments that lead to better student outcomes.

5. **Foster research and evidence-based practice**

   This study has highlighted a significant gap in research concerning the application of PCK within the Fijian educational context. It is recommended that the MoE, universities and teacher training providers invest in and promote research into how PCK influences teaching and learning outcomes. Future research should explore the impact of PCK across different subject areas, grade levels and cultural contexts.

   Additionally, studies could investigate which professional learning approaches yield the best results in terms of improving teacher practice and student achievement.

6. **Enhance policy and leadership support**

   For PCK to be effectively integrated into the education system, it is necessary for policies to explicitly recognise and support the development of PCK as a framework for quality teaching. Education leaders must be trained to identify and nurture effective teaching practices, provide mentorship and foster a culture of innovation and accountability within schools. Aligning school policies with the principles of effective pedagogy will ensure that teachers have the systemic support needed to continually improve their practice and contribute to the overall improvement of education in Fiji.

CONCLUSION

The modern education system must cultivate critical thinking, adaptability, and resilience in students (Tebabal & Kahssay, 2011), a goal significantly supported by PCK. Effective teachers with strong PCK demonstrate better classroom management, content delivery and resource utilisation, enhancing student engagement and outcomes.

This study examined a Year 7 teacher's application of PCK in mathematics, revealing that teacher preparedness, student engagement and teacher-student relationships significantly impact student achievement. Thorough preparation, including pedagogical research and comprehensive lesson planning, is crucial. Student engagement, driven by motivation and positive reinforcement, enhances learning. Collaborative learning through group work fosters deeper understanding, and positive teacher-student relationships create a supportive environment conducive to academic success. These findings are consistent with those of Filgona, Jacob, John, and Gwany (2020), who emphasized that a teacher's mastery of PCK—combined with emotional and social support—positively influences student performance. Their research reinforces the idea that academic success is not solely based on content delivery but is deeply intertwined with how teachers connect with and motivate their learners.

Ultimately, this research underscores the importance of PCK in strengthening mathematics education. Integrating PCK into teacher training, promoting peer collaboration and investing in research can improve teaching practices and student outcomes, contributing to a more resilient and responsive education system in Fiji.

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The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

‘We are moving away from independent research and thought’: An investigative study of epistemological diversity inside an academic humanities conference

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DOI: https://doi.org/10.70830/iejcp.2401.21086

This study applied an investigative research framework to explore a persistent discourse about the practice of epistemological diversity and inclusion in Canadian higher education. Drawing on pre-conference Zoom seminars with conference administrators over eight months, two main themes became obvious. The role epistemological diversity enjoys inside an academic humanities conference and the fragile and controversial role of epistemological diversity. The study suggests that epistemological diversity in higher education is a contentious practice that could undergo renewal and replacement. Being open to the possible outcomes, the author advances the belief that expanding rather than restricting epistemological diversity in higher education, including academic conferences, can advance a multitude of intelligences, leading to shared problem-solving, tolerance, respect and empathy among diverse peoples.

Keywords: Epistemology; diversity; Canada; higher education; humanities conference; worldview; investigative

INTRODUCTION

This research offers a discussion on the topic of epistemological diversity in higher education. Epistemology is the study of knowledge. Banks (1993) describes the diversity of epistemology as ‘that knowledge people create which is influenced by their interpretations of their experiences and their positions within particular social, economic, and political systems and structures of a society’ (p. 5). ‘Epistemologies’ can also be described as ‘plural systems of knowledges’ or ‘ecology of knowledges’ (De Sousa Santos et al., 2007, p. xxxix). Although the term is generally accepted, ‘epistemological diversity’ can be used differently.

One goal of epistemological diversity is to advance and give justification to a broad range of ideas, beliefs, belief systems, research methodologies, methods of inquiry, research questions, cultural epistemologies, ways of knowing and epistemological perspectives. One outcome of epistemological diversity is to give validation that reflects and reinforces the diversity of beliefs and values of Canadian society. Using epistemological diversity encourages critical thinking and tolerance, promotes a wider range of viewpoints and helps to identify biases in research and knowledge production.

Canada is highly diverse in terms of ethnic, cultural and linguistic backgrounds. In 2021, Statistics Canada (2021) referred to more than 450 ethnic and cultural groups. As higher education and people in Canada diversify regarding ethnicity, religion, and worldviews, society will continue to be exposed to many epistemologies. In academia, epistemologies are often

referred to as 'ways of knowing', which really means there are types of knowledge and knowing., and could involve learning about concepts, ideas or skills from indigenous, scientific, mathematical, historical or spiritual knowledge. The accessibility of knowledge types provides individuals and society with opportunities to learn, consider other perspectives, acquire problem-solving skills, and increase understandings. Consequently, it is reasonable for higher education to prioritise knowledge types and advance epistemologies within an increasingly knowledgeable society. A survey conducted with professors at Canadian universities revealed that the changing knowledge society was more important for students to learn about and engage with today than ever before, with 53% of professors selecting epistemological awareness as their second most important goal as educators in higher education (Dummitt & Patterson, 2022). The higher education system is recognised as essential to Canada's prosperity, including newcomer integration and civic engagement for learners.

To reflect this reality, there have been changes to higher education research courses, which have included textbooks and publications that explain epistemological diversity in the form of paradigms taught to undergird all phases of the research process (Mertens, 2024), confirming that, for some time, epistemological diversity has been recognised as an integral aspect to the craft of research (Pallas, 2001, p. 6). The concept of paradigms provides the broader context for understanding how knowledge is generated and, most importantly, expressed.

RESEARCH AND EPISTEMOLOGY

With a focus on a social science and humanities conference, research in higher education takes place in one of Canada's largest educational conferences. Traditionally, higher education has been where people can gather and learn together. People with diverse belief systems and research methodologies congregate, discuss and interact. In general, academic conferences offer attendees established and ongoing research studies, keynote lectures and poster presentations. Therefore, attendees are exposed to diverse epistemologies and research methodologies. This is uncontroversial, as noted by Siegel:

> The general thesis that there are many legitimate ways to conduct research is unexceptionable . . . and epistemological diversity is taken to refer to alternative beliefs or belief systems, the phenomenon in question is uncontroversial because all are agreed that beliefs and belief systems do indeed differ.

However, as personal experience suggests, and as this experience reveals, the homogenisation and narrowing of epistemology and research methods at a higher education research conference is less implausible than it might initially appear to those who teach, work and present research in the context of educational conferences and associations in Canada.

METHODOLOGY: INVESTIGATIVE RESEARCH (IR)

My account as a representative for a scholarly association at a conference led me to utilise investigative research to explore this topic. Investigative research (IR) describes information about a specific subject, or in this case, an incident that may not be apparent to those directly or indirectly involved in the topic under investigation. IR searches out the influence of those parts frequently overlooked by other approaches.

This study involves an incident with elements of special interest to IR. First, IR requires investigators with a genuine interest in the phenomena and are motivated to understand the incident or event (Stake, 1995). My interest in a social science and humanities conference in

higher education is due to my identity and experience as a research-educator who regularly collaborates with various faculty working inside and outside higher education.

IR links data to propositions and builds explanations and direct interpretations from the data. Stake (1995) describes direct interpretation as its own type of analysis. Yin (2003) notes that a critical practice during the analysis phase of IR is returning to the propositions under investigation and conducting focused analysis. The proposition I return to, discuss and analyse concerns the following: 'We are moving away from independent research and thought'.

As a final note, investigative research requires an investigative site that places the issue in sharp relief. It should be a site to which the researcher has direct access. Since I am investigating an incident and phenomenon that occurred at a social science conference in the humanities in Canada and a conference in which I am intimately involved, I am better able to evaluate the processes in my local setting and investigate a central proposition and potential social changes that could influence the social science conference in terms of epistemological diversity and research methods.

THE PRE-CONFERENCE ZOOM SEMINARS

My personal experience as vice president of a participating scholarly association that offers presentations, panels, workshops and cultural events to stakeholders in higher education makes it possible to discuss the incident with some experience and accuracy.

I participated in and contributed to pre-conference Zoom seminars over eight months with conference administrators in Canadian higher education.[1] The pre-conference Zoom meetings were in preparation for a humanities and social sciences conference in the month of June 2023. According to the Conference website (York U, 2023), the annual conference is the 'largest academic gathering in Canada and one of the largest in the world'.

In 2023, the conference registered 10,300 attendees, with 67 academic associations represented. During the pre-conference meetings, the organisers supplied structural information to all the key association representatives, who would later be asked to communicate the information to their association members and conference attendees. One of the instructions to be transmitted to all association members was to inform researchers and presenters that we were 'moving away from independent research and thought'.

The conference representatives spoke of this as the 'conference vision'. They challenged all Zoom attendees to consider what steps they could take to assist their association members in adopting this change of position. The two areas that would undergo the most change were *independent research* and *independent thought*. The following instruction is verbatim: 'We are moving away from independent research and thought'.[2]

This was not a one-time instruction. Instead, conference representatives gave the instruction during every meeting over the eight months leading up to the conference. No one present on the Zoom calls (except the author of this paper) appeared to display any surprise that a

[1] This is not a criticism of any conference administrators, but a critique of the recommendations issued regarding future researching.

[2] Please note, there were no details offered to attendees about what preceded the decision to adapt a change of position involving independent research and thought.

humanities and social science conference in higher education would recommend researchers, scholars and attendees to 'move away from independent thought and research'.

Moreover, no discussion or question time was provided to answer or clarify misconceptions or questions, such as why this was a significant change to promote. As noted, the statement was delivered at the start of every Zoom meeting with no invited response and no opportunity in any format made available for attendees to discuss or review how this could be achieved.

This lack of surprise and the experience itself is worth a discussion. For generations, the epistemic tradition of independent thought and research in higher education has dominated knowledge production. It has become fixed in not only the academic consciousness but also the public consciousness. Moving *away* from independent thought and research would be a substantial paradigm shift that would restrict potential research programs, conference dialogues, methodologies and the application and funding of grant applications. For these reasons alone, its potential outcomes are worth examining.

EDUCATION: HOMOGENEITY AND HETEROGENEITY

The directives given during the pre-conference meetings suggest future epistemological changes in higher education are on the horizon. If the changes were to be administered, there would be fundamental changes to research practices in terms of epistemological autonomy, diversity, and, of course, epistemic inclusion. My first thought was how this might prevent researchers, educators, learners, colleagues and my research projects from proceeding in ways vastly different to proven and established research and learning goals that have been ongoing for years.

The proposition is perplexing because Canadian higher education is already increasingly diverse regarding student identities, ethnicities, religious affiliations, and worldviews. Therefore, the question remains how epistemic diversity and research can be practised in the academy, including independent study and thought.

The consequence of not safeguarding epistemic diversity, including independent thought and research, is obvious. For example, in Canada, since the release of the *Truth and Reconciliation Commission: Calls to Action* in 2015, recent initiatives to broaden 'ways of knowing' in the academy and indigenise higher education have led to a commitment by Canadian higher education to expand epistemologies and methodologies. However, as Gandry and Lorenz (2018) observed, higher education institutions have not taken this seriously; instead, they have focused on identity inclusion, a policy that aims to increase the number of identities in higher education in terms of students, faculty and staff, but epistemology diversity or other ways of knowing besides Western epistemologies have yet to occur beyond the theoretical.

