



Barriers to Parental Support:
Understanding Low-income (LIC) Thai Parents' drawbacks
in supporting children's home- based digital learning.

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Abstract

This study examines barriers to parental involvement (PI) in children's home-based digital learning among low-income Thai families, utilising the Hoover-Dempsey and Sandler (1995) model (HDS). Through qualitative interviews and practical tasks with 12 parents, the research reveals that parents primarily view their roles as digital guardians, focusing on online safety rather than active learning support. Key barriers include limited computer access, time constraints, and language difficulties, particularly with English interfaces. Despite these challenges, parents express a strong desire for support, contingent on practical considerations. The findings contribute to understanding PI in digital learning contexts and the evolving digital divide (Dijk, 2020). Implications include the need for targeted digital literacy programs, language-inclusive tools, and community-based support systems, emphasising the importance of addressing socioeconomic and cultural factors in enhancing parental involvement in digital education.

Keywords: Parental Involvement, Digital Learning at home, Low-income parents, The Hoover-Dempsey Model (HDS), The Digital Divide

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Chapter 1 Introduction

The COVID-19 pandemic has catalysed an unprecedented global transformation in education, precipitating an abrupt shift from traditional classroom learning to digital and remote formats (Williamson et al., 2020). While the acute phase of the pandemic has subsided, society has been compelled to adapt to a "new normal" that demands digital citizenship and technological proficiency (Bozkurt & Sharma, 2020). This rapid transition has exposed and exacerbated existing educational inequalities, particularly affecting low-income families (Easterbrook et al., 2022).

As the educational landscape continues to evolve, several areas warrant further exploration and study. Of particular concern is the role of low-income parents, who are crucial in supporting their children's education during these challenging times (OECD, 2020). Despite their importance, these parents often face significant barriers in fully engaging with their children's home-based digital learning (Molla et al., 2023). This study aims to examine the multifaceted factors that impede low-income parents from fully participating in their children's digital education. This research seeks to uncover the complex interplay of socioeconomic, technological, and cultural factors that shape parental involvement in the digital age.

To frame this investigation, the Hoover-Dempsey and Sandler (HDS) model of parental involvement is employed (Hoover-Dempsey et al., 1995). This well-established theoretical framework serves as an analytical lens, offering unique insights into the current landscape of parental engagement in education. By applying this model to the context of digital learning in low-income Thai families, the study aims to contribute to a more nuanced understanding of parental involvement in the face of rapid technological change and socioeconomic challenges and to inform policymakers, educators, and community leaders in developing targeted strategies to support low-income families in navigating the increasingly digital educational landscape.

Chapter 2 Literature review

Introduction

The literature review begins with a comprehensive overview of Thailand's digital empowerment, national ambitions and the challenges of inclusivity. This section paints a vivid picture of the current movements and goals, providing readers with a solid foundation to understand the context of the research.

Following this, the focus shifts to an in-depth exploration of the Digital Divide (Dijk, 2020). Recent statistics on accessibility and digital literacy among Thai citizens are examined, shedding light on the existing disparities. This analysis highlights critical gaps that demand further investigation, illustrating the complexities of digital inclusion in Thailand, especially Low-income families. The review then delves into previous studies and relevant evidence in Parental Involvement (PI) and digital home-based learning. By synthesising existing research and identifying gaps in our understanding, this review seeks to contribute to the ongoing discourse on educational equity in the digital age.

National Ambitions and the Challenges of Inclusivity

The global shift towards digital learning has not only transformed educational practices but has also prompted nations worldwide to develop strategies that prepare their populations for an increasingly digital future. As countries recognise the need to adapt to this changing landscape, many have implemented policies and initiatives to foster digital literacy and cultivate a workforce equipped for the challenges of the digital age (Suratno et al., 2024). Thailand's approach to stepping up digital manpower serves as a compelling example of how nations are responding to these global trends while addressing their specific developmental goals.

Thailand has set an ambitious goal to achieve high-income country status and reduce inequality by 2036, as outlined in its national strategic plan (DEPA, 2020). To support this vision, the Ministry of Digital Economy and Society has developed comprehensive digital economy and society development plans, comprising four strategies and ten programs (see Appendix A). Of particular relevance to this study is the first strategy, which focuses on human readiness development. This strategy aims to cultivate 500,000 digital professionals and raise digital awareness among 30 million Thai citizens through two key programs: 1. Digital and innovation manpower support (Digital Manpower) 2. General digital skills support for all citizens (Digital Citizen)

To actualise these objectives, Thailand has implemented various action steps. A notable initiative is the assessment of citizens' foundational digital literacy skills. This evaluation is conducted through a multiple-choice Digital Literacy Assessment (see Appendix B), developed by Thailand Digital Economy Promotion Agency (DEPA, 2020). The assessment is part of a broader framework for analysing and developing basic digital literacy skills across the population. This strategic approach reinforces Thailand's commitment to bridging the digital divide and preparing its workforce for the challenges and opportunities of the digital age. By focusing on both specialised digital professionals and general digital literacy, Thailand aims to create a comprehensive ecosystem that supports its transition to a high-income, digitally empowered society (DEPA, 2020).

