

Exploring Thai Teachers' Perspectives on Evidence-informed Practices in Inclusive Early Childhood Education

Joseph Seyram Agbenyega
Emirates College for Advanced Education, UAE
Danielle Lane
Western Oregon University, USA.
Sunanta Klibthong
Mahidol University, Thailand

Abstract: Evidence-informed practices play vital roles in teaching and learning in inclusive schools; however, limited research has been conducted to explore inclusive early childhood teachers' perspectives on research-informed teaching. This study, which was informed by the Cognitive Apprenticeship Theory (CAT), used structured and online focus groups to explore the views of 26 inclusive early childhood teachers in Thailand regarding their understanding and value for evidence-informed practice, how they source, analyse and use evidence to inform their professional practice and the factors supporting or inhibiting evidence-informed practices in their schools. A combination of framework and descriptive data analysis identified findings suggesting teachers value evidence-informed teaching. Still, they need to gain more skills in identifying, analysing and using evidence from relevant academic journals in their professional context. In addition, teachers' endeavours to access and use scholarly resources were also inhibited by a lack of professional skills, time, and support from school leadership. The findings validate Cognitive Apprenticeship Theory suggesting the need for research skills training and including teachers as co-constructors of research knowledge. These processes can lead schools to better integrate research into practice in early childhood educational settings.

Keywords: early childhood, evidence-informed, inclusive teachers, Thailand

Introduction

Evidence-informed practice is gaining increasing attention in education, aiming to provide teachers with a fundamental understanding of how research translated into teaching and learning improves student learning (Ion & Sirvent, 2022). The importance of effectively teaching to cater to student diversity and needs is linked to research evidence. Evidence-informed practice takes many forms. Evidence-informed practice in education uses existing research with evidence that is the best-known approach to produce a specific outcome in student learning (Oancea,

2010). It also involves proven intervention methodologies and teacher-led research in schools to improve student performance to meet curriculum standards (Davies, 1999; Earl, 2015; Kowalczyk-Walędziak & Underwood, 2021). Evidence-informed practice in schools may take different forms, for example, teacher learning or lesson study (Ion & Sirvent, 2022), action research (Ion et al., 2021), and collaborative professional inquiry (Donohoo, 2013).

Evidence-informed practice is a shift away from depending solely on personal experience or dominant views as pedagogical strategies and instead assessing or developing new ideas that are based on reliable and relevant evidence (Kowalczyk-Walędziak & Underwood, 2021). In this sense, guesswork and supposition are replaced with high confidence in identifying student needs and relevant strategies to meet those needs (Oancea, 2010). Several reasons account for the use of evidence-informed practice in schools. Firstly, it guides teachers and school leaders when making complex student learning and teaching decisions. Secondly, evidence-informed approaches and school-based research mean that teachers adopt a growth mindset regarding their professional practice (Ion & Sirvent, 2022).

Despite these benefits, teacher education systems have historically focused on teaching pedagogical skills and content knowledge, focusing less on evidence-informed practice capability and its affordances in educational innovation (Cain et al., 2019). The use of research evidence in teaching and learning is complex, involving decisions about what evidence to use, how to source and analyse it, and ways to evaluate its impact, among other things. It requires teachers' active and ongoing engagement with research evidence (Cain et al., 2019; Langer et al., 2016). Despite teachers valuing research and wanting to use it in their practice (Penuel et al., 2017), only a few are doing so (Wexler, 2019). Factors inhibiting teachers' research use in professional practice include teachers' lack of involvement in co-producing research knowledge (Biesta, 2007; McKnight & Morgan, 2019), research competence and skills of teachers in searching, appraising, embedding and evaluating evidence, and the lack of supportive network and research related recourses such as free education journals (McKnight & Morgan, 2019).

In Thailand, the context of this study, the literature on research-informed practice in school is rare. Agbenyega and Klibthong (2015) found that most Thai early childhood teachers have difficulty modifying the curriculum for children with disabilities. Therefore, these teachers resort to whole-class didactic approaches irrespective of children's differences. According to Erikson et al. (2013, p. 914), "there are not many studies about research-based learning for applying instruction in Thailand." The authors recommended that research-based learning be a core training component in all institutions to increase the link between research and school teaching. They believed that research-informed practice could help Thai students build intellectual solid and practical understanding and ownership of learning. Therefore, this study aims to explore the perspectives of Thailand teachers who work in inclusive early childhood settings regarding their value for research-informed practice, understand how they source and use evidence to inform their daily professional practice and identify the challenges the teachers face in embedding research in teaching in their schools. The study is guided by following research questions:

1. What are the inclusive early childhood teachers' understanding and value for evidence-informed practice?
2. By what means do teachers source, analyse and use evidence to inform their professional practice?
3. What factors do teachers identify supporting or inhibiting evidence-informed practices in their schools?

The findings from this study add to the literature and support the implementation of early childhood inclusive education in Thailand.