The result is there is no or very minimal wholesale epistemological overhaul of the academy to fundamentally broaden and reorient knowledge production. Consequently, epistemic diversity has contributed minimally to higher education because higher education acts as the gatekeeper for what counts as knowledge—genuine or valuable, which has led to a surface level and add-on approach to 'other ways of knowing'. As St. Denis notes, 'We need the perspectives and knowledge, not just the beads and feathers' (St Denis, 2011, p. 36). Canadian historian Jean Barman (2012) explains the error in Canadian education policy by making the mistake of assuming the sameness of people groups. Similarly, the government viewed Indigenous groups and nations as a single 'object' or people to be acted upon by restricting independent thought and research. Knowledge and research are homogenised when an epistemological 'straitjacket'

is placed on what counts as 'legitimate'. Indeed, we can learn from our Indigenous history and act wisely to prevent a return to the suppression of knowledge production.

One example of the demand to narrow knowledge production in education is taken from the Canadian lawyer Sheldon Chumir.[3] He believed in a homogeneous public education, which was designed, he argued, 'to mix children of different ethnic and religious groups and eliminate those differences' (Bateman, 1988, p. 8). Although Chumir is correct in supposing that one goal of public education is fraternity, the problem here is when diverse communities are regulated to epistemological conformity that is not genuinely fraternal.

Suppose an organisation insists that independent research and thought should have less importance in the spirit of unity. What if collective knowledge practices turn out to be incorrect or harmful? This does happen, and there are examples of collectivist thought practices becoming government policy, such as with the Sami Parliament in Northern Finland, which represents the Sami as a collective people but limits their culture and identity to speaking the language fluently. [4] Moreover, collectivist research practices promote epistemological uniformity if they oppose the locally diverse epistemologies of marginalised communities and individuals.

Is the way forward in higher education to disparage epistemological differences or ones we do not like in favour of a predominant view? This has occurred recently in fiery school board meetings in the United States, where epistemological disagreements between school boards and parents have become epistemological combat zones.

Eradicating or reducing independent thought or research has a greater chance of lessening critical thinking skills. Epistemological uniformity generates a learning environment where conformity is the outcome. Epistemological democracies require that people be interested and adequately skilled to engage productively with each other. Without communication skills and dispositions, it seems inevitable that a hostile environment will develop between epistemological groups. Civil society is threatened when ignoring knowledge differences and practices becomes the norm.

While Canadian higher education has theoretically supported independent critical thinking, the collective and independent intelligences of cultural, religious and Indigenous epistemologies continue to advance slowly or sometimes superficially.

THE IDEA OF EPISTEMOLOGY DIVERSITY IN HIGHER EDUCATION

What is the purpose of higher education in terms of epistemological diversity, intellectual inquiry and research? Since the birth of the modern Western university, the idea of the academy has been a vigorous promoter of independent thought, research, intellectual inquiry and critical thinking. This is one of the reasons why 'critical thinking is associated with the goals of higher education' (Dunne, 2015, p. 89).

Higher education acts as a producer of knowledge; however, the interpenetration of what higher education is today in terms of knowledge production and the wider society is nuanced. One

[3] Sheldon Chumir was a prominent member of the Alberta legislature, who led a campaign in the 1980s against alternatives in public schools because he held that isolating children in segregated schools would cause intolerance.

[4] This is based on research I have been conducting in Northern Finland with the Sami people.

reason is that higher education today has many 'faces'. Consider the types of higher education available that provide instruction:

- Research-led internationally respected universities,
- Community colleges that conduct no research,
- Corporate universities,
- Global universities,
- Virtual universities.

Due to their distinct structure and focus, some types of higher education emphasise theoretical and academic learning, while others prioritise accessibility, applied learning and practical skills for specific professions.

Even in times of political turmoil, higher education concerned itself— at least in theory, with autonomy, the pursuit of learning and knowledge, and exercising academic freedom. For example, between the 13th and 16th centuries, academics at the University of Paris, although strife with political influence and power struggles, still defended their autonomy and initiative. In more modern times, there are examples of epistemic independence and critical thinking in higher education. In 2023, the University of Edinburgh noted its commitment to students for the exercise of critical thinking, epistemological independence and initiative:

> Developing critical thinking skills is essential to your success at university and beyond. We all need to be critical thinkers to help us navigate our way through an information-rich world.

With the explosion of information in the digital age, higher education held itself to the highest standards for critical inquiry, open-mindedness and learning through diverse perspectives and knowledge. Although there have been examples in history where this has not been the case, the idea of *higher* education has been to encourage low conformity and independent thinking, which have been the crucial traits and desired outcomes of liberal thinking in higher education. Consequently, there is an expectation that independent critical thought will be exercised. Students question everything, are exposed to other epistemologies, including assumptions and conclusions, and even question the question. In fact, as an institute of *higher* learning, education is the home and sponsor of critics, although it is not itself the critic.[5]

Even in the 18th century, John Locke (1800), a British Enlightenment scholar, argued against what he called 'the legal coercion of knowledge' and placed a tremendous premium upon the individual's independence to search for truth. Those privileged to graduate from a university value our exposure to other worldviews and epistemologies besides our own. We begin with a narrow mind and finish with an open, more educated one.

If epistemological diversity and open-mindedness are or at least should be a shared feature of the higher education experience, tolerance and empathy are its by-products since empathy starts with a level of curiosity. Empathy helps people to inquire, investigate, ask questions and move value judgments aside as they place themselves in the 'shoes' of another. Although it is challenging to execute, the goal remains. In its classical sense, tolerance acknowledges preserving other ways to know and live. Moreover, tolerance creates an environment where beliefs can have their day, as it were (see, e.g., the defence of freedom of speech by the language

[5] Perhaps the most famous defence of the principle was offered by Chicago's Kalven at the University of Chicago during the height of the Vietnam War. The Kalven report, a 1967 document by the University of Chicago, urges neutrality on behalf of institutions to ensure free and open debate.

philosopher John Stuart Mill (1859/1993)). Therefore, epistemological diversity and tolerance are necessary for truth to advance and untruths to recede.[6]

The *Theory of Mind* (TOM) is a principle of learning regularly introduced to students in their early years of higher education. TOM is related to epistemological diversity because it requires learners to draw on their intellectual skills to unlock awareness of other beliefs, desires, hopes and worldviews that differ from their own. TOM encourages learners to engage in epistemological networks, so the many ways of researching, teaching and learning are open to discussion and investigation. In other words, TOM expects diverse epistemologies to be present because they can unlock an intellectual powerhouse of ideas to solve problems and help learners respond to diversity with a posture of learning and empathy to counter intolerance and intellectual egotism.

COLLABORATIVE RESEARCH AND SHARED THINKING

There is no question that collaborative research and a community of practice are essential for higher education. Research suggests that researchers become increasingly cautious, less creative and risk-averse in a wholly autonomous environment (Kummerfeld & Zollman, 2016). Moreover, collaborative research practices, such as interdisciplinary research practices involving multiple researchers, have the potential to transcend traditional sector boundaries and build authentic and healthy relationships between academia and marginalised communities. Also, research suggests that 'unfree' research organisations have produced autonomous research while free research societies can be appropriated to serve political and economic interests (Jost et al, 2003). Finally, collaborative research practice can solve complex local problems with local co-designed solutions, which is becoming less common as higher education brands themselves as global institutions.

One example of community practices in research is when investigators work alongside marginalised communities and ensure, to the greatest extent possible, that these communities have their 'voice' heard in all stages of the research and decision-making process, including the final 'product'. This *community-based participatory research* is a collaborative process between communities and academic investigators and is essential for cultivating trust and virtues.[7] This is because virtues are primarily generated by a community and not just by one individual. Collaborative research and shared thinking are vital in quality research and methodological decision-making.

ADVANCING SHARED DECISION-MAKING: THE CHALLENGES

It is also possible that enthusiasm for moving away from independent research by increasing collective thought and research methodologies might be an innocent and worthy commitment to advancing shared decision-making and ideas while using scarce resources wisely. If so, this

[6] John Stuart Mill argued that although we do not now inflict so much evil on those who think differently from us, as it was formally our custom to do so . . . our merely social intolerance kills no one, roots out no opinions, but induces men (sic) to disguise them.

[7] Cultivating virtues can occur within the classical Greek cardinal virtues of justice, temperance, courage, and wisdom, which differ from the Christian theological virtues of faith, hope and charity. Jewish virtues recognise six virtues: justice, truth, peace, loving-kindness, compassion and self-respect. Buddhism lists three virtues: detachment, mindfulness and pity.

is a noble and praiseworthy goal that would have the support of the majority of those involved in higher education. However, significant challenges may incur more losses than gains.

First, wholescale changes in education are often homogenising, one common feature that frequently runs through attempts at educational restructuring. A wholescale move away from independent thinking and research might be 'fashionable' in the humanities but is epistemologically discriminatory if the goal is to apply a particular uniform epistemology and method to everything and everyone while silencing epistemological 'non-conformists'. Consequently, educational reforms can normalise monolithic imaginations and decrease the freedom of critical thought and the discovery of new ideas and perspectives.

Normalising monolithic imaginations ensures that the humanities do not give the types of knowledge that a community hopes to get from them. An inquiring community of learners should never put all their 'eggs into one epistemological basket'. A variety of knowledge approaches can create the best possible scenario for learning because it captures and includes a broader array of intelligences. For this to occur, epistemologies need to expand, not decrease, so that individuals are free to think, teach and research.

PROPOSED SOLUTIONS: CULTURAL COMMONS AND EPISTEMOLOGICAL SELF-EXAMINATION

In *Braiding Sweetgrass*, Indigenous author Robin Kimmerer (2020) describes how using two different epistemologies, which she describes as 'two-eyed seeing', provides a way to investigate life in all its fullness through the 'eye' of Indigenous knowledge and the 'eye' of the Western scientific lens. Kimmerer allows both 'eyes' to join forces to study nature and the world. In this way, knowledge is pursued 'through the stream of the inner space in unison with all instruments of knowing and conditions that make individuals receptive to knowing' (Ermine, cited in Battiste & Barman, p. 108). Research with young children has revealed that a 'two-eyed' seeing methodology encourages an awareness of other ways of knowing and locates children to their local contexts (Acharibasam & McVittie, 2021).

The following ideas are recommended for all knowledge institutions that brand themselves as diverse, equal and inclusive. The learning goal is for traditional, cultural, religious, scientific and Indigenous epistemologies to coexist as reputable and reliable intelligences for studying, solving, explaining, recognising, while acknowledging epistemic pluralism (Simpson, 2000).

The cultural commons

Epistemological diversity and promoting 'cultural commons' have much in common. They both add significant value in allowing different hermeneutical horizons of experience and reservoirs of local knowledge. The 'commons' includes the 'intergenerational knowledge systems, skills and patterns of mutual support that local communities have enjoyed for generations' (Bowers, 2011, p. 128). The 'commons' thrive on knowledge, communal life, partnerships, local resources, materials and ideals. As the natural environment of which humans are part, the 'commons' are open sites of shared cultural and intellectual exchange, and social and biological diversity matrices, which are all vital to the flourishing of people and the planet. The knowledge that is overlooked, exploited, unseen, unheard or untrusted by mainstream culture is respected, heard and seen within the 'cultural commons'. This is especially important in higher education, where students move across cultural contexts.

Since people can be different together, the 'commons' open the door to others and to agency and knowledge sovereignty. As Xu (2021) observes, there are three forms of being together:

Unity in diversity, Harmony with diversity and Together with diversity. Harmony in diversity best reflects the 'cultural commons' because this framework recognises differences and rejects a 'melting pot' approach; people do not merge into one but instead complement and enrich each other in various ways, such as the sharing and allocating skills and knowledge.