However, the ministry and key stakeholders responsible for fostering and monitoring digital citizenship have primarily focused on digital literacy at the national level, relying on big data and large sample sizes. High-level policies that rely on aggregated data risk neglecting the unique challenges faced by marginalized groups, potentially widening the gap in digital access and competency (Campos-Castillo & Mayberry, 2022; Otaokpukpu, 2024). Disadvantaged populations, particularly those with lower socioeconomic status and educational attainment, often encounter obstacles such as limited internet connectivity, technological discomfort, and

concerns about online privacy (Campos-Castillo & Mayberry, 2022). The persistence of the digital divide is evident, with vulnerable individuals lacking fundamental digital skills and access to essential technologies like smartphones or internet services (Aranda Jan & Qasim, 2023). To create effective digital literacy initiatives, it is crucial to implement targeted strategies that address infrastructure limitations, provide specialized training, and offer support at the family level (Choudhary & Bansal, 2022). Therefore, this necessitates a closer examination of underserved communities, particularly low-income individuals, to design policies that effectively serve populations from diverse socioeconomic backgrounds.

The Digital Divide

“A common misconception is that the problem of the digital divide has been solved because almost everybody in the developed world is assumed to have some kind of computer, smartphone and Internet connection.” (Dijk, 2020, p. 47)

Nonetheless, the rapid pace of the digital revolution has left many individuals behind, particularly in developing countries, exacerbating the digital divide (Dijk, 2020). A recent survey from National Statistical Office, Ministry of Digital Economy and Society in Thailand (2024) conducted on approximately 65.9 million individuals aged six and older in Thailand revealed that 59.0 million people (89.5%) use the internet, 62.9 million people (95.4%) use mobile phones, and 58.1 million people (88.1%) own mobile phones. When surveyed by region, it was found that internet usage in the central region from 2023 (Q1) to 2024 (Q1) reached an impressive 91.5%.

While these figures appear encouraging at first glance, they mask the complexity of the digital divide. High rates of device ownership and internet access do not necessarily translate to effective digital engagement or proficiency. It is fundamental to examine the whole spectrum of digital involvement, including the quality of access, the diversity of online activities, and the level of digital skills among users. This more nuanced approach reveals that despite widespread

access, significant disparities may still exist in how effectively different segments of the population can leverage digital technologies for education, economic opportunities, and social participation (Oshionebo, 2023).

In light of this, the concept of the digital divide has evolved to provide a refined structure for examining the complex interplay between skills and access (Ali & Faroque, 2023). While the term is often broadly defined as "a division between people who have access and use of digital media and those who do not" (Dijk, 2020, p. 1), this definition falls short of fully capturing the spectrum of digital engagement in contemporary society. As our understanding of digital inequality has deepened, it has become clear that the divide is not a simple binary between the "haves" and "have-nots." Instead, it represents a continuum of digital engagement that reflects the multifaceted social, economic, and cultural variations within populations (Dijk, 2020). At one end of this spectrum lies the "information elite," individuals with advanced digital skills and unrestricted access to technology. At the other end are those who are digitally illiterate or entirely excluded from the digital realm. Between these extremes, however, exists a diverse majority of the population, each with varying degrees of access to and proficiency with digital technologies. This more granular understanding of the digital divide, as proposed by Van Dijk (2000 & 2012), acknowledges that most individuals fall somewhere along this continuum, rather than at its extremes.

The aforementioned Digital Literacy Assessment developed by Thailand Digital Economy Promotion Agency and the Office of the National Digital Economy and Society Commission among low-income individuals in Thailand has revealed significant insights into the current state of digital competencies within this demographic (ONED,2023). The assessment provides a detailed map of where these individuals stand on the spectrum of the digital divide. Overall, participants achieved an average score of 71.2 points across all competencies, which is categorised as "Good" according to the assessment criteria (See Appendix C).