Literature Review

Thailand's Commitment to Inclusive Education

Thailand is firmly committed to inclusive education, from early childhood to secondary education. The National Education Plan (2017 -2036) sets five significant goals to be achieved by the year 2036, and central to this research is that “all people in Thailand must have access to quality education which meets education standards” (Vibulpatanavong, 2017, p. 67). The national education plan also included (1) Education for All, (2) Inclusive Education, (3) a Sufficiency Economy, and (4) All for Education (Thai Ministry of Education, 2017. Vibulpatanavong, 2017). In addition, the Thai Persons with Disabilities Empowerment Act, B.E. 2550, Education for Persons with Disabilities Act B.E. 2551 aimed to support every child to develop to their fullest potential by training and supporting teachers with resources to adopt inclusive practice (Office of the Council of State, 2007; Vibulpatanavong, 2017). However, inclusive education policies are not legally binding but provide goals and principles for improving education for persons with disabilities. According to Vibulpatanavong (2017), most public regular schools in Thailand that accept children with disabilities are called integration schools rather than inclusive schools” (p. 68). Integration schools may accommodate students with a disability full-time or part of the day and in special classrooms.

Early Childhood Inclusive Education in Thailand

This study focused on teachers in the early education sector because children's early years are considered critical for developing children's capabilities and dispositions necessary for further learning and development (Buain & Pholphirul, 2022). Early childhood education in Thailand is not compulsory. It includes kindergartens and preschools as part of the preprimary category to promote school readiness. Most children in Thailand begin preschool at age four or five, but some programmes cater to three-year-olds and younger. Three basic early childhood education programs operate in Thailand: child development centres, private schools, and public schools (Tyrosvoutis, 2019). Recognising the importance of children's early development drives demand and supply, resulting in the expansion of early childhood education in Thailand.

Inclusive early childhood programs are those that cater to student diversity. Diversity refers to the unique differences among students of which disability forms a part. In this context, the concept of inclusive education provides a framework for early childhood education centres to cater to the needs of all students (Klibthong & Agbenyega, 2018). However, the field in Thailand is challenged by the quality of teaching, including pedagogical and physical exclusion of the most vulnerable and disadvantaged children (Shaeffer & Perapate, 2022; Tyrosvoutis, 2019).

According to Buain and Pholphirul (2022, p. 370), “while inequality is found to exist in all levels of education, the majority of research still focuses on inequality in basic education. Nonetheless, issues concerned with inequality in early childhood education, especially concerning inequality and the benefits of education at this level, do not receive much attention from academia.” Another study found that early childhood teachers with children with disabilities in their classes found it challenging to modify the curriculum and give equal attention

to all students (Kibthong & Agbenyega, 2018). This has implications for teachers to draw pedagogical benefits from research evidence for inclusive practice. Research-informed practices support effective pedagogical interventions and positive behaviour support for students with disabilities (Brown et al., 2022; Campbell, 2016). Schools catering to student diversity have benefited from research-informed practices (Demski et al., 2012). Research-informed educational practice is “the use of academic research by teachers and school leaders, in order to improve aspects of their teaching, decision-making, leadership or ongoing professional learning” (Brown et al., 2022, p. 1). The relevance of inclusive education, considering research-informed practice, is that inclusive education focuses on access, support and the removal of barriers to full participation and learning (Demski et al., 2012; Stephenson et al., 2022; United Nations Educational, Scientific and Cultural Organization (UNESCO), 2017). Some studies found that evidence from intervention studies is a valuable resource for teachers who are interested in supporting children who experience significant learning barriers and those with developmental disabilities (Filderman & Toste, 2017; Wilcox et al., 2021).

Despite evidence suggesting that research-informed educational practices facilitate effective teaching and learning, few school teachers use academic research to inform their pedagogical practices (Conaway, 2020; LaPointe-McEwan et al., 2017). Researchers argued that the lack of research-informed practice could inhibit teaching effectiveness, innovation and the quality of interventions for students with disabilities (Conaway, 2020; Malin et al., 2020).

There is a multitude of factors that support or inhibit the use of academic research on equitable and inclusive practices in education systems. Brown et al. (2022, p. 2) listed five factors that facilitate the use of research-informed practice in schools:

(1) accessing academic research; (2) being able to comprehend academic research; (3) being able to critically engage with research evidence, understanding both its strengths and weaknesses, as well as how its warrants for truth can be justified; (4) relating research-evidence to existing knowledge and understanding; and, where relevant, (5) making or changing decisions, embarking on new courses of action, or developing new practices.

While Thailand’s policies have a transparent commitment to ensuring inclusive education, like many countries around the globe, the country still experiences barriers to achieving its goal of fully inclusive education (Vibulpatanavong, 2017). Barriers to inclusive education in Thailand, particularly at the early childhood level, include professional inadequacy, a lack of resources, inadequate funding and support from school leaders and weak collaboration among professionals (Kantavong, 2018). Critical among the many barriers challenging the effectiveness of inclusive education is research/evidence-informed practice. The effectiveness of inclusive education depends on how evidence is sourced, understood and used to transform practice.