The educational philosopher and author Maxine Greene (1988) advocates the 'commons' as having the potential to create authentic public spaces where diverse human beings can appear before one another. In the late 1950s, the political philosopher Hannah Arendt (1958) hoped a similar approach could lead humans to become the best they know how to be. Such places of epistemological sharing require the provision of opportunities for articulating multiple perspectives in multiple idioms, out of which something shared can be brought into being.

For a humanities conference, the 'commons' can provide a space for people to listen, share and interact with different methodologies and perspectives. This implies that independent researchers and thinkers who have examined phenomena and gathered data as individuals will share as compatible beings who study and collect data to pursue what is true and good.

The practice of 'cultural commons' and epistemic diversity fulfils the objective of minimising acrimony toward unvalued epistemologies. The advantage of the 'commons' for a humanities conference is that it counters globalised knowledge and returns knowledge to local contexts. The 'commons' counters epistemological sameness so that researchers and participants do not ignore diverse epistemological and research methodologies but engage with individuals and learning community groups as open, tolerant and curious learners.

Epistemological self-examination

Educational institutions, conferences and institutions of higher education in Canada have a unique mission: to promote a search for and foster rational, diverse and open inquiry.[8] When this is not the case, the consequences can be diabolical.

In January 1939, the minister of education summoned a professor at the University of Berlin and notified him that he could no longer teach there. The reason was that 'when the state itself has a worldview, there can be no room for a chair of Catholic *Weltanschauung* (worldview) at the University' (Krieg, 1998, p. 457-474). This is one example of the consequences of epistemological and methodological bias.

Therefore, a central action for Canadian higher education should be fostering knowledge diversity by encompassing epistemologies and the many cultural groups that compose Western Canadian culture. To establish epistemological diversity, the practice of worldview 'interrogation' offers a foundational approach to exploration. Sepie (2018) describes the practice:

> A worldview interrogation can uncover epistemological assumptions that are not shared by others . . . what worldview interrogation does is provoke a reflexive stance on truth that reveals its constructed nature and situates this truth as a cultural product that can then be revised through different kinds of comparative activities. (p. 85)

Educators and learners examine deeply held epistemologies, which 'involves becoming aware of those origin stories that are working behind the scenes to inform our reality' (Sepie, 2018, p.

[8] I take this to be true and self-evident based on Canadian Universities agreement and commitment to the *Truth and Reconciliation Commission Calls to Action* (2015). The first word 'truth' is not there by accident.

86). As an epistemological examination, worldview interrogation would include how stronger parties tend to impose their worldview on others. It can be a resource for understanding and analysing conflicts when differences divide groups, and it can be the seedbed from which new shared meanings emerge.

The British educator Robert Jackson (2004) understood that with the increase of inter-communal, inter-worldview tension, 'life itself is no longer a private matter and so what people believe and how they think about the world and issues in the world matter' (p. 139). Encouraging researchers to share their diverse individual beliefs that inform their research practices and epistemologies in educational settings benefits a tolerant society because everyone has a better chance of becoming conversant with its language.

Concerns that an independent researcher who works in 'isolation' has no checks or balances to correct biases and disregards relationship building with others must assume that standard research ethical protocols are not being followed. Yet, standard research ethical protocols already pertain to researchers, which include checks such as obtaining informed consent from participants, voluntary participation, using pseudonyms to protect personal identities, seeking independent reviews of the research, being transparent with personal bias, obtaining research approval, correction and amendment, and, if requested by research participants, eliminating data voiced by contributors as obtained during interviews or observations in the field.

An epistemological self-examination begins with an understanding that all worldviews are situated to privilege epistemology in a particular way. As such, all worldviews are subjective and prone to epistemological bias; however, bias is seldom the problem. Instead, the difficulty is a lack of knowledge that research paradigms are political and researchers operate in a complex and political environment with legislation frequently driven by specific paradigms.

An independent search for truth also acknowledges that epistemologies, which are a feature of any worldview, can offer solutions for complex real and imagined problems. Therefore, researchers should not neglect their independent research programs but, instead, follow standard ethical research protocol, be transparent in their research aims and methodologies, and commence with an investigation of personal biases and privileged epistemologies.

To diversify and broaden epistemology, one removes the cultural assumptions and structures that dominate the assumptions of teaching, learning and research and restructures it to include diverse ways of knowing. However, diversifying epistemology is not always straightforward because it is human nature to diversify using the same logic, dynamics and paradigms that birthed it in the first place (Opara, 2021). In other words, we must be aware of our biases and be vigilant not to use any one favoured epistemology or method to diversify.

SUMMARY OF FINDINGS

This study used investigative research to explore experiences in higher education over several months, focusing on the practice of epistemological diversity and inclusion in a Canadian humanities conference. A proposition given by conference organisers to all research participants was: 'We are moving away from independent research and thought'. Although the statement might appear uncontroversial, the independence to research and present research independently at a Canadian humanities conference has been flagged by conference organisers as problematic.

It has been suggested that during humanities conferences, people gather with epistemic diverse individuals within a higher framework of thought. Attendees and presenters are often motivated individuals who research, think critically, discuss and question, argue and engage with life's

'big ideas'. If independent thinking is encouraged within ethical guidelines, people can learn from and consider, correct, amend and confirm a diversity of ideas they may have never encountered. Consequently, the question of why a Canadian research conference in higher education would disapprove of any well-established epistemology or ethical research method is important to pursue.

If moving away from independent thought and research intends to increase engagement with disadvantaged and vulnerable communities and form trusting quality relationships, which is valuable and important, is this approach the best way to do so? There will always be examples where independent researchers have formed trusting and respectful connections and relationships with individuals and groups and marginalised and local communities. The more pressing point for higher education and academic conferences is adhering to ethical research practices. Ethical research strives to eliminate or expose personal bias and mitigate researcher power over the researched. Ethical research promotes truth-telling, integrity and the non-interference of a researcher's prospects to pursue new avenues of research and criticise existing views (Resnik, 1998, p. 114).

Protective structures have already been built into research practice, such as informed consent, non-maleficence, honesty, trust, transparency, and always factoring in potential abuse and vulnerability. These are standard protective gateways for researchers and participants.[9]

Consequently, moving away from independent thought and research is unnecessary and undermines the academy's goal of promoting critical thinking and following the evidence wherever it leads. Promoting a broad epistemological and methodological range that includes independent thinking and research can lead to a society that benefits from a collection of combined intelligences.

If reducing epistemic and research diversity is aimed at minimising researchers' power over marginalised and representative groups (Code et al., 2012), one way to control this is to increase ways of collecting knowledge to challenge epistemic dominance.

It is time to begin a serious discussion about how, as diverse human beings, we can, at a bare minimum, tolerate other epistemologies that are not our own. To work towards acquiring this skill and disposition, Canadian institutions of higher education can prepare people to draw on independent and collective intelligences to solve complex epistemological problems. To do this, intellectual humility is necessary, a reminder that no one person or group is omniscient—we can all learn from others. Within pluralistic communities, harnessing diverse epistemologies benefits educators and students by allowing them to use a broader range of abilities, perspectives, worldviews and talents. Fostering epistemic humility is a central part of civic and academic higher education. Whether one holds a minority or a majority position, we are all epistemic peers in an epistemic democracy (Knight et al., 2016, p.144).

Epistemological and research diversity is critical for preparing people to live in this world. As Wildemeersch et al. (1998, p. 255) note, individuals change by being exposed to different configurations in community relationships. As individuals interact across different communities, they bring meanings from one group to another, challenging the new group's

[9] The Canadian panel on research ethics for research Involving the First Nations, Inuit and Métis Peoples of Canada notes that research should involve indigenous worldviews and researchers are to work with indigenous people and communities and not *on* them. See, https://ethics.gc.ca/eng/tcps2-eptc2_2018_chapter9-chapitre9.html

definition of reality. Beliefs should not be determined by the other because, in a relationship, both constantly shift through interactions in a continuous process of dialogue and cooperation (Wildemeersch et al., 1998, p. 95).

This investigative case study explored the idea that diversity comes in many forms, and epistemology is a type of diversity that is sometimes neglected but should be applied to higher education and humanities conferences. With an increasing movement of people to Canadian educational institutions, there are a plethora of epistemologies and research methods to appreciate, understand, interact with, employ and evaluate. Institutes of education have been under inspection to reflect this reality as inclusive places where all people can contribute to the common good of living well together.

Consequently, epistemological pluralism is unavoidable, considering the different conceptions of the *good* that pervade individuals, groups and society today. Moreover, epistemological diversity can also offer a way for people to recognise the different conflicts resulting from a knowledge society that promotes human rights and equal, inclusive and universal access to all knowledge creation (Culp et al., 2022). Furthermore, if epistemological conflict cannot be experienced in higher education, a common and often necessary aspect of academic inquiry and learning, where can it be experienced? People will simply move 'underground', where misinformation has a greater chance of spreading, causing intolerance towards not only beliefs but people themselves. Moving away from independent thinking is inconsistent with a practice of cultural inclusiveness set within multi-diverse societies. History has shown what happens when people and their worldviews are ignored and restricted. Researchers, educators and the public must engage with one another because epistemological illiteracy is sure to fail (Horsthemke, 2017, p. 2).

CONCLUSION AND FUTURE INITIATIVES

The good news is that with the goal and practice of diversity and inclusion in education, there has been, at least, a theoretical awakening within higher education for epistemological independence. For instance, the University of Chicago now offers a 'Center for Freedom of Expression' that includes research and training on free speech.[10] Moreover, broadening epistemologies, such as cultural and spiritual understanding, is considered acceptable and valuable within a higher education experience. More institutions of higher education are recognising that epistemological diversity lends itself to more profound knowledge, intelligence and confidence since it replicates an increasingly diverse world.

Researchers who believe that the 'exclusion of experts is a conscious sacrifice of epistemic quality' also believe that excluding independent thought is a conscious sacrifice of epistemic quality, which, as noted, reduces a broad range of epistemological intelligences needed to solve problems. If epistemic justification is needed to support epistemological democracy, then excluding independent thought is just as un-diverse and undemocratic as excluding citizens (Samaržija, 2019, p. 1-138).

Educational conferences offer spaces for participants of diverse backgrounds and worldviews. They provide spaces for people to deliberate, negotiate, advocate, agree, disagree and compromise in the messy but essential processes of living life together. It is valuable to include the thoughts of American pragmatist John Dewey (1916, 1938/1965), who perceived public education as a "laboratory of democracy" implied that laboratories of democracy, which

[10] See, 'Centre for Freedom of Expression' in the works at University of Chicago', https://www.thecollegefix.com/center-for-freedom-of-expression-in-the-works-at-university-of-chicago/

includes individual autonomy and freedom of speech, must include epistemological diversity. Schools of learning have a duty to prepare their students for cultures that are more diverse than uniform. In a rapidly diverging and polarised world, where power structures and social inequalities rise, common sense should dictate practices that advance epistemological diversity and reconciliation rather than rivalry (Kromydas, 2017).

This study supports the belief that higher education should advance epistemological diversity. Moreover, humanities conferences offer the public a unique higher education experience where different perspectives can be aired openly and collegially, serving individual intellectual development that can foster the highest-quality debate on our time's most pressing and complex issues.