A closer examination of specific competencies reveals both strengths and areas for improvement. Notably, participants demonstrated a strong grasp of "Definition" concepts, scoring an impressive average of 81.5 points in this area. This suggests a solid foundational understanding of digital terminology and concepts among the low-income population. Conversely, "Digital Access" was identified as the competency presenting the greatest challenge, with an average score of 69.3 points. While still within the "Good" range, this lower score indicates that issues related to accessing digital technologies and the internet may be a significant barrier for some low-income individuals (See Appendix C).

The overview of Thailand's national policy and the digital divide underscores a critical gap between broad policy objectives and the nuanced realities faced by diverse socioeconomic groups. While Thailand has made significant strides in digital access, with high rates of internet and mobile phone usage nationwide, the Digital Literacy Assessment reveals a more complex picture, particularly among low-income individuals.

The disconnect between national-level data and the lived experiences of low-income families underscores the importance of in-depth, qualitative research to understand the multifaceted barriers these parents face (Joseph & Whelan, 2023). Such barriers may include not only issues of access but also challenges related to digital skills, time constraints, and the complexities of balancing work and educational support. By focusing on this demographic, policymakers and educators can develop more targeted and effective strategies to bridge the digital divide, ensuring that the benefits of digital learning reach all segments of society, regardless of socioeconomic status.

This research gap presents an opportunity to inform policy refinements that can more effectively support low-income parents in their critical role as facilitators of their children's digital education. Addressing these barriers is not just a matter of educational equity but also a crucial step in realising Thailand's broader ambitions for digital readiness and socioeconomic development.

A brief history of Digital learning

E-learning, or digital learning, is a contemporary educational method shaped by online platforms and digital technologies (Alkawasbeh et al., 2024; Jayanthi et al., 2023; Sathish, 2023). The landscape of digital education has undergone substantial transformation, progressing from experimental online educational ventures to become a core component shaping educational practices worldwide (Panbuselvan, 2024). E-learning's evolution can be categorised into two distinct phases: before and after the COVID-19 pandemic. The global health crisis served as a catalyst, rapidly accelerating the adoption and integration of digital learning methods across educational institutions around the world (Pan & Ibrahim, 2023).

Correspondingly, the educational landscape in Thailand has undergone a dramatic shift towards digital learning, a process significantly accelerated by the COVID-19 pandemic. This global health crisis necessitated a rapid transition to online education platforms. Recent studies have emphasised the pivotal role of digital learning integration in this new educational paradigm. The successful implementation of these digital strategies hinges on several critical factors, including comprehensive education policies, adept online classroom management, sophisticated learning systems, and effective training approaches (Songkram et al., 2023). Digital learning has become increasingly important, particularly during the COVID-19 pandemic, as an alternative to traditional learning approaches, providing greater flexibility and accessibility in education (Angwaomaodoko, 2024).

This change represents a significant departure from conventional classroom environments and has expanded the availability of educational resources to a broader audience (Gupta, 2023). It incorporates various tech tools to enhance teaching techniques, creating a more conducive engaging and dynamic learning environment, which ultimately improves educational quality (Adithya et al., 2023; Mossaab & Walid, 2024; Sathish, 2023).

By utilising digital resources, educators can effectively manage language teaching components and activate students' cognitive skills, leading to increased motivation for learning and a variety of teaching methods (Osipov et al., 2022; Srideviponmalar et al., 2023). This shift towards digital learning not only benefits students by providing remote access to education but also allows working professionals to update their skills and knowledge, making education more accessible and effective (Jayanthi et al., 2023; Tejasvee et al., 2021).

Home-based digital learning and parents' roles

The COVID-19 pandemic has profoundly reshaped the educational landscape, catalysing a widespread adoption of digital technologies in both school and home-based learning environments (Williamson et al., 2020). This unprecedented global crisis has accelerated the integration of technology into education, fundamentally altering traditional teaching and learning paradigms (Bozkurt & Sharma, 2020). The rapid shift to remote and hybrid learning models necessitated by pandemic-related school closures has led to an increased reliance on digital platforms, online resources, and virtual communication tools (Hodges et al., 2020). This transformation has not only affected classroom instruction but has also significantly impacted home-based learning, requiring parents and caregivers to take on more active roles in facilitating their children's education through digital means.

"What matters most to a child's life chances is not the wealth of their upbringing, but the warmth of their parenting" (David Cameron, Prime Minister 2010–2016, speech to Demos, January 2010).

This statement stresses the critical role parents play in their children's education, a role that has evolved significantly in recent years. The changing educational landscape has necessitated a shift in how schools perceive the role of parents and families. Rather than viewing them as external entities, educational institutions should recognise parents as integral collaborators in

the learning process (Beycioglu et al., 2013). This paradigm shift has elevated Parental involvement (PI) to a key concept in educational discourse.