The push toward inclusive education for *all* (UNESCO, 2017) is familiar. It is one that nations across the globe have grappled with for decades. While international policy emphasises the inclusion of every student in quality education by 2030, many countries are experiencing ongoing barriers that result in slow and often unsteady progress toward this goal. In Thailand, policies directly derive from international initiatives and focus on removing barriers that result in exclusionary practices. One approach that may be considered in moving Thailand towards fully inclusive education is the implementation of evidence-informed practices rather than evidence-based practices. While this may serve as an approach to addressing inclusive education, there

needs to be more research on evidence-informed practices in inclusive contexts and even less on implementing evidence-informed practices in Thailand's inclusive early childhood classrooms.

Theorising Evidence-informed Practices

This study is informed by Cognitive Apprenticeship Theory (CAT) for adopting and embedding research evidence in teaching. According to CAT, social interactions between the learner and the expert form a foundation for enhanced and ongoing cognitive development (Long et al., 2016). In this sense, impactful learning is achieved through mentoring, scaffolding, observation, modelling, ongoing reflection and full participation (Dennen & Burner, 2008). Consequently, teachers supported through these learning modes eventually acquire skills and motivation to develop their professional practice further. Since cognitive apprenticeship theory emphasises applying knowledge to real problems, its benefits to evidence-informed practices are immense. For example, research skills can be learned from expert researchers and pedagogical leaders through school-based action research, lesson study and collaborative inquiry. This allows for bridging research, theory and practice (Collins et al., 1991), enabling teachers to practice skills that connect to inclusive education.

Evidence-informed practices, separate from evidence-based practices, are receiving global attention in educational policy and practice areas. As the discourse around evidence-informed practices increases, so does a governmental emphasis on teachers' use of evidence-informed practices (Malin et al., 2020). To understand the shift toward evidence-informed practices, we must first understand where we have been with evidence-based practices, often referred to as research-based practices. Nevo and Slonim-Nevo (2011, p. 1180) shared that using evidence in practice,

attempts to employ scientific and technological rationality in an area in which such rationality traditionally competes with more practical forms of wisdom, and it justifies this assimilation of practical to scientific rationality on both ethical and instrumental grounds. Only by basing practice on evidence, so it is claimed, can the practitioner guarantee the best available treatment to her clients, as is her professional duty.

While identifying a definition of evidence-based practices is relatively accessible at this point in their implementation, the term may inaccurately be used interchangeably with many synonyms, making it challenging to decipher an individual's conceptualisation of the term. Current terminology, evidence-informed practices, however, does not have an easily identifiable definition and is frequently used interchangeably with evidence-based practices. While confusing, the literature is clear that evidence-informed practices and evidence-based practices are not the same, but that research evidence is imperative to evidence-informed practices (Nelson & Campbell, 2017).

In providing their conceptualisations of evidence-informed practices, Nevo and Slonim-Nevo (2011, p. 1178) suggest that evidence-informed practices should be understood as “leaving ample room for the constructive and imaginative judgement and knowledge of practitioners and clients who must be in constant interaction and dialogue with one another for most interventions to succeed.” Nelson and Campbell (2017) go a step further in stating that evidence is only one factor that plays a role in educational decision-making and that educators should rely on their judgment and not just evidence. These understandings of evidence-informed practices suggest

that education systems must weigh all factors, including the teacher's judgement, when making informed pedagogical decisions in inclusive practice (Brown et al., 2022). In viewing evidence-informed practices through this lens, it becomes apparent that one of the primary purposes of these practices is to promote engagement with current research and strengthen pedagogical relevance to catering to student diversity (Davari-Torshizi, 2020).

‘The Bad’

The complexity surrounding evidence use in education is the lack of clear distinction between evidence-based practice and evidence-informed practice. While there is a relative increase in the literature providing some clarity on these concepts, more research on the topic still needs to be done. With this, much of the current literature focuses on the 'bad', the 'good', and the 'should' of evidence-informed practices. For example, Nelson and Campbell report that,

The measurement of EIP is challenging, not least because it relies on clarity of definition or at least some decisions about the features of EIP that should, or can, be measured. It also requires decisions to be made about the evidence needed to judge whether or not EIP has been achieved, and to what ends.
(Nelson & Campbell, 2017, p. 131)

In addition to the need for more clarity surrounding the definition, ambiguities in what evidence-informed practices are, and what constitutes data, there are unintentional consequences of evidence-informed practices that may lead to social justice and equity issues. Specifically, while evidence-informed practices are built upon intentions of fairness and objectivity, "the discursive construction of individual students based on student achievement data has the potential to perpetuate deficit discourses and to rationalise ability-based practices" (Spina, 2019, p. 338). This suggests that the emphasis on evidence-informed practices may result in a system in which teachers are no longer sensitive toward the effects of labels on students, such as ability grouping. Spina summarised the potential concerns related to equity in evidence-informed practices by stating:

It would seem that there is an emerging discourse that has the potential to impact the quality and content of instruction that students receive from the earliest years of schooling through to senior secondary schooling. (Spina, 2019, p. 344)

‘The Good’

While there are some concerns surrounding the implementation and impacts of evidence-informed practices, research also suggests there are benefits to consider (Wentworth et al., 2017). The nature of evidence-informed practices indicates that evidence goes beyond data in a research study and may include a teacher's judgment. In embracing teachers' insights, evidence-informed practices allow teachers to use their professional judgment to determine if a particular practice results in student growth and should be used in the future (Dormann et al., 2016; Malin et al., 2020). Furthermore, Malin et al. (2020) add that when educators interact with evidence, outcome improvements for teachers and students are evident. Additionally, when accountability systems, such as evidence-informed practices, are implemented, "specific details (e.g., assessment areas, format, foci, speed, and quality of feedback) are salient" (Malin et al., 2020, p.11). The literature indicates that using evidence-informed practices may result in teacher autonomy and improved outcomes for students and teachers (Brown et al., 2022).

‘The Should’

It quickly became apparent that current research focuses on 'the should'. For the purposes of this paper, 'the should' refers to findings related to evidence-informed practices that authors believe need additional research, consideration, and attention. These 'shoulds' highlight the need for more research and data on implementing evidence-informed practices. Nelson and Campbell provide a concise list of 'shoulds' by stating,

common and persisting challenges of access to quality evidence, time for professional engagement and inquiry, professional development and capacity for all involved to understand, share, (co)develop and apply evidence in and for practice - and, vitally, approaches for evaluating the strategies, process, activities and outcomes of EIP, all require further attention. (Nelson & Campbell, 2017, p. 132)

In addition, there are system-wide barriers that 'should' be addressed. Flynn (2019) suggests that researchers must identify ways to make their research accessible. To effectively translate research to practice, field-based practitioners need to be involved in the process. Further, to achieve this goal, investigations are needed into the process required to effectively understand how practitioners define, engage, and use evidence-informed practices in their context (Flynn, 2019). Taking Flynn's recommendation deeper into systems of inclusivity, Boyle et al. (2020) discuss the notion that inclusion and evidence-informed practices are not incompatible; however, "a more nuanced understanding of what counts as 'evidence' in education is needed, as well as a clearer definition of inclusive education" (Boyle et al., 2020, p. 12).

Beyond the need for a deeper understanding of evidence-informed practices and how they translate from research to practice, the literature proposes field-based 'shoulds' for consideration (Boyle et al., 2020). Mirroring the belief that researchers need to understand how to engage with practitioners, the literature also calls for school leaders to support their teachers better using evidence-informed practices. To start "the process of making evidence use a cultural norm within schools, leaders are required to engage primarily in 'transformational' modes of leadership. To embed it, however, they must switch focus and engage in more 'pedagogic' or learning-centred leadership" (Brown & Zhang, 2016, p. 798). In addition to the need for leaders to understand their teachers and what is required to create a culture of evidence-informed practices in schools, stakeholders must understand that evidence is only likely generalisable across some students and settings. With this understanding in mind, education needs to focus on the individual, their needs, and how additional evidence, such as demographics, supports students (Boyle et al., 2020).

The 'good', the 'bad', and the 'should' laid out in the literature paint a fuzzy picture of the 'what' and the 'how' of evidence-informed practices. While the pathway to ensure research becomes practice is unclear, and there are extensive 'shoulds' for consideration, a trend away from evidence-based practices toward evidence-informed practices is emerging. In this view, professional judgments are weighed alongside the research base to make informed decisions. In doing so, evidence-informed practices may afford educators more autonomy and student more positive outcomes in inclusive educational settings. Despite the potential of evidence-informed practices, research suggests potential equity concerns that must be proactively addressed (Wentworth et al., 2017). Holistically, the transition toward evidence-informed practices needs more time and attention to gain a complete insight into the impact of evidence-informed practices, especially in early childhood inclusive educational contexts in Thailand.

Methodology

This study applied the pragmatism paradigm as a research strategy to explore and describe Thai inclusive early childhood teachers' perspectives and experiences of using evidence-informed practice. Pragmatist researchers focus on the nature of experience and, as such, are not interested in contentious metaphysical concepts such as a single truth and reality (Kaushik & Walsh, 2019; Pansiri, 2005). We believe that reality is situated in contexts and influenced by culture, beliefs, values and dispositions that are socially constructed, thus affording single or multiple realities that are open to empirical inquiry and interpretations (Morgan, 2014; Pansiri, 2005). Constructing the perspectives of our participants as a normative concept, we utilised research approaches that worked to gauge the participants' understanding, value and use of research evidence in practice. In this way, separating reality from human experience and context is impossible.