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The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

Indigenous cartography and cultural ecology in comparative education: Toward transdisciplinary and practice-oriented methodologies

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DOI: https://doi.org/10.70830/iejcp.2401.20903

This paper reconsiders the concept of cultural ecology through a comparative education lens, introducing a novel methodological approach for engaging with Indigenous knowledge systems. Building on the interdisciplinary foundations of cultural ecology, the study employs international and intercultural comparison to examine how Indigenous educational beliefs and practices shape cultural-ecological adaptations and relationships with the environment—including ecosystems and geographical landmarks recognised as legal entities. The methodological innovation of Indigenous Cartography is explored within multiepistemic and holistic worldview frameworks, addressing the challenges of integrating Indigenous perspectives into comparative educational research. Guided by Kemmis' framework of Practice Architectures, the analysis reveals how educational practices and cultural-ecological adaptations are co-constructed through contextual conditions and aspirational transformations. By carefully engaging with Indigenous knowledge systems while safeguarding sacred traditions, the study demonstrates how comparative education can foster cultural ecological stewardship, defend Indigenous cultural rights, and promote sustainable and culturally sensitive futures. Ultimately, the paper advocates for a shift toward ethically grounded, multiepistemic approaches in comparative education research.

Keywords: cultural ecology; Indigenous knowledges; Mother Earth as legal entity; Indigenous cartography; Indigenous methodologies

INTRODUCTION: SYNERGY OF EDUCATION AND RESPONSIBILITY

> Humanity is perceived as part of a web of life, and the relationship between humans and nature is seen as symbiotic: from the natural environment Indigenous populations get their subsistence and autonomy, at the same time often contributing to its conservation. (Mazzocchi, 2018, p. 22)

This paper begins by examining the dynamic relationship between teacher and student and the synergy that arises from education as a catalyst for imagination and intellectual growth. Regardless of their educational backgrounds, levels of privilege or the fact that neither author originates from the country where they met, studied or worked, what matters most is the serendipitous encounter that sparked an ongoing dialogue about a shared moral imperative. This imperative called on the authors to identify, witness and amplify the voices of Indigenous

communities—widely recognised as vital stewards and custodians of nature—who safeguard the ecosystems that sustain us all, a role increasingly recognised in scholarly literature for its basis in relational knowledge systems that promote long-term ecological stewardship (Berkes, 2012; Whyte, 2017).

Acknowledging the authors' dual roles as observers (outsiders) and participants (insiders) in this research, they recognise that scholarly inquiry is never entirely objective. A scholar's perspectives, positionalities and biases inevitably shape the research process, influencing the questions asked and the interpretations derived and expounded. The co-author was introduced to cultural ecology by Professor Rappaport in the 1980s, a concept he later applied in a 2016 study on cultural ecology and isomorphism. These accumulative engagements have informed the authors' current reconsideration of cultural ecology, tracing its evolving trajectories in contemporary discourse. The first author, drawing on academic experiences from a European higher education institution, integrates an Indigenous perspective from a South American context. This positionality inevitably influences the authors' research, shaping their interpretations and insights.

While both researchers strive for scholarly rigour and methodological precision, they grappled with two central considerations: the significance of developing new methodological approaches in comparative education and the intended audience of scholars and practitioners seeking to engage respectfully with Indigenous knowledge systems. Rather than reporting on empirical research, the authors aim to advance a theoretical and methodological framework—an ontological Indigenous cultural ecology—rooted in Kemmis' (2019) Practice Architectures. Epistemologically, their work is informed by Wenger's (1998) concept of *Communities of Practice*, which positions learning and knowledge as emergent from social participation, shared meaning-making and collective identity. Together, these frameworks provide a systematic lens for understanding how diverse cultures interpret and uphold Mother Earth as a legal entity, a perspective increasingly recognised in both legal and ecological scholarship. The authors purposely chose to be this specific to highlight how diverse or similar Indigenous knowledges may approach such phenomena.

By focusing on a select range of Indigenous voices and contexts, this paper seeks to illuminate the importance of cultural differences, the role of Indigenous communities as environmental stewards and the collective responsibility to ensure that future generations inherit a thriving world. The authors' analysis underscores the value of Indigenous perspectives in shaping cultural-ecological stewardship and rights of nature and highlights the need for methodological innovation in comparative education to better honour and integrate these worldviews

CONTEXTUALIZING CULTURAL ECOLOGY STUDY

Cultural ecology emerged as a significant development within anthropology (Netting, 1986) and has since expanded to intersect with other social sciences due to its focus on human behaviour within environmental contexts. Rappaport's *Pigs for the Ancestors* (Rappaport, 2000) pioneered a distinctive approach to measuring how cultural practices were critical to the ecosystem of Papua New Guinea. He studied the Tsembaga, where pig hunting played a vital role in sustaining the community and the biodiversity of the forest.

Subsequent research has built on these foundational insights, integrating Indigenous knowledge into cultural ecology frameworks. Mazzocchi (2008), Merlan (2009) and Connell (2020) have highlighted the convergence of cultural ecology and indigeneity. Baleé (2013), for example,

examined how the Ka'apor of the Amazon practised sustainable land management by periodically clearing and burning small forest areas for cultivation, allowing for natural regeneration to occur. Hunn (1990) explored the Upper Columbia Plateau Salish communities' intricate ecological relationships through salmon fishing, demonstrating how Indigenous practices contribute to ecological balance.

These studies underscore the need to redefine cultural ecology through an Indigenous Knowledge (IK) lens, moving beyond predominantly Western ecological frameworks toward a more holistic, dynamic and relational understanding of human-environment interactions. As the world grapples with extreme weather conditions, climate action failure, biodiversity loss and environmental degradation (World Economic Forum, 2020), it is increasingly urgent to integrate Indigenous ecological knowledge into global environmental strategies.

Interdisciplinary connections: Bringing the insider and outsider perspectives

From an outsider's viewpoint, disciplines such as anthropology, sociology and psychology are often viewed as distinct fields with specialised methodologies. In Rappaport's era, cultural anthropology was expanding rapidly, with scholars such as Levi-Strauss and Margaret Mead studying human cultures and societies through ethnographic methods. However, Trahar (2013) critiqued the dominance of Western theoretical paradigms—such as postmodernism, post-structuralism and social constructionism—which may not always align with Indigenous knowledge systems.

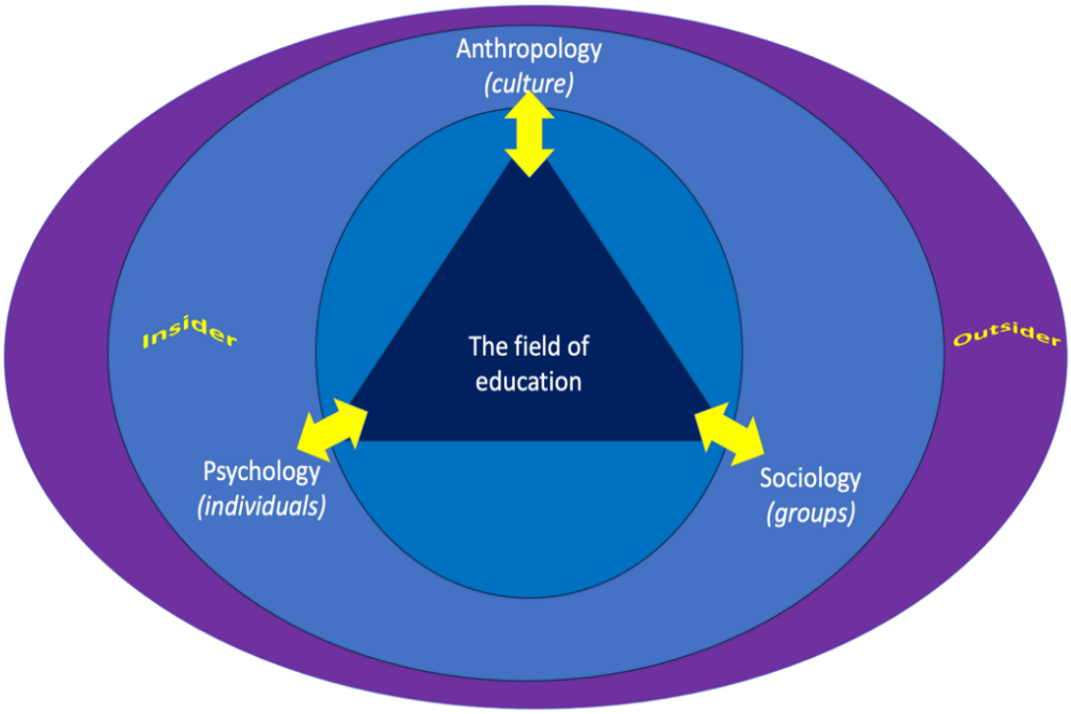
In comparative education research, the role of the outsider is significant, offering a broader vantage point to analyse educational phenomena. This perspective enables cross-cultural analysis, but it also carries the risk of bias or misrepresentation. Historically, Indigenous communities have often perceived outsider viewpoints as discriminatory or uninformed. Hoffman (1991) noted that the issue of authenticity remains central to anthropological self-examination, while Tomaselli et al. (2008) warned against 'paradigmatic fundamentalism', where scholars rigidly adhere to inherited theoretical frameworks, potentially obscuring and denying Indigenous perspectives and approaches.

Conversely, an insider perspective offers an embodied understanding of Indigenous knowledge systems. Insider researchers are often hesitant to impose external theories or methodologies that may not align with the lived realities of their communities. Shawn Wilson, in *Research is Ceremony*, emphasised 'relational accountability', framing research as a ceremony that nurtures a profound connection between the researcher and the cultural environment (Reich et al., 2017). Similarly, Bray et al. (2014) advocated for a research process that is deeply contextualised and personalised, ensuring that Indigenous voices are represented authentically.

The disciplines of anthropology, sociology and psychology each contribute to an understanding of cultural ecology. Yet, their traditional disciplinary boundaries have often led to tensions between positivist approaches and cultural relativism. Anthropology offers a holistic view of human societies within their historical and geographical contexts. Sociology examines social structures, inequalities and community dynamics. Psychology delves into cognition, emotion and individual behaviour. The integration of these disciplines, particularly in education, offers a more comprehensive approach to understanding cultural norms, social interactions and environmental stewardship (Figure 1). The overarching problem is how best to describe Indigenous knowledges as comparative units of analysis without reducing their complexity or imposing external frameworks.

This concern becomes even more pressing in the context of globalisation, which continues to reshape the ways Indigenous knowledge systems are studied and understood. Buchanan and Hellstén (2020) critically examine these global influences, highlighting the tensions between cultural sensitivity and the risk of research biases. Their work highlights the importance of methodological reflexivity, ensuring that research does not merely extract knowledge from Indigenous communities but instead fosters a reciprocal exchange that respects cultural autonomy.

Figure 1: Relationship between the field of education and the social sciences



Source: Denman, B., & James, R. (2016). Cultural ecology and isomorphism applied to educational planning in China's Inner Mongolia: A new rubric. *International Journal of Comparative Education and Development, 18*(1), 40–52

Bridging perspectives for a sustainable future

The tension between insider and outsider perspectives in cultural ecology underscores a need for methodological innovation and ethical research practices. Medina (2017) critiqued the silencing of marginalised voices in academic discourse, while Kingston et al. (2021) and Moore (2023) advocated for research approaches that drive social change and mitigate power imbalances. These perspectives reinforce the necessity for critical reflexivity in navigating complex power dynamics in research.

The relationship between culture and environmental perception has long been recognised in environmental philosophy and geography. Passmore (1974), for instance, was among the early scholars to critique anthropocentric frameworks in Western thought, arguing that environmental ethics are deeply shaped by cultural traditions and lasting ecological responsibility requires rethinking the philosophical foundations of human-nature relationships. His work laid the groundwork for acknowledging that environmental attitudes are not universal but emerge from culturally specific worldviews.