Parents now functioning as both caregivers and "surrogate teachers" to support their children's education at home (Flores et al., 2021; Garbe et al., 2020). This new dynamic has necessitated parents to engage in various forms of digital labour, including providing technical support, managing homework submissions, and maintaining communication with teachers (Apdillah et al., 2022; Chen et al., 2023). Even as schools have reopened and students have returned to the familiar routines of classroom learning, the importance of PI in digital education remains paramount (Arbuliente, 2024).

As digital tools continue to evolve and integrate more deeply into educational practices, the collaborative effort between schools and families becomes increasingly vital. Parents, with their unique understanding of their children's needs and learning styles, are ideally positioned to complement and reinforce the digital learning initiatives introduced in schools (Gonzalez-DeHass et al., 2022). Amelia et al., (2023) asserts that PI in digital learning not only supports academic achievement but also helps prepare children for a future where digital literacy is as fundamental as traditional reading and writing skills. It is a journey of continuous learning and adaptation, where parents and children often find themselves growing and discovering together in the ever-expanding digital landscape of education.

In Thailand's southern border provinces, PI has expanded to encompass home-based learning, school collaboration, and community engagement, all crucial for developing children's cognitive and learning abilities (Assalihee et al., 2018). Mothers, in particular, often bear the primary responsibility for guiding and assisting children during online learning sessions. The effectiveness of this support is influenced by factors such as the mother's knowledge, socioeconomic status, and educational background (Nurbayani et al., 2022).

Critiques/Concerns of parental involvement in home-based digital learning

The transition to home-based digital learning has placed significant pressure on parents, who find themselves juggling the roles of caregiver and educator, often leading to increased stress and workload (Gonzalez-DeHass et al., 2022). This challenge is exacerbated by parents' lack of formal pedagogical training, making it difficult for them to provide educational support comparable to that of professional teachers (Budiningsih & Abdulrahman, 2022). While digital tools offer potential for enhanced communication and learning opportunities, many parents struggle with technological confidence, which can impede their ability to effectively facilitate their children's education (Gonzalez-DeHass et al., 2022). The sudden and often involuntary shift to home-based learning during the pandemic has resulted in decreased satisfaction with digital learning and less positive perceptions of children's academic progress, despite heightened PI (So et al., 2022).

Home-based learning also requires parents to foster self-directed learning skills in their children, providing necessary support and resources to encourage independence and academic self-regulation (Cook, 2020). However, parents from disadvantaged socioeconomic backgrounds face significant barriers, including financial hardship, limited technological resources, and inadequate internet access, which can impede their ability to support their children's learning effectively (Easterbrook et al., 2022; Molla et al., 2023). Parents' educational attainment and occupation significantly influence their level of home-based involvement, with those having higher educational backgrounds being more capable of providing effective support (Arbuliente, 2024).

The digital divide further exacerbates educational inequalities, as parents with limited digital skills or access to technology struggle to support their children's learning effectively (Qualter, 2024; Easterbrook et al., 2022). The enthusiasm of parents, especially those from lower socioeconomic backgrounds, plays a crucial role in the success of home-based learning. Despite the aforementioned challenges, many parents from disadvantaged backgrounds exhibit high

levels of enthusiasm and commitment to their children's education. Research indicates that parents in Thailand, similar to other Asian countries, place a high value on their children's education and strive to support their academic success, even when economically disadvantaged (Yotanyamaneewong & Tapanya, 2019).

These issues highlight the necessity for educational institutions and policymakers to acknowledge the varied experiences and obstacles encountered by parents in the digital learning environment. It is crucial to develop strategies that promote equitable and effective PI in their children's education (Budiningsih & Abdulrahman, 2022; Chen et al., 2023; Gonzalez-DeHass et al., 2022; Hou et al., 2024; Jeffery, 2022; Qualter, 2024; Triutami & Muljani, 2021; Zedan, 2024). By addressing these challenges and leveraging the inherent enthusiasm of parents, particularly those from lower socioeconomic backgrounds, we can improve the effectiveness of home-based digital learning and mitigate the educational disparities exacerbated by the pandemic (Easterbrook et al., 2022).