An exploratory interpretive inquiry approach fits our research purpose because more research is needed in the Thai context. The approach is also consistent with using a pragmatism paradigm, allowing us to collect numerical and textual data. The exploratory nature of the study allowed the data to speak for itself. In this sense, our focus was not to generalise the results. Instead, we were interested in understanding practice in context, individual experiences, and subjective interpretations (Charmaz, 2006), which "stress the socially constructed nature of reality" and meaning-making (Denzin & Lincoln, 1998, p. 8).

Participants

Participants in the study were 26 early childhood teachers, all females, from 12 different inclusive early childhood educational settings within the Bangkok metropolitan region, who were purposively selected based on the criteria of being inclusive schools. This means that at the time of selection for participation, the schools enrolled students with disabilities and had early intervention programs. Another criterion for participation included teachers who benefited from an inclusive education training program. After selecting the schools, we emailed teachers to invite them to participate in the study. Before sending emails to the teachers, the school directors assisted us in advertising the study on their respective school's websites for three months to seek voluntary participation. Interested participants contacted the researchers with their email addresses and signed online consent forms before participating. The mean age of the participants was 38.5 years. Twenty-one participants representing 80.8%, had bachelor's degrees in early childhood education. The rest (19.2%) had a Graduate Diploma of early childhood qualification. Participants' experiences of teaching children with special education needs in early childhood programs in Thailand, ranged from two to 15 years.

This study received ethical clearance from Mahidol University (No.-01-2021). All participants were adequately informed about the study through posters advertising it in their schools with explanatory statements. All participants signed consent forms and offered to participate in the study voluntarily. Anonymity was assured by providing codes to represent each participant.

Instruments, Data Collection and Analysis

Two data collection tools were employed to collect data. The first tool was a structured interview protocol which allowed us to collect quantifiable information from each participant. The protocol was constructed using an online Qualtrics survey tool for participants to enter their responses. The protocol contained demographic items and questions about sources of evidence, and beliefs about evidence. The second tool for data collection was a semi-structured group interview protocol based on previous literature and the research questions to collect qualitative data. Sample interview questions included: What is your understanding of evidence-informed teaching? What benefits do you see in using the evidence-informed approach in your practice? What sources of evidence do you usually use to inform your program planning and professional practice? How do you analyse and use evidence in your practice? How would you describe your expertise in evidence use? What challenges do you face in sourcing and using evidence in your practice?

Due to the challenges of the Covid-19 pandemic, interview data were collected using Microsoft Teams app in three online groups. Prior to the interviews, all participants signed consent forms. The researchers moderated the group sessions as an ethical practice, allowing each participant to contribute ideas.

The Microsoft Teams app facilitated the recording of the interviews, allowed the participants to play back the recorded interviews, and sent back comments before the transcribed data sets were used for analysis. Each interview took approximately 30 minutes of each participant's time. Participants were also assured that the online videos were protected with a password and could not be viewed by anybody apart from the researchers.

We used an Excel spreadsheet to code and analyse the structured interview data and produce numerical data in percentages. The qualitative data sets were analysed using a five-step Framework Analysis approach developed by Ritchie and Spencer (1994). At the first stage of familiarisation, the research team read through the data set and noted down key ideas and differences in participant statements which guided us on how to code the data. We then developed a thematic framework and coded the data to identify key ideas and discussion points within the data set. We followed this with the critical components of our study, which focused on sources of evidence use, the relevance of evidence-informed practice, expertise in using evidence and the challenges and support to develop categories and emergent themes.

At the indexing stage, we created a list of all our codes and clustered them into common categories with labels. Further into the analysis, we chart the data by reorganising the categories to create thematic groups that represent an orderly presentation of the findings with direct quotes from the data that connect to the themes. At the final stage of the analysis, we utilised the research questions to guide our interpretation of the themes.

Findings

This study aimed to explore inclusive early childhood teachers' understanding of evidence-informed practice, the sources of evidence they often use in their professional practice, the benefits of evidence, their expertise in analysing and using evidence, and the factors supporting or inhibiting evidence use in their professional practice. Generally, the results suggested that using evidence from academic journals among the teachers was minimal to non-

use. In addition, teachers expressed various difficulties associated with evidence-informed teaching.

Understanding of Evidence-informed Practice

Participants provided different understandings of evidence-informed practice and largely attributed the value of research evidence to educational efficiency. Sixteen out of the 26 (61.5%) participants conceptualised evidence-informed practice as “applying trusted documents in teaching to make it effective.” Although the participants mentioned trusted documents in their definition of evidence, the sources they often selected as evidence to inform their professional practice were mostly from websites. Eight participants (30.8%) believed evidence-informed practice was “using reading materials which can help them become better teachers.” Other participants, 13(50%), explained the value of evidence-informed practice as “using a collection of facts that support an effective practice in education.” In addition, 23(88%) referred to evidence-informed practice as using resources “that can be proven in education.”