More recently, Casinader (2021) revisited these themes within the context of sustainability education, contending that concepts such as sustainability are themselves culturally mediated and cannot be treated as monolithic. He emphasised that transformative environmental and sustainability education must recognise and include diverse epistemologies—particularly those grounded in Indigenous and local traditions—if they are to support genuine ecological and social change. This view aligns with the authors' call for Indigenous Cartography as a framework that foregrounds epistemic plurality and place-based understandings of sustainability.

Within this discourse, education—as an inherently interdisciplinary field—serves as a crucial bridge, facilitating connections and dialogues that might not otherwise emerge across disciplinary boundaries. Anthropological studies may draw on psychological theories to understand cultural behaviours, while sociological research can integrate insights into identity and group dynamics. Yet, these disciplines often remain constrained by methodological silos. In contrast, comparative and international education opens space for more integrative frameworks, particularly at the intersection of cultural ecology and Indigenous knowledge, where a balance between local specificity and global applicability is essential.

Indigenous knowledge systems are grounded in holistic worldviews, emphasising interconnectedness, sustainability and long-term ecological balance. As Tuhiwai Smith (2012) asserted, Indigenous epistemologies should not be subordinated to Western academic frameworks but rather embraced as integral to knowledge production. Diversity of knowledge can thus be equated to eco-diversity. Turner (2003) equated this with a fraternal coexistence and care for our common home, Mother Earth. He stated, '[t]hese communities maintain that their way of understanding the world is valuable for survival and a sustainable future, expressed not as a voice of arrogance but of empirical affirmation (p. 237). By aligning cultural ecology with Indigenous knowledge in comparative education, this study proposes a new methodology through Indigenous Cartography. It may not necessarily address scholarly concerns about ecological threats that affect the planet discussed by Ytterstad (2020) or the justice-oriented frameworks aimed at reducing power imbalances and safeguarding marginalised voices as articulated by Kingston et al. (2021), but it seeks to advocate for a broader, more global and inclusive understanding of cultural ecology.

Reconsidering cultural ecology from both insider and outsider perspectives contributes to a more equitable and sustainable approach to environmental stewardship. The introduction of this methodological and comparative tool could systematically identify and analyse Indigenous approaches to Mother Earth, understood not merely as a resource but also as a legal and relational entity. This work underscores the imperative to respect Indigenous knowledge systems, acknowledge historical injustices and foster collaborative international research that honours the voices of those who have long safeguarded the planet's ecosystems.

DIFFERENTIATION IN RESEARCH EPISTEMOLOGIES

Indigenous knowledge systems

IK systems embody rich and dynamic traditions that are deeply rooted in the cultural, social, and ecological contexts of Indigenous communities. Far from being static or antiquated, this knowledge is living, evolving and intimately tied to the values of communal living, biocentrism and responsibility toward the natural world (LaDuke, n.d.; Melgarejo & Vivar, 2022; Smithers, 2019; Windchief & Ryan, 2019). It encompasses traditional ecological knowledge, healing practices, agricultural methods, storytelling, spirituality and governance structures, reflecting sophisticated ways of knowing and sustaining life.

A defining feature of IK is not only *what* is known but also *how* knowledge is analysed, stored, transmitted, and protected. Knowledge is often passed orally through stories, legends, ceremonies and lived practice (Cajete, 2000; Melgarejo & Vivar, 2022), but access to it is highly contextual. Some knowledge is gendered, age-restricted, family-specific or reserved for ceremonial leadership. In many communities, sacred knowledge is accessible only through specific initiations or responsibilities, remaining private to protect its spiritual and cultural integrity. Consequently, the IK available to external researchers typically represents only a small, public-facing portion of a much broader and more complex epistemological world.

Understanding IK, therefore, requires a multi-epistemic orientation (Garroute, 1999, cited in Andreotti, 2011), one that recognises diverse ways of knowing, respects boundaries around sacred knowledge and acknowledges Indigenous authority over what is shared. Indigenous peoples, often referred to as 'Guardians of the Earth' (Moore & Nesterova, 2020), sustain environmental stewardship practices embedded within these knowledge systems, governed by ethical frameworks that prioritise intergenerational responsibility and relationality with the natural world.

Historically, IK has been marginalised within Western scientific paradigms, often due to epistemological biases and extractive research practices (Hunn, 2020). However, scholars such as Linda Tuhiwai Smith (2012), Margaret Kovach (2009) and Graham Hingangaroa Smith (2000) have challenged these dynamics, advocating for research methodologies that are decolonised, relational and guided by Indigenous protocols and priorities.

Conventional research methods

Creswell (2012) and Bryman (2021) emphasised that qualitative research seeks to accurately represent participants' narratives, a crucial responsibility given the complexity of human consciousness and experience. Ethnographic research exemplifies qualitative inquiry, allowing researchers to immerse themselves in real-world experiences (Bryman, 2021). Blevins (2017) noted that this approach provides a comprehensive understanding of participants' interactions, settings and unfolding events. Rivas and Gibson-Light (2016) further highlighted the use of interviews to explore attitudes, emotions, motives and judgments.

Quantitative research, however, focuses on generalisability and standardisation (Patten, 2017). It employs structured surveys, experiments, and questionnaires to collect, analyse and interpret data. Grounded in the positivist tradition, quantitative methods seek to identify patterns, relationships, correlations and causality within specific populations, viewing social reality as an external and objective phenomenon (Clark et al., 2021).

Contrast and common ground

Research methodologies that align with Indigenous ontologies and epistemologies must move beyond cultural or geographical distinctions to accurately represent Indigenous experiences, practices and voices. While qualitative and quantitative approaches are mostly Western-centric and offer valuable insights, their differing goals and perspectives often limit the full integration of Indigenous worldviews.

Table 1 outlines the epistemological contrasts between IK systems, positivist approaches and naturalistic approaches across four dimensions: epistemological beliefs and purpose, types of knowledge and ways of knowing, sources of knowledge and evidence, and justification of knowledge. IK emphasises relational, community-centred, and experiential ways of knowing,

often transmitted through oral traditions and lived practice. In contrast, positivist approaches prioritise empirical and objective evidence gathered through detached observation. Naturalistic approaches, although more flexible, maintain a Western-centred focus on interpretation and individual researcher reflexivity. The comparison of approaches highlights that Indigenous epistemologies cannot simply be adapted into existing Western paradigms but require distinct recognition and frameworks that honour their unique ontological grounding.

Table 1: Epistemologies of Indigenous knowledges, positivist & naturalistic approaches

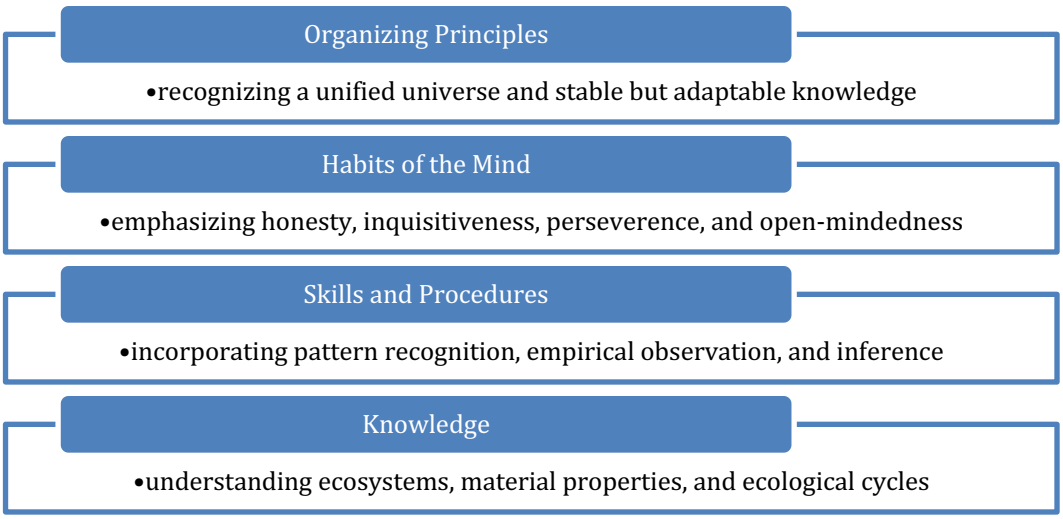
Epistemology	Indigenous knowledges*	Positivist (quantitative) approaches**	Naturalistic (qualitative) approaches***
Epistemological beliefs and purpose	Holistic; to include the physical and metaphysical worlds, which are linked to moral codes	Incremental; to produce a data-driven, interpretable description of the process by which humans form and adapt their beliefs and understanding of the world	Differentiated; The *sine qua non* is a commitment to seeing the social world from the point of view of the actor; attributed to phenomenology, *Verstehen* and symbolic interactionism
Types of knowledge and ways of knowing	Knowledge as narrative, interpretative, and critical; knowledge is inherent to object and represents values that may be shared or individually held	Knowledge as mechanistic; believed to be objective and replicable. Knowledge is acquired via the scientific method (inclusive) or identification of falsehoods (deductive)	Knowledge as contingent and complex; knowledge seeks causality; relies on behaviour, variability, context and socially held norms
Sources of knowledge and evidence	Concrete examples of products or artefacts that acknowledge or privilege Indigenous ways of knowing and being	Research evidence and evidence-based practice based mostly on theory	Objective sources of data and information based on suppositions, including documentation, archival records, interviews, direct observation, participant observation and physical artefacts
Justification of knowledge, knowing	Seeks to preserve knowledge and to guard against misappropriation or misuse of Indigenous knowledges; a demarcation of useful and useless knowledge	Seeks to generate knowledge and create an understanding of and about the social world; to observe situations or events that affect people	Seeks to rationalize what can be extracted from reality; assumes some particular external world truths, and appeals to the nature of what is known rather than the nature of knowledge itself

Sources: * Althaus, 2019; Agrawal, 2020; Chapin, Cochran, Huntington, & Ray, 2013; Miller et al., 2008. ** Miller et al., 2008; van der Schaar, 2013. *** Bryman, 1984, pp. 77–78; Dahlberg, 2018; Miller et al., 2008; Stanford Encyclopedia of Philosophy, 2021.

In comparative and international education research, this contrast reflects the need for methodologies that respect Indigenous ontologies and epistemologies. These methodologies should acknowledge complexity, facilitate intercultural dialogue and adopt a transdisciplinary

perspective (Crossley & Tikly, 2004). They must also encourage ongoing reflection throughout the research process (Iphofen & Tolich, 2018) to prevent distortion and misappropriation (Creswell, 2012) (Figure 2).

Figure 2: Commonalities between Indigenous, positivist (quantitative), and naturalistic (qualitative) research methodologies



At the heart of both Indigenous and Western scientific traditions lie foundational dimensions that offer opportunities for meaningful dialogue and integration. Both knowledge systems are guided by organising principles that recognise a unified universe and value knowledge that is stable yet adaptable to new contexts. They emphasise habits of mind, such as honesty, inquisitiveness, perseverance and open-mindedness-qualities that foster learning and respect for diverse perspectives. Additionally, both traditions rely on skills and procedures, such as pattern recognition, empirical observation and inference, to interpret the world. Ultimately, the pursuit of knowledge in each context involves understanding ecosystems, material properties and ecological cycles, though the epistemological lenses may differ.

Recognising these shared dimensions does not diminish the profound differences between Indigenous and Western paradigms, particularly in terms of power dynamics and cultural identity (Tuhiwai Smith, 2012). Instead, it highlights the potential for methodologies that honour both the uniqueness and the common ground of these traditions, supporting ethical, respectful and contextually relevant research.