Previous studies on parental involvement

Parental involvement (PI), a cornerstone of effective education across all developmental stages, encompasses the diverse ways in which parents actively engage with and contribute to their children's educational experiences (Epstein, 2001; Hill & Tyson, 2009; Hornby, 2000, 2011; Jeynes, 2005, 2007; Wilder, 2014). Hornby and Lafaele (2011) proposed a comprehensive four-area model to elucidate barriers to PI. The model examines (1.) parent and family factors, including beliefs about PI, life contexts, perceptions of involvement invitations, and demographic characteristics; (2.) child factors, such as age, learning abilities, talents, and behavioural issues; (3.) parent-teacher factors, focusing on differing agendas, attitudes, and communication; and (4.) societal factors, encompassing historical, demographic, political, and economic issues. This framework aims to bridge the gap between PI rhetoric and reality, serving as a resource for training education professionals. While offering valuable insights, the model is primarily theoretical rather than empirically validated.

Recognising this limitation, Hornby and Blackwell (2018) conducted a follow-up study to produce a snapshot of current policies and practices of PI in primary schools in the UK. Semi-structured interviews with headteachers or their delegates were conducted at schools. The interviews included six major questions with follow-up prompts. The findings reveal the critical role of PI in optimising children's educational experiences. Most schools in the survey acknowledged that PI has become an indispensable aspect of their educational approach, rather than an optional extra. They recognise it as a fundamental element they must prioritise to ensure the best possible outcomes for their students. As education increasingly incorporates digital technologies, the concept of PI has expanded to include support for digital learning. In this context, Parental Involvement (PI) refers to how parents facilitate and participate in their children's technology-enhanced educational journey at home, including supporting online learning sessions, assisting with digital homework completion, and utilising various digital tools for educational purposes (Hornby & Blackwell, 2018).

The significance of PI in digital learning has been further emphasised by recent global events. Research by the OECD (2020) highlights the crucial role parents play in home-based education, particularly in guiding curriculum adherence and providing emotional support to maintain motivation and aspiration. This involvement becomes especially vital in environments where children may struggle with self-directed learning due to the absence of peer interaction. Active parental engagement can help the challenges associated with online learning, fostering independent and proactive learning behaviours. Moreover, parents serve as essential intermediaries in developing their children's digital literacy and citizenship. They play a key role in preparing children to navigate, understand, and contribute to our networked society, helping them develop healthy and productive digital habits (Nababan et al., 2023)

However, while the importance of PI is widely recognised, it is equally significant to acknowledge the challenges parents face in providing effective support, particularly in digital learning contexts. A study by Flores et al. (2021) explored the experiences of parents, students, and teachers during distance learning amidst the COVID-19 pandemic, focusing on the digital challenges encountered by Thai parents and foreign teachers. The study, which employed a

qualitative approach with purposive sampling, involved 70 Primary Thai parents and 63 foreign teachers. Data collection was conducted through Google Forms and online interviews, covering aspects such as parental interaction frequency, device usage, and technical problems encountered during online learning.

The findings of Flores et al. (2021) highlighted specific areas of difficulty in digital technology use for both Thai parents and foreign teachers during online learning. These challenges underlined the need for enhanced technological mastery among parents and identified areas requiring support to enable successful online learning facilitation. The study emphasised that providing adequate tools and resources is pivotal in empowering parents to effectively use digital technologies in supporting their children's online learning.

Further expanding on this area of research, Gonzalez-DeHass et al. (2022) adapted the Hoover-Dempsey et al. (2005) model to examine parents' role construction and efficacy in the context of digital learning spaces. They highlighted the need for future research to test this model in relation to digital learning, particularly in understanding what meaningful digital at-home learning practices look like and how to build parental efficacy in using technology to support students' learning.

Attempts to assess parental self-efficacy in the digital age

In recent years, numerous studies have employed self-constructed scales to assess parental self-efficacy in the digital age. Self-efficacy is a psychological concept that describes an individual's belief in their capacity to execute behaviours necessary to produce specific performance attainments (Bandura, 1997). It reflects a person's confidence in their ability to exert control over their own motivation, behaviour, and social environment. Jones and Prinz (2005) emphasise that self-efficacy significantly influences an individual's perseverance in pursuing goals. Those with high self-efficacy are more likely to sustain their efforts despite encountering difficulties, whereas those with low self-efficacy are prone to giving up when

faced with challenges. These scales invite parents to reflect on their perceived ability to support their children's internet-related activities, offering valuable insights into parents' confidence levels in navigating the digital landscape.