All the participants attributed great value to evidence-informed teaching and learning. They believed that the use of evidence is beneficial for children with disabilities as it helped them to address some pedagogical challenges. For example, participants in Group 1 explained: “If we do not know how to manage the behaviour of children with autism, we search the information in research and then follow the strategy.” Fourteen teachers representing 53.8% of the participants, indicated that evidence enabled them to “know if what we do in our class is right or wrong.” Four teachers (15.4%) explained that evidence helped them to “identify the teaching strategies that worked for different students.” Furthermore, the value of evidence use was associated with teacher improvement and effectiveness, as explained in one group: “When we are reading research papers, then we are improving ourselves as a teacher” (Group 3).

Evidence-informed Sources that Support Teachers’ Practice

Teachers were asked if they used any forms of evidence in the previous year to inform their professional practice. All the participants said they used different forms of documents and sources of information in their professional practice. Table 1 shows the forms of documents and sources of information often utilised by teachers.

Source of evidence	Number of participants
Curriculum documents	26
Internet & websites	26
Multimedia: YouTube, video	26
School policy documents	21
Scholarly journal publications	3
Mass media: radio, tv	26
Inservice training & workshops	26
Professional conferences	2

Table 1: Forms of documents and sources of information used in the past year by teachers.

Table 1 indicates that the most common sources of information were curriculum documents, the internet and websites, multimedia resources such as YouTube and videos, radio

and tv programs, school policy documents and attending inservice training workshops. The least sources were professional journal publications 3 (11.5%) and professional conferences 2(7.8%) in the previous year. Teachers claimed they used non-scholarly sources often because they were easily accessible and easy to understand.

We often use Google if we need some information on planning. If we want anything on how to manage difficult children, we just google it; it is easy and convenient for us (Group 2).

Further, 14 participants in our study preferred using YouTube videos to other sources of evidence to inform their professional practice. Critical statements about these include:

Videos on existing classes give us many strategies we can use. We observe how the teachers are going about their work in the class, organisation of lessons and questioning skills help us to plan similar activities (Group 1).

Other participants noted, “we have learnt a lot from teaching videos which we applied to our teaching” (Group 3). Moreover, the same group members said they did not utilise research articles or journal publications in their professional practice. Instead, they relied on the "curriculum and textbooks to plan their lesson notes on what to teach" (Group 3).

Teachers' Expertise in Analysing and Using Evidence

The findings indicate that teachers' formal research literacy is low. For example, teachers discussed needing to learn how to analyse evidence in academic journal papers involving intervention studies to design teaching and develop their practice.

Participants explained this clearly, stating:

We were not taught how to analyse journal papers or use research in teaching. We learnt observation skills and documentation because these form important areas in early childhood practice, but how to use research, notably to support children with disability, we apply the curriculum guides (Group 1).

Checking the quality and relevance of evidence was also tricky for the teachers. In addition, the teachers discussed their expertise in using the Internet to source materials. YouTube videos and other teaching resources were often sourced to help them plan for their teaching. However, they rarely referred to academic sources because they were written in technical language that they found challenging to analyse, understand and use. They pointed out that scientific journals and intervention studies require research skills. Unfortunately, they were not involved in any formal collaborative school-based research where they could have the opportunity to collect data, assess teaching issues against the data, evaluate the findings, and then apply these to their teaching.

We depend primarily on what we learned at university, but research skills training and application in the classroom were not part of the course. We learned about child development and how to observe children and document these purposefully, then communicate this in our reporting to parents and principals on how each child performs (Group 2).

We know how to observe the children in our class. We document and report on performance and behaviours to parents. We also report on their performance annually as a school report. Nevertheless, we need help to use research to address their learning and behaviour problems (Group 3).

Observations and documentations are part of a research process, but because these were not formalised, the teachers perceived these as routine practices. Instead of using documentation and observation as routine practices, these teachers need support to extend their research skills and use observation and documentation to identify if teaching in a specific way will raise the learning and development profiles of students with diverse needs in their class. Indeed, the most challenging expertise gap identified by the teachers is understanding the range of relevant research and ways for judging valid, reliable and relevant research evidence from irrelevant and unreliable research.

Challenges to Participants' Evidence use

The participants commented on several issues related to evidence-informed practice. They mentioned, among other things, the need for more access to evidence, such as journal articles, because of high subscription costs and lack of training in analysing journal papers and extracting relevant information for use. Participants expressed their challenges as follows:

Research is necessary, but we have yet to use journal articles to gain expertise.

We can read, but we need help understanding many things that the researcher is saying. The academic language is too complicated, and we need support we can put in place to try and assist us and things like that (Group 2).

In addition, none of the early childhood educational settings where the teachers worked subscribed to scholarly journals. Consequently, it took much work for these teachers to access non-open peer-reviewed publications on educational and intervention practices. Some participants noted:

Even if we wanted to read journal articles on disability issues, they are not readily available...we cannot use our money to pay for journal papers (Group 1).