Exploring outsider and insider perspectives is crucial to bridging Indigenous and conventional knowledge systems. However, as Tuhiwai Smith (2012) argued, IKs are deeply intertwined with power dynamics, cultural identity and sociocultural contexts. This complexity necessitates a more nuanced approach to integrating Indigenous and Western epistemologies.

Finding commonalities in Indigenous peoples and knowledges

Globally, Indigenous peoples number approximately 476 million and encompass more than 5,000 unique cultures. Their ancestral lands represent at least 28% of the planet's landmass, possess unique ecologies, and provide biodiversity essential to preserving the ecological balance of the planet (Buchholz, 2022; Planet Anomaly, 2023). Their knowledge is not passive but actively shapes cultural and environmental sustainability (Connell, 2020; Jonuscheit, 2015).

For Indigenous communities, 'community' extends beyond human relationships to include all life forms, emphasising harmony with Mother Earth (Settee, 2011). This connection, often perceived as mystical, is deeply relational and manifests as a lived experience rather than a set of guidelines (Moore & Nesterova, 2020; Shinkfield, 2024).

Methodologies that engage with IK must recognise the significance of place, language and narrative (Richardson, 2015; Sanga et al., 2024). Moving beyond conventional methods allows researchers to embrace reciprocity, cultural humility and respect for life itself. However, the privileging of a single disciplinary or epistemological perspective constrains the diversity of scientific and local knowledge systems (Miller et al., 2008). The historical dominance of Western epistemology, particularly in Aboriginal and Torres Strait Islander communities, has stifled Indigenous ways of knowing and being (Althaus, 2020).

To counteract this, research must embrace epistemological pluralism and transdisciplinarity (Miller et al., 2008). This approach fosters inclusion, navigates complexity and promotes social justice (Khoo et al., 2019). Rather than applying a reductionist framework, it enhances multidimensional analysis while encouraging scholars to engage critically with diverse epistemologies (Aguilar, 2018).

A critical component of this framework is recognising a core principle of IK systems: a deep reverence for Mother Earth, recognised as a legal entity with intrinsic rights. Concepts such as *Sumak Kawsay* (Good Living) in South America (Avendaño, 2010), *Pachamama* in Andean and Amazonian cultures, *Dadirri* in Aboriginal Australian traditions (Ungunmerr-Baumann et al., 2022), and *Turtle Island* in Native American worldviews illustrate how Indigenous communities steward cultural ecology. Recognising the Earth as a living entity necessitates a shift towards environmental harmony and sustainability (Figure 3).

Figure 3: Percentages of the largest 15 Indigenous Populations in the World

Source: Buchholz, K. (2022). Where the world's Indigenous people live. *Statista*. https://www.statista.com/chart/18981/countries-with-the-largest-share-of-Indigenous-people/

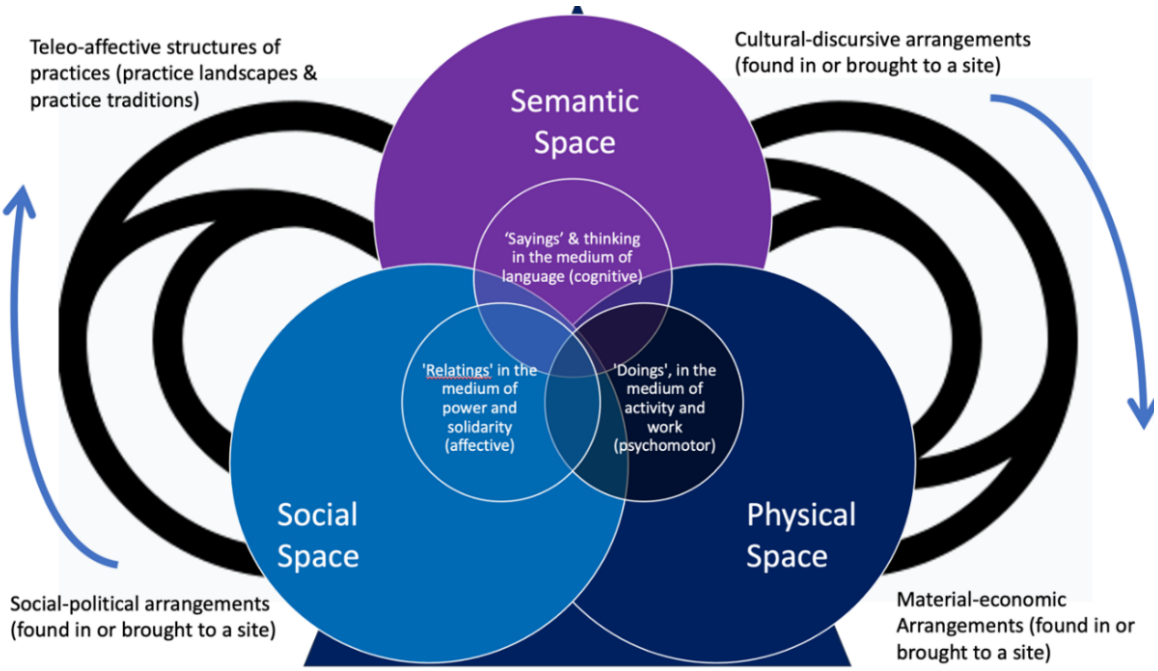
THEORETICAL FOUNDATIONS ON KEMMIS'S PRACTICE ARCHITECTURES AND WENGER'S COMMUNITIES OF PRACTICE

Research methodologies that seek to align with Indigenous worldviews must respect diverse ways of knowing and provide a systematic framework that acknowledges the interconnections between knowledge, practice and community. To this end, this study draws on Kemmis's Practice Architectures and Wenger's communities of practice to conceptualise Indigenous practices of preserving Mother Earth.

An attempt has been made to employ Kemmis's Practice Architectures, recognising that the act of practice in celebrating Mother Earth offers: (1) an acknowledgment of Indigenous practices in preserving Mother Earth in their respective ways, and (2) a systematic research framework that celebrates cultural diversity and embraces sustainability of and for the planet (Figure 4).

Kemmis's framework conceptualises practice through three interrelated spaces: the Semantic Space, the Social Space and the Physical Space. The Semantic Space involves 'sayings'—the shared language, narratives and cultural-discursive arrangements that shape how knowledge and meaning are constructed within communities. The Social Space encompasses 'relatings'—the affective and power-laden relationships that organise social solidarity and governance. The Physical Space refers to 'doings'—the material-economic arrangements and embodied activities through which practices are enacted. These spaces overlap and interact dynamically, shaped by broader practice landscapes and traditions, illustrating how language, power and materiality collectively enable or constrain Indigenous environmental practices.

Figure 4: Modified version of Kemmis's Practice Architectures



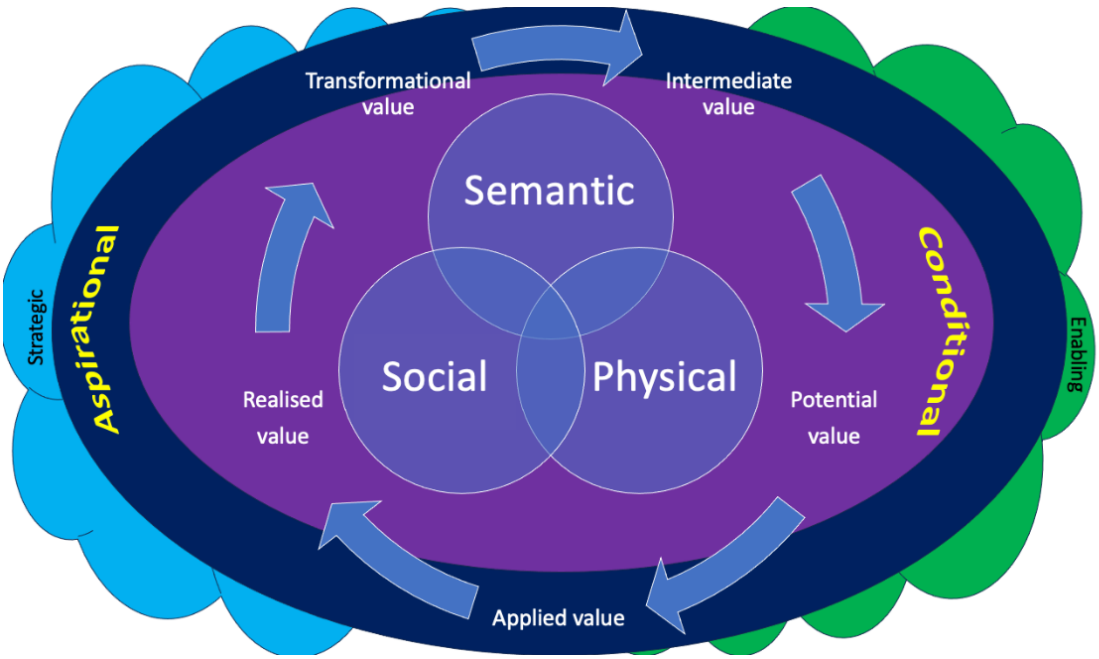
Source: Adapted from Kemmis, S., & Grootenboer, P. (2008). Situating praxis in practice: Practice architectures and the cultural, social and material conditions for practice. In *Enabling praxis* (pp. 37–62). Brill Sense.

As previously indicated, attempting to subsume all IKs into a single entity is fraught with contestation and divisiveness due to issues of identity, place, space and context. By focusing on select IKs and how they frame, celebrate and engage with Mother Earth, Kemmis's Practice Architectures allow for the systematic codification of 'sayings', 'doings', and 'relatings'. This provides units of comparison and helps articulate a collective voice that celebrates diversity, particularly in comparative educational research aligned with scholars' theoretical and epistemological perspectives (Rios & Patel, 2023).

Complementing this ontological perspective, Wenger's Communities of Practice framework (Figure 5) emphasises the social and epistemic dimensions of learning and identity formation within Indigenous communities. Wenger's model highlights how knowledge is co-constructed through mutual engagement, joint enterprise and shared repertoire, underscoring the centrality of identity, place and aspiration in shaping Indigenous ways of knowing. This framework recognises that learning and practice are deeply embedded in social relationships and communal participation, reflecting the lived realities of Indigenous peoples.

What is particularly interesting about Wenger's model is its capacity to support a nuanced analysis of community dynamics through several key aspects, including *conditional aspects*, which refer to the social, cultural, historical and environmental contexts shaping community life; *aspirational aspects*, reflecting the visions and values that guide collective goals; *enabling aspects*, encompassing the practices and conditions that support learning and identity; and *strategic aspects*, highlighting the actions and strategies communities employ to pursue their aspirations.

Figure 5: Proposed Kemmis and Wenger Model (an ontological and epistemological framework for the study of Indigenous knowledges)



Together, these frameworks provide a comprehensive ontological and epistemological lens for studying IKs and practices. Kemmis's Practice Architectures elucidate the structural conditions—language, power and materiality—that shape practice, while Wenger's Communities of Practice foreground the dynamic processes of social learning, identity

formation and communal aspiration. This dual approach supports a nuanced understanding of Indigenous environmental stewardship as both situated and relational.

Reflecting on these frameworks encourages deeper engagement with IK systems beyond rigid paradigms. As Meyer (2008) suggested, this reconceptualisation views knowledge as a dynamic and interconnected tapestry where each element plays a vital role in understanding the complexities of human and environmental relationships (Hoffman, 1999; Sobe, 2013).