Gruchel et al. (2022) made a significant contribution to this field with their comprehensive study, which explored the intricate relationships between PI and various influencing factors. Their research focused on four key elements: Parental role construction, Self-efficacy, Internet skills, and Parental instruction. By examining these factors, the study aimed to unravel how they collectively shape parents' engagement with their children's online activities. To measure parents' internet skills, Gruchel et al. (2022) adapted the Internet Skill Scale, concentrating on three critical dimensions: (1.) Operational skills: Basic internet operations (2.) Navigation skills: Finding and processing online information (3.) Creative skills: Creating and sharing digital content.

The researchers refined this scale through factor analysis, ensuring its reliability and relevance to the study's objectives. The resulting scales demonstrated robust internal consistency, providing a solid foundation for their findings. A key revelation from the study was the strong correlation between parental self-efficacy and the likelihood of offering guidance in children's internet use. Parents who exhibited high confidence in their own digital abilities were more inclined to actively engage in and guide their children's online activities. This finding underscores the critical role of parental confidence in navigating and understanding digital technologies, highlighting its importance in shaping effective PI in the digital realm.

Shin (2018)'s comprehensive study of parental efficacy and its impact on children's smartphone use employed a multifaceted approach to measure parents' self-perceived competence in two crucial domains: smartphone usage and general parenting skills. This refined methodology allowed for a deeper understanding of how parents' confidence in both technological and parenting realms might influence their approach to mediating their children's digital experiences.

To assess smartphone self-efficacy, the researchers developed a detailed scale that encompassed a wide range of common smartphone activities. Parents were asked to reflect on their confidence levels across eleven different tasks, ranging from basic functions like sending emails to more complex activities such as using location-based services. This comprehensive approach, drawing inspiration from established studies on smartphone usage patterns, provided a holistic view of parents' perceived technological competence.

The findings from these measures lay the groundwork for a deeper exploration of how parents' self-perceived competencies in both technological and parenting domains might shape their strategies for guiding and monitoring their children's smartphone use. This multidimensional approach to understanding parental efficacy offers valuable insights for researchers, educators, and policymakers working to support families in navigating the challenges of raising children in an increasingly digital world.

While scale assessments can provide researchers with insights into parents' self-efficacy and confidence in their digital competencies, alternative approaches may offer additional perspectives. Engaging parents in hands-on, practical tasks could reveal different dimensions of how they perceive their skills and confidence in supporting their children's digital learning. This method might uncover aspects that traditional assessments overlook, providing a more comprehensive understanding of PI in the digital education landscape.

Conclusion

These collective research and findings amplify the critical need for further investigation into the barriers to PI and support in children's at-home digital learning. This need is particularly acute in the context of low-income families in Thailand. Such research is essential to bridge the digital divide and ensure equitable educational opportunities. By focusing on this demographic, we can develop targeted strategies to overcome unique challenges faced by economically disadvantaged parents in supporting their children's digital learning journey. This exploration has the potential to inform policy decisions, improve educational practices, and ultimately enhance learning outcomes for students from diverse socioeconomic backgrounds in the rapidly evolving landscape of digital education.

Chapter 3 Theoretical Framework

The Hoover-Dempsey and Sandler (HDS) model

The evolution of PI in children's education has been significantly influenced by the model developed by Hoover-Dempsey and Sandler in 1995. This groundbreaking framework sought to address a fundamental question: why do parents choose to become involved in their children's education? The model proposed three key factors driving PI (Appendix D).

Firstly, parents develop a personal construction of their parental role, which inherently includes participation in their children's educational journey. This role construction forms the foundation of how parents view their responsibilities in supporting their children's academic growth. Secondly, the model foregrounds the importance of parents developing a positive sense of efficacy in helping their children succeed in school. This belief in their ability to make a difference is crucial in motivating parental engagement. Lastly, the model suggests that various aspects of parents' personal circumstances influence their capacity for involvement. These factors include cultural background, economic status, and parents' self-assessment of their abilities and knowledge.

As education has evolved with the advent of digital technologies, so too has the landscape of PI. Recognising this shift, Gonzalez-DeHass et al. conducted secondary research in 2022 that examined how the increasing use of digital and online learning tools affects PI. This research acknowledged that parents are increasingly witnessing their children learning through new digital mediums, both for homework and during summer learning periods.

The study by Gonzalez-DeHass et al. (2022) explored several critical aspects of PI in the digital age. Research suggests that parents are more inclined to engage in home-based educational activities when they believe their efforts are significant and will positively impact their children's academic progress. This finding is supported by multiple studies (Bembenutty, 2011; Williams & Williams, 2021; Willems, 2020).

Another crucial aspect examined was parents' sense of digital efficacy. This concept refers to the extent to which parents feel they possess the technical knowledge and skills necessary to assist with their child's at-home learning in digital spaces (Gonzalez-DeHass et al., 2022). This digital efficacy extends the original model's notion of parental efficacy into the realm of technology-based learning.