Moreover, participants mentioned financial costs associated with Internet resources.

Internet is expensive; the good journals are also not free; Our school should support us to access research and teaching videos free of charge (Group 3).

Other teachers noted that they were discouraged from using published articles because they were not trained to analyse research in journal articles.

We do not have any passion for journal articles; they are too difficult to read and too long. We mainly use online videos (Group 2).

Besides, teachers stated a need for more support from the school leadership team as an impediment to using scholarly sources in their teaching.

We do not have time to engage with our colleagues in discussing research in the schools...we are always busy with documentation, and there is no research hour on the timetable (Group 1).

In addition, the participants claimed that their schools did not value or have time for research. Instead, the focus was on lesson planning for children's learning.

The word research is hardly mentioned in our school. We focused on writing lesson notes for inspection based on the curriculum, policy, and what we were asked to teach (Group 1).

Eight participants also mentioned a "lack of school management interest in research-informed practice" (Group 3) as the cause of the non-use of journal articles in their practice.

Discussion

This study explored Thai inclusive early childhood teachers' value for research-informed practice. It identified how they source and use evidence to inform their daily professional practice and the challenges these teachers face in embedding research in teaching in their schools. The findings of this research on evidence-informed practice enabled us to draw different implications and conclusions. To some extent, the findings reflected previous research that showed how teachers' ability to use research evidence in practice is facilitated through ongoing research training and support (Brown et al., 2022; Brown & Zhang, 2016; Cordingley, 2008). Teachers who participated in this study valued research, but the sources of evidence they used often needed to be from trusted sources. This finding is critically important because some students in early childhood inclusive programs have complex developmental and learning needs that require early interventions and support. Effective early intervention strategies are often published in high-quality journals, which may not be accessible to these teachers. Research accessibility and use also depend on research skills for teachers to harness the full potential of research-informed teaching (Cordingley, 2008) in their early childhood programs.

The findings reinforce the Cognitive Apprenticeship Theory (CAT), which provides the lens for understanding how a complex process, such as embedding research evidence in teaching and learning, can be attained through learner and expert ongoing interaction that enriches cognitive development (Long et al., 2016). An essential finding concerning CAT is teachers' difficulty accessing journal articles because they lacked the expertise to analyse academic journal articles and apply relevant information from these papers in their practice. The findings suggest that teachers were not actively involved in the research, demonstrating a unidirectional export model in which academic researchers conduct research on schools without recourse to how this research may benefit the schools from where the data were collected. For teachers to develop expertise and use rigorous intervention studies to achieve impactful inclusive education outcomes for students with complex needs, they must be mentored and scaffolded in research skills development (Long et al., 2016). This means their involvement in observation, modelling, ongoing reflection and full participation is needed (Dennen & Burner, 2008). Furthermore, the Cognitive Apprenticeship Theory reinforces the idea of teachers' involvement in school-based action research, lesson study or collaborative professional inquiry leading to the co-construction of knowledge and acquiring skills that help them to develop their professional practice further (Collins et al., 1991; Donohoo, 2013).

Inclusive education thrives on ongoing support (Stephenson et al., 2022), and research is a valuable source for pedagogical innovation. This means that a lack of research-informed practice can seriously affect students, particularly those with complex developmental and learning needs and disabilities, in inclusive programs. If we expect teachers to use research in their practice, a newly envisioned approach to scholarship that involves teachers in knowledge development and shared meaning-making should be cultivated (Dennen & Burner, 2008). Mincu (2014) and Greany (2015) claimed that using research evidence in education is a complicated process that produces divergent views and practices among researchers and educators. Teachers' understanding that evidence-informed practice is valuable for school effectiveness is an important finding because this value when supported, is likely to increase the use of evidence in improving practice (Nelson & O'Beirne, 2014).

The focus on challenges teachers faced in using research evidence in their practice in this article shed some light on the lack of supporting structures for the teachers. Teachers discussed

the constraints of time and work overload as contextual and organisational factors inhibiting research evidence use in their professional practice. Campbell (2016) advises that teachers need time and organisational support to develop and mobilise knowledge for use in practice. Finally, the findings indicate that teachers need a deeper understanding of research evidence and its use. According to Demski et al. (2012), evidence is developed through a systematic and objective process that provides explicit information that can be applied to school effectiveness. However, more than understanding the importance of evidence alone is required. Teachers need to be trained to distinguish quality evidence from other sources of evidence and ways to analyse and apply evidence to develop their practice (Wentworth et al., 2017). This approach is endorsed by the Cognitive Apprenticeship Theory, where experts train novice teachers to bridge research and practice. Based on this theoretical perspective, it can be argued that the ability of teachers to use evidence effectively depends on upskilling them with cognitive resources that enable them to evaluate, critique, implement and adapt evidence in a relational context (Brown & Rogers, 2015; Sharples, 2013). Arguably, Nelson and Campbell (2017) stated, "Evidence needs to be planted in 'fertile ground' if it is to take root and grow." (p. 127). This means there is a need to build a culture of evidence-informed practice in early childhood inclusive schools and to develop teachers' skills in evaluating the evidence's reliability before using it in their teaching. As indicated by participants in this study, the lack of skills to analyse research papers resonates with existing studies which found less use of scholarly sources and more use of non-scholarly sources in evidence-informed practices because of the lack of research expertise (Dormann et al., 2016; Nelson & Campbell, 2017).