In response to these theoretical insights, the present study introduces the concept of *Indigenous Cartography* (Table 2), a methodological tool designed to capture the fluidity, complexity and relationality of IK systems. This approach emphasises a holistic representation that challenges traditional Western paradigms of knowledge organisation and transmission. This cartography is constructed through the integration of Kemmis's Practice Architectures and Wenger's Communities of Practice, and it unfolds across nine dimensions that reflect the diverse aspects of IK.

Table 2: Celebrating commonalities 'Indigenous Cartography'

Epistemology and Ontology	Semantic Space*	Physical Space-Time Space**	Social Space***
Doings	*Cultural expression:* From words to action; beliefs and values embodied in concrete practices.	*Rituals:* ceremonial rituals and collective wisdom: seasonal harvesting	*Collaborative efforts:* Social movements in solidarity; community initiatives. (Law – treaty)
Sayings	*Oral Tradition:* songs; oral stories; lyrics; poems; thinking; traditional proverbs; storytelling as an educational tool that inspires ecological action.	Environmental preservation; interpretation of ecological calendars	*Art and Symbolism:* Hymns and chants during ceremonies; mythological narratives.
Relating	*Cultural revitalization:* cultural discourses; promotion of culture; Indigenous language revival; environmental education programs; Indigenous curricula in schools.	*Land Management:* Identity preservation; holistic ways of thinking/knowing; land management; community elders passing down knowledge (intergenerational learning).	*Community engagement:* Relationships between people; beginners to advanced; real-world/spiritual world; knowledge sharing networks; traditional ecological knowledge exchanges, community councils for ecological stewardship.

Source: * Meyer (2008); Rose (2004); Tuhiwai Smith (2012). ** Battiste (2013); Cajete (1993); Wilson (2020). *** Meyer (2008); Mignolo (2000); Tuhiwai Smith (2012).

DISCUSSION

In the authors' transformative journey, their research focused on the teacher-student dynamic as a lens through which to explore a mutually recognised issue that demands greater consideration, specifically, the role of cultural ecology in framing Mother Earth as a legal entity. The authors have approached this inquiry from a dual perspective, as both external observers and internal participants, navigating the intricate landscapes of cultural ecology. Their collective understanding reaffirms that IK systems are often approached in fundamentally different ways from conventional research methodologies—quantitative or qualitative—due to their emphasis on relational and experiential knowledge, collective memory and oral traditions (Battiste, 2013; Wilson, 2020), which contrast with the more individualistic and empirical methodologies prevalent in Western research.

Crucially, these systems are grounded in practice and foundational ways of thinking—referred to as Organising Principles, Habits of the Mind, Skills and Procedures, and Knowledge. While there are shared values, such as the pursuit of understanding ecosystems, the importance of honesty and open-mindedness and the use of empirical observation, IK systems uniquely embed these within a relational worldview. For Indigenous communities, knowledge is stable and adaptable, rooted in the interconnectedness of humans, land, non-human beings and cyclical ecological processes. As illustrated in Table 1, these dimensions reveal key commonalities and divergences across Indigenous, positivist (quantitative) and naturalistic (qualitative) research methodologies. Each reflects a distinct epistemological orientation that shapes how knowledge is generated, validated, and sustained within its respective paradigm.

Building on the foundational work of Rappaport and other scholars, this paper illustrates how Indigenous communities sustain their lives within the frameworks of their unique cultures, spaces and belief systems while highlighting the connections between cultural ecology and various academic disciplines. These interdisciplinary linkages provide deeper insight into human behaviour within complex environmental contexts. Through this exploration, the authors seek to align their proposal with the dynamic systems of Indigenous communities, uncovering methodologies that engage with comprehensive frameworks while respecting the deep-rooted connection these communities maintain with Mother Earth, viewing nature as a legal entity.

To understand how such knowledge is enacted, Kemmis's Practice Architectures framework provides a valuable ontological lens (see Figure 4). This model identifies three interrelated spaces: the Semantic Space, where 'sayings' and collective meanings are articulated through language and narrative; the Physical Space, where 'doings' such as rituals, seasonal harvesting, and land stewardship embody knowledge in practice; and the Social Space, where 'relatings' encompass kinship, governance and community solidarity that sustain cultural continuity. These spaces are shaped by cultural-discursive, social-political and material-economic arrangements, which can either enable or constrain Indigenous practices depending on historical and contemporary contexts.

Wenger's Communities of Practice framework complements this by highlighting the conditional, aspirational, enabling and strategic aspects of IK systems (see Figure 5). For instance, *conditional* aspects include the social and environmental contexts, such as land relationships and colonial histories that shape community life. *Aspirational* aspects reflect community visions for cultural revitalisation and environmental stewardship. *Enabling* aspects involve practices that support learning and identity, such as intergenerational teaching and ceremonies, while *strategic* aspects focus on organised actions like political activism and

Indigenous-led education. These aspects illuminate how Indigenous communities dynamically negotiate and sustain their knowledge systems within and beyond their immediate contexts.

By synthesising Indigenous ontological and epistemological standpoints, the proposed conceptual matrix of Indigenous Cartography offers a relational framework through which knowledge is not merely represented but enacted, embodied, and sustained. This 3x3 model, structured by the axes of Doings, Sayings, and Relatings across Semantic, Physical-Time and Social Spaces, provides a tool to trace how IK lives through practice, language, and relationships. Each intersection of the matrix functions as a knowledge event, embedding worldview, ethics, memory, and pedagogy within spatial and social realities.

Doings: From action to accountability

In the *Physical-Time Space*, Doings such as seasonal harvesting, hunting rituals and land-based ceremonies exemplify embodied ecological knowledge rooted in pattern recognition, generational learning and atunement to natural cycles.

In the *Semantic Space*, Doings take the form of cultural expression, where stories, beliefs and spiritual insights are materialised in art, regalia and dance. These expressions do not merely reflect identity but also serve as performative acts of epistemic sovereignty, encoding community values into visible and repeatable forms.

In the *Social Space*, Doings, such as treaty-making and collaborative stewardship projects, illustrate political agency and solidarity. These practices are not only about preserving rights but also about reaffirming intergenerational obligations, communal responsibility and the reassertion of Indigenous legal orders.

Sayings: Language as knowledge carrier

Sayings in the *Semantic Space*, including oral stories, proverbs and cosmological narratives, represent cognitive architectures of knowledge—structures through which moral reasoning, environmental ethics, and historical memory are sustained. These are not symbolic or metaphorical devices but methodologies of thought.

In the *Physical-Time Space*, Sayings function as temporal guides—ecological calendars, seasonal chants and place names—that instruct when to plant, harvest or migrate. These expressions synchronise memory and environment, bridging cognition and ecosystem cycles.

In the *Social Space*, ceremonial speech, mythic narratives and performative chants establish shared meaning and cultural cohesion. These sayings operate as relational technologies that transmit knowledge and responsibility across generations, ensuring continuity within community networks.

Relatings: The ethics of connection

In the *Semantic Space*, Relatings appear in language revitalisation, curriculum design and cultural discourse. These initiatives do more than preserve identity; they challenge epistemic erasure and reclaim narrative authority.

In the *Physical-Time Space*, relational practices, such as elder-guided land management, exemplify knowledge embedded in intergenerational responsibility. Here, land is not a resource but a sentient participant in knowledge-making.

In the *Social Space*, relationality is enacted through community councils, kinship-based governance and ecological stewardship networks. These modes of relating demonstrate a politics of care, positioning knowledge not as an individual asset but as a collective inheritance.

By unpacking the Indigenous Cartography matrix, this study moves beyond abstraction and symbolism to offer a nuanced analytic framework that honours the situated, lived nature of Indigenous epistemologies. The model supports comparative inquiry while remaining attentive to cultural specificity, enabling researchers to work with rather than on IK systems. It does so by revealing how foundational dimensions of knowledge are continually enacted and transformed through engagements with land, language and law.

Rather than viewing IK as static or essentialised, Indigenous Cartography illustrates how knowledge practices are dynamically sustained within overlapping semantic, physical and social spaces. Each intersection in the matrix offers insight into the relational and contextual character of knowing knowledge as performance, ethical responsibility and intergenerational continuity. This orientation provides a basis for research that is both methodologically rigorous and accountable to the values and protocols of Indigenous communities.

Moreover, Indigenous Cartography offers a platform for ethical dialogue, where researchers and communities can co-produce knowledge in ways that are transparent, reciprocal and respectful. By disrupting normative assumptions and inviting plural epistemologies, it contributes to the reconfiguration of academic practice toward inclusivity and responsiveness. As de Oliveira Andreotti et al. (2016) emphasised, methodologies that challenge epistemic dominance must be grounded in reflexivity, humility and openness to other modes of relating and reasoning.

In this light, Indigenous Cartography is not only a conceptual tool but also a methodological invitation. It calls for ongoing reflection, relationship-building and dialogic engagement across knowledge systems. As a living framework, it has the potential to inform the decolonisation of research, curriculum and practice—not by prescribing fixed pathways but by enabling context-sensitive, community-led approaches that foreground justice, care and relational accountability.

CONCLUSION: TOWARD A TRANSFORMATIVE RESEARCH APPROACH

The proposed Indigenous Cartography framework serves as a comparative education tool that enables researchers to explore cultural perspectives, constructively fostering mutual respect while emphasising the dynamic and spatial dimensions of IK systems. Emphasising the diversity within epistemological environments, this framework recognises them as interconnected and evolving rather than static (Ytterstad, 2020).

Paulston (1996) advocated using social mapping to construct comprehensive representations of cultural phenomena, for which the Indigenous Cartography represents his work on visualising social data. By leveraging this approach, Indigenous researchers can facilitate an emancipatory dialogue that minimises cultural hegemony. As de Oliveira Andreotti et al. (2016) asserted, social mapping challenges perceived certainties rather than imposing normative orientations. Through this lens, researchers can foster mutual respect, develop a more nuanced understanding and contribute to a holistic perspective of knowledge creation.

At a time when Indigenous wisdom converges with contemporary scientific discourse, education must serve as a catalyst for transformation while honouring deeply rooted traditions (Freire, 1976). The pursuit of knowledge is evolving into an inclusive exploration that integrates diverse epistemologies (Denman, 2017; Kolawole, 2022). This shift calls for embracing

multiple perspectives to reimagine education and research in a way that fosters sustainability and balance.

Ultimately, this research affirms the resilience of IK systems and their indispensable role in shaping a more inclusive and equitable future. How can researchers and global citizens meaningfully integrate IK to foster collaborative solutions for pressing global challenges? This question remains central to shaping a world where cultural ecology and Indigenous epistemologies are fully recognised and respected.

ACKNOWLEDGEMENT

The first author received the 2024 OCIES Scholarship, which supported her participation in the OCIES conference held in Melbourne.

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The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

BOOK REVIEW:

Global perspectives and new challenges in culturally responsive pedagogies: Super-diversity and teaching practices

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BOOK REVIEW:

Rigney, Lester-Irabina (Ed.). (2024). *Global perspectives and new challenges in culturally responsive pedagogies: Super-diversity and teaching practices*. Routledge.ISBN: 9781032371795. 244 pages 7, B/W Illustrations.

The book is timely because it addresses local and global concerns around superdiversity in education and the need for a culturally responsive pedagogy (CRP). The introductory chapter explains terms and concepts that set the framework for the following chapters. It argues that CRP is a suitable response to neoliberal educational ideologies of marketisation and datafication. It clarifies that the 'logic of the centre' is the valued practice with CRP becoming peripheral and argues for CRP to advance an equitable and socially just future for educational practices. The book is divided into three parts: global aspects that require CRP, student talents through CRP and prospects for CRP. I will examine chapters that explain the CRP theory and its empirical impact on local and global sites.