Furthermore, Gonzalez-DeHass et al.'s (2022) study considered families' concerns with access to digital resources, acknowledging potential disparities in technological access among different families. It also took into account culturally distinct perspectives, recognising that cultural backgrounds may influence how parents engage with digital learning tools.

Employing the HDS model in the present study

This study employs the HDS model, with a key focus on understanding how LIC Thai parents construct their roles within the new educational paradigm. To explore this, semi-structured interviews will be conducted, providing a platform for parents to share their perspectives and experiences. These conversations will offer rich, qualitative data, shedding light on how parents perceive their responsibilities and challenges in supporting their children's digital learning.

Another critical component of the study involves assessing parents' digital efficacy. Recognising that confidence with digital tools is crucial in today's educational landscape, the research design incorporates a practical, hands-on element. Parents will be invited to engage with one of the digital learning tools currently used by students which is Google Docs. This interactive session

will allow researchers to observe firsthand how comfortable and competent parents feel when navigating this digital tool. By doing so, the study aims to identify potential gaps and barriers that may hinder PI in terms of self-efficacy.

Furthermore, the research seeks to identify the specific obstacles that LIC Thai parents encounter in supporting their children's home-based digital education. Through carefully crafted semi-structured interviews, parents will have the opportunity to articulate the challenges they face around socioeconomic status and culture. This approach will help uncover barriers that may be unique to the LIC Thai context, providing valuable insights that can inform targeted interventions and support strategies.

Conclusion

This study builds on the Hoover-Dempsey and Sandler (1995) model to serve as a pillar for my research, offering a robust framework to explore PI. This model provides valuable guidance in shaping the research design and methodology, particularly in the context of examining the barriers faced by LIC Thai parents in supporting their children's at-home digital learning journey. The proposed research approach is designed to delve deep into the nuanced experiences of LIC Thai parents in the evolving landscape of digital education. At its core, the study aims to uncover the intricate dynamics of parental support in an increasingly digital learning environment.

Chapter 4 Methodology

Research Aims and Questions

This section outlines the rationale for the chosen research methodology. It begins by identifying the knowledge gap in existing literature that this study aims to address. Building on this foundation, the study's objectives are established, which in turn inform the specific research questions to be explored.

This study is underpinned by Hoover-Dempsey and Sandler (HDS) model (1995). While previous studies have primarily relied on secondary research to understand barriers and underlying problems, some have employed qualitative methods using different frameworks. Others have utilised scales to assess skills and digital competencies (Gruchel et al.,2022; Hornby & Lafaele ,2011 & 2018; Jones & Prinz, 2005; Shin, 2018). To identify barriers to PI in home-based digital learning, this research aims to understand:

1. LIC Thai parents' construction of their role in their children's digital learning
2. LIC Thai Parents' self-efficacy in supporting digital learning
3. LIC Thai Parents' obstacles related to their life contexts

This study distinguishes itself by using Google Docs as a practical mediator to assess parents' self-efficacy and framing interview questions through the lens of the HDS model.

The identified gaps in the literature review are tackled through three specific research questions:

1. How do LIC Thai parents develop their understanding of what it means to be involved in their children's digital learning?
2. What obstacles do LIC Thai parents encounter when attempting to use features in Google Docs required to support their children's learning?

3. What obstacles in terms of life context do they consider affecting their ability to be involved in their children's digital learning?

The interview questions are formulated based on the HDS model. Firstly, the inquiry aims to delve into the parental beliefs regarding their responsibilities in their children's education and the concept of involvement. This will be complemented by an examination of the evolving learning landscape's impact, particularly in digital learning, on their roles as parents.

Subsequently, parents will be encouraged to engage with a collaborative tool, such as Google Docs, to gain insight into the digital learning experiences of their children. Following this, they will engage in reflective discussions on their self-efficacy, confidence, and the barriers encountered during semi-structured interviews. Finally, an exploration on the influence of life contexts on the degree of PI will be conducted. Not only do these questions inform about obstacles and opportunities among LIC Thai parents, to signal the policymakers and decision-makers, but they will also enhance our understanding of the digital divide and its spectrum to strengthen our viewpoint on the term.

Research design

This section outlines the research paradigm and design, establishing a firm position on how this study approaches data collection and analysis and shapes its understanding of constructed reality (Breakwell, 2023). The research paradigm lays the foundation for fundamental questions about the nature of reality and knowledge which guide the research process, influencing methodology choices and interpretation of findings (Hatch, 2002).