This study identified some vital implications for practice. First is cultivating teachers' evidence-informed practice mindset and expertise in using evidence. According to Sharples (2013), this approach "is not 'cookbook' teaching or policing, nor should it be about prescribing what goes on from a position of unchallenged authority. It is about integrating professional expertise with the best external evidence from research to improve the quality of practice" (p. 7). This reiterates the complexity of evidence use in education and raises the need for teacher education institutions to develop early childhood educators' skills for evidence gathering, analysis and application to teaching and intervention, particularly for students with special education needs and disabilities. Previous studies equally identified that in-service professional learning on research-informed teaching could help teachers minimise their daily challenges in accessing and using quality research materials for teaching purposes (Brown & Zhang, 2016).

Second, countering impediments such as the ability to read, understand, extract relevant evidence and apply this to professional practice to improve teaching and learning do not come automatically to teachers (Brown et al., 2022; Wentworth et al., 2017). Instead, teacher educators need to start by building teachers' intellectual and professional capabilities in sourcing and analysing different forms of evidence and determining their relevance to their specific context of practice (Campbell, 2016; Dormann et al., 2016). By implication, providing opportunities for teachers to develop profound knowledge for evidence analysis and evaluation through apprenticeship would facilitate using a range of evidence (Lavis et al., 2003; Tseng, 2012). Campbell (2016) reiterates that intellectual and professional judgment is necessary to effectively use evidence in professional practice. This proposition is explained more vividly in the below statement:

Teaching is, by contrast, a practical and interpersonal enterprise. For this reason, practitioners need to connect intellectually, practically and emotionally

with the knowledge they are offered in the research accounts if they are to take it on board and use this to inform their practice” (Cordingley, 2008, p. 37).

Third, the findings reinforce the idea of considering teacher context of practice while urging them to use evidence. This means their needs must be critically considered, and researchers must speak to their specific educational and professional needs through their projects (Brown & Rogers, 2015; Nelson & Campbell, 2017). A practical approach is to involve teachers actively as co-researchers and knowledge co-constructors by working together on projects that involve challenges that the schools and teachers want to address in their inclusive schools (Brown et al., 2022; Greany, 2015). In Conaway’s (2020) view, “if we want research to matter...we need to devote resources to building relationships and strengthening organisational practices, in service of building organisations that learn” (p. 2). In this regard, it is essential to develop schools into a community of learners and support them with ongoing learning tools to enhance all students' educational achievements.

Fourth, as the results identified that evidence use is complicated and time-consuming, school leaders can support teachers by setting aside specific times to discuss school problems and analyse research findings relevant to their practice context (Wilcox et al., 2021). To overcome the issue of subscription costs, early childhood educational settings would need to foster collaborative school clusters or teams and collectively subscribe to and share scholarly inclusive education journal articles and intervention studies. This is particularly important for supporting the learning needs of students with disabilities in inclusive early childhood settings.

Conclusion

The study’s findings are limited to a few female teachers’ views from selected early childhood educational settings; hence, the data does not represent Thailand's Early childhood teacher population. Despite these limitations, the results indicate that teachers valued research and needed support to continue to use research to inform their daily teaching practice. Our conclusion is in line with Nairz-Wirth and Feldmann’s (2019) statement that the act of embedding evidence in education is to turn the “field of traditional teaching... into a field of new professional teaching” (p. 796). Professional practice is not merely a set of competence but how teachers apply logic to research and translate this evidence to transform practices. For inclusive education to meet its obligation, research evidence in teaching and learning must be cultivated as a culture of ongoing school improvement in teacher professionalism (Davari-Torshizi, 2020). Professional practice without evidence can lead to pedagogical practices that are based on experience, opinion and traditions that may exclude some students from full participation and learning (Brown et al., 2022). Given this premise, teachers need ongoing support and mindsets that value research-informed teaching and knowledge creation (Brown & Rogers, 2015; Wentworth et al., 2017).

There is sufficient evidence suggesting that evidence-informed practices result in teacher autonomy and improved outcomes for students and teachers (Brown et al., 2022; Malin et al., 2020). Teachers in inclusive schools need evidence to transform learning for their most vulnerable student populations (Brown et al., 2022; United Nations, 2017). Thus, teachers' ability to analyse and judge what evidence to use in their contexts is critically essential.

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Conflict of interest statement

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