Part One deals with the global perspectives of CRP. While all the chapters are worth reading, Chapters 2 and 3 stand out. In Chapter 2, Rigney advances the theoretical term Indigenist epistemology to explore student identities and the importance of knowledge plurality and multilingualism. Aboriginal students remain trapped in settler literacy and curriculum that has enforced deficit pedagogies and debased outcomes for students. Students are suppressed by disciplinary power, and their knowledge is downplayed. The author states that culturally responsive teaching includes the settler literacies and the oral histories of First Nations people. Drawing on their Australian Research Council grant-funded project, the author adds three more repertoires: (1) teacher subjectivities, (2) Aboriginal children as knowledge holders and producers and (3) commitment to CRP. The author argues that teachers must go beyond data-driven performativity and recognise that their work and subjectivities can potentially overcome hierarchical observation and normative judgements. The second repertoire is to recognise an Aboriginal child as a knowledge producer. The third repertoire is nine teacher commitments that could enhance CRP, such as respectful place-based pedagogy, creating belonging through teacher-student relationships focusing on identities, multilingualism and interculturality. The

author reaffirms that teachers must be perceived as partners in redesigning curriculum and pedagogy.

Chapter 3 by Michael Zembylas is a theoretical masterpiece on how decolonisation in higher education is achieved through humanising pedagogies. The author states that while an understanding of decolonisation exists in higher education curricula, there is a lesser understanding of it in the pedagogy and praxis necessary for appropriate decolonisation. To understand how humanisation and decolonisation connect, Zembylas notes that we need to comprehend decolonial praxis's pedagogical practices to make marginalised people's cultures visible. He distinguishes colonialism (temporal oppression) and coloniality (a classification system that upholds Eurocentric values). He argues that decolonising is a critical examination of the ideological domination of knowledge in the intellectual histories of the colonised. There needs to be a re-framing of Western ideas that have upheld Western knowledge with the standpoints from the South. A key point is that decoloniality centres on praxis, enriches the theorisation of CRP and highlights how humaneness as praxis can be achieved in higher education.

Part Two has two chapters that stand out as singular regarding the focus and approach. In Chapter 7, Robert Hattam discusses the importance of decolonising CRP in the Australian context based on three rationales. The first is the weak links between the Australian school context and CRP compared to the North American and New Zealand contexts. The second is the demand that the super-diversity of classrooms be acknowledged since, while multiculturalism is firmly embedded in the schooling system, cultural diversity is not yet fully appreciated. The third is a 'counter-narrative' to existing and new forms of colonisation. Colonialism has succeeded through the physical and cultural repression that has led to a 'psycho-social' disorder that reproduces the settler colonial ideology. There is a need for CRP to reform and revamp curriculum and pedagogy to overcome the colonial discourse. Achieving this requires high intellectual challenge, connection to the lived experience of students, a positive experience of cultural identity and empowerment of students towards new technology and activist orientation.

In Chapter 8, Jacqueline D'warte explores linguistic diversity in Australia, highlighting the challenges faced by students who engage in diverse languages and literacies. The author suggests a culturally sustaining pedagogy is needed to address the deficit perspectives around languages other than English and students' diversity. CRP is driven by a social justice agenda to overcome the monolingual approach and promote knowledge production. The chapter empirically shows that CRP is evident in Western Sydney classrooms, where teachers and students attempt to understand and sustain cultural and linguistic knowledge. However, it also reveals students often view linguistic diversity as a deficit and abandon their home language in favour of English. The project in Western Sydney led to collaborative learning and deeper engagement in education, working with the experiences and biographies of students and communities. D'warte's study aims to establish an agentive partnership between teachers, students and community members to counter deficit perspectives.

Part Three deals with the future of CRP. In Chapter 16, Stephen Kelly uses re-territorialising pedagogy theory to explain the usefulness of culturally responsive ways. The author proposes a dialogue that de- and re-territorialises the onto-epistemic practices of First Nations (explained by the author as the holistic perspectives of Indigenous worldviews and the communal system of knowledge and values through a pluriversal space), which Mingnolo (2018, p. x) explains as a 'vision of a world in which many

worlds coexist'. Kelly explains that pluriversal can give First Nations people an agentive voice to speak in Western and Indigenous frameworks and sees CRP as a material connection to place and time. The author draws on Deleuze and Guattari's (2004) concepts of de-territorialising and re-territorialising as tools to foreground Indigenous relational ontology within CRP. De-territorialising helps break down the social-cultural order and the assemblage of colonisation. At the same time, re-territorialising occurs when Indigenous people fabricate the colonial project by drawing on their onto-epistemic practices. The author highlights the importance of pluralism of all subjectivities and peripheral knowledge and the need for subjugated knowledge to express its capacity to listen, speak and reject submersion. This requires different ways of conceiving the world, resistance to powerful interests and access to producing one's cultural knowledge. The author uses a transcript from the National Museum Australia to illustrate how relational becoming can be achieved, using words like *Yindi Marra*, *Ilaaly*, *Tjukurrpa*, and *Dadiri*. These words reflect Foucault's (2005) concept of parrhesia, which requires deep listening and observation to understand multiple ways of knowing and being in the world.

The book also explores CRP and its application in diverse contexts, including the Pacific and Europe. In Chapter 14, Stephen Dobson and colleagues focus on online resources for adult refugees in Europe, highlighting the global usefulness of CRP. They illuminate the importance of self-determination, inclusion and cultural responsiveness in providing open-access resources to adult refugees. They (European university experts) collaborated to create e-learning resources for adult refugees aged 18–40, drawing on theoretical works (e.g., Habermas, 1972; Freire, 2000; Carr and Kemmis, 1986). The team set up the MOOC (Massive Open Online Courses) and webinar for trainers and teachers. The project Advenus (project title, Developing Online Resources for Adult Refugees) involved focus groups and interviews with teacher trainers to map cultural sensitivity, redesign resources for cultural aspects and test and validate the resources. They incorporated design principles of multiple worldviews, teaching for diversity, community-oriented content, sensitivity to student learning assessment and instruction, and involvement of family communities and local sites. The redesign template included functional literacy and language skills, enhancing cultural sensitivity and social inclusion. According to a survey of 267 participants in e-courses in four countries and 102 teachers who engaged in the MOOC and focus groups, the CRP-based projects incorporated varied worldviews, theories and practices that align with student learning, centralised diversity and community and local sites in learning and included student cultures in assessment. The authors suggest a critical reflective stance and mention that the Advenus project aimed at achieving a high level of personalisation, which was to the advantage of the student.

In conclusion, the book is a worthwhile addition to libraries and scholarly collections because it provides valuable, theory-based and practice-oriented chapters. It offers reflective thinking of culturally responsive pedagogy and highlights the importance and approaches to moving beyond deficit perspectives of colonial thinking.

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The International Education Journal: Comparative Perspectives Vol. 24, No 1, 2025
http://iejcomparative.org

BOOK REVIEW: Shadow education in the Middle East: Private supplementary tutoring and its policy implications

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BOOK REVIEW:

Bray, M., & Hajar, A. (2022). *Shadow education in the Middle East: Private supplementary tutoring and its policy implications*. London: Routledge. https://doi.org/10.4324/9781003317593 122 pages.

This book is a comprehensive overview of the impact that private tutoring—or shadow education—has in the Middle East, a region where educational equity issues are increasingly pressing. Grounded in empirical evidence gathered from UNESCO-distributed questionnaires and enriched by stakeholder engagement and contributions, the study serves as a key resource for understanding this phenomenon. The impact of private tutoring has perplexed many academics, politicians and school systems for over two decades, raising questions about its nature and influence (Baker et al., 2001; Bray, 1999; Ireson & Rushforth, 2005). Notable researcher Mark Bray, after extensive study in Asia, now turns his focus to the Middle East with co-author Anas Hajar, offering new insights into this global issue's regional manifestations.

Shadow education, defined as private, fee-based classes that mirror or "mimic" the curriculum, has penetrated modern Middle Eastern society. The discourse surrounding private tutoring is often negative, with officials, academics and journalists citing it as a significant threat to educational integrity and equity. Recognising these concerns, Bray and Hajar delve deeper into the phenomenon in their short but comprehensive book, examining how private tutoring affects educational practices, reforms and policies in the Middle East. They focus on 12 countries where Arabic is an official language: Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, the UAE and Yemen.

This seven-chapter handbook builds on Bray's previous works and offers new insights into shadow education's socio-economic and cultural contexts in the Middle East (e.g., Bray, 2021; Bray et al., 2020; Bray & Lykins, 2012; Silova, 2009). It begins with an executive summary that contextualises the study, detailing the research's definitions, scope and scale. The authors acknowledge the complexities in defining the Middle East, particularly the interpretations and frameworks for understanding the region as well as the major social, economic and political diversities. They also address the disruptions caused by civil war and other armed conflicts, significantly influencing the study's contexts.

Bray and co-authors have highlighted the role of educational equity and justice in achieving UNESCO's Sustainable Development Goal (SDG) 4, which envisions "inclusive quality education for all" by 2030 (Bray, 2021; Bray et al., 2020). In *Shadow education in the Middle East*, Bray and Hajar critique the societal changes and uncertainties students face in navigating schoolwork to obtain optimal academic outcomes. They focus on how shadow education challenges equitable and quality education by emphasising the need for (1) comprehensive data to inform policy changes, ensuring education aligns with equitable objectives, and (2) strategies to integrate shadow education with formal educational systems to reflect the realities of teaching and learning.

One of the book's strengths is its reliance on empirical research, including analyses of policies and interviews with educational stakeholders, including parents. Chapters 5 and 6 are particularly noteworthy. Chapter 5 examines the effects of shadow education on learning outcomes in Middle Eastern society, discussing its positive impact on educational quality and social equity and its negative consequences, such as "gaming" the system for academic advantage. Chapter 6 shifts focus to parents and identifies them as key stakeholders in their children's education. It then explores factors influencing parents' decisions to hire private tutors, including parents' prioritising "quick marks" over learning for deep understanding.

The diversity in findings highlights the scale and nature of shadow education across rural and urban settings throughout the region. Large-scale population differences show how private tutoring can address school deficiencies and exacerbate educational achievement gaps. These complexities reflect broader socio-economic realities within the region. The authors emphasise the importance of understanding the "big picture" characterised by the duality of a wealthy minority and a large expatriate workforce and disparities in wealth and economic and political stability among countries.

Bray and Hajar revisit concerns about private tutoring, echoing findings and policy recommendations from previous publications. They identify key factors shaping educational practices exacerbating inequities, such as private and commercial tutoring organisations. The authors highlight the role of stakeholders—including governments, policymakers, schools, families and service providers—in the neo-liberalisation and responsibilisation of education. For those familiar with the series by Bray and colleagues, the concerns about growing academic achievement gaps persist with insufficient attention or solutions. More work is needed to address these issues and ensure accountability. Amplifying voices of concern involves on-the-ground advocacy, engaging with policymakers and forming collaborations to prioritise actionable reforms that advance educational equity.

This book is a valuable resource for researchers, educators and policymakers interested in the dynamics of educational systems in the Middle East. It not only explores private tutoring but also provides broader insights into the intersections of shadow education, social and economic structures and educational policies across diverse cultural contexts. The future requires less cleverness and more empathy, moving away from outdated practices and towards inclusive educational equity. This means providing everyone access to quality education and addressing rather than ignoring underlying issues. The authors' call for equitable educational opportunities extends beyond the Middle East, making their work relevant globally and underscoring the urgency for reforms.

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