Constructivist

The essence of constructivism lies in the premise that cognitive processes actively participate in knowledge formation. It is widely acknowledged that the acquisition of knowledge is not a passive phenomenon, merely an imprinting of sensory data onto the mind. Rather, it is an

active process wherein the mind engages with and processes these sensory impressions, at minimum forming abstractions or conceptual frameworks (Schwandt, 1994).

In this context, constructivism posits that human beings do not merely discover or uncover pre-existing knowledge, but instead actively construct it. We formulate concepts, models, and schemas as tools to interpret and make sense of our experiences. Our perceptions of reality form as abstract mental frameworks, rooted in personal experiences, and locally contextualised (Guba & Lincoln, 1994). Moreover, these mental constructs are subject to continuous evaluation and modification in light of new experiential data (Hatch, 2002).

This research is founded on the belief that reality is subjective and that individuals construct their own understanding based on their experiences (Creswell & Poth, 2018; Lincoln & Guba, 1985). Central to this study is the aim to understand how low-income (LIC) Thai parents construct their role in their children's digital learning. The research emphasises context-dependent knowledge, seeking to uncover how obstacles and life contexts influence the way LIC Thai parents perceive and form their reality. This approach acknowledges the unique circumstances that shape PI in digital education.

A key principle of this study is the researcher's role as a facilitator, enabling parents to actively participate in meaning-making through experiential learning (Burkholder et al., 2022). To this end, Google Docs serves as a practical mediator, allowing parents to engage directly with digital tools similar to those their children use in learning.

By adopting this approach, the study aims to gain rich, nuanced insights into the lived experiences of LIC Thai parents as they navigate the challenges of supporting their children's digital learning. This methodology aligns with the constructivist paradigm, recognising that knowledge is not simply discovered, but actively constructed through interaction with one's environment and reflection on those experiences (Schwandt, 1994). This framework allows for a deeper exploration of the complex factors influencing PI in digital education, potentially revealing unique perspectives that might be overlooked in more traditional research approaches.

Deductive approach

Deductive research commences with a theory, from which hypotheses are derived and subsequently tested through observations (Haque, 2022). In pre-structured surveys, key topics, dimensions, and categories are defined a priori, and the identification of these elements in the research units is guided by a structured protocol for questioning or observation. The pre-structured approach aims to study a predefined diversity, with descriptive analysis focusing solely on determining which of the predefined characteristics exist empirically in the population under study (Jansen, 2010).

In the context of this research, the deductive approach begins with general, theoretical expectations about low-income (LIC) Thai PI in children's home-based digital learning. From these expectations, concrete hypotheses can be derived, linking relevant variables such as parents' role construction, self-efficacy, and life context (Hoover-Dempsey et al., 1995). The empirical data collected can then be analysed to determine whether it supports these deductive expectations.

This methodological framework allows for a systematic examination of PI in digital learning among LIC Thai families. By starting with established theories and moving towards specific observations, the research can test existing assumptions and potentially uncover new insights into the challenges and opportunities faced by these parents in supporting their children's digital education.

Method

This section outlines the rationale for selecting two primary data collection methods: semi-structured interviews and observational tasks using Google Docs as a mediatory tool. The choice of these methods is grounded in the study's objectives and theoretical framework, aiming to provide a comprehensive understanding of LIC Thai parents' involvement in their children's digital learning. Semi-structured interviews offer a flexible yet focused approach to exploring parents' perspectives, allowing for in-depth probing of their experiences, beliefs, and challenges (See Appendix E). This method aligns well with the constructivist paradigm, enabling participants to articulate their own constructed realities.

The inclusion of Google Docs as a mediatory task for observation serves multiple purposes. It provides a practical context for parents to engage with digital tools similar to those their children use, offering insight into their digital competencies and self-efficacy. This hands-on approach also stimulates reflection and discussion during the interviews, potentially revealing nuances that might not emerge through conversation alone.

Google Documents as a mediator to observe self-efficacy among parents

Google Docs has emerged as a powerful web-based collaborative tool, offering users the ability to create, edit, and share documents in real-time. This free office suite facilitates seamless collaboration and communication among users working on live documents. One of the key advantages of Google Docs is its sharing capability. Users can distribute documents by sending a link via email, eliminating the need to attach large files. This feature ensures that all team members have access to the most current version of the document, with every modification tracked and recorded (Broin & Raftery, 2011; Dekeyser & Watson 2006; Woodard & Babcock, 2014).

Recognising the popularity and suitability of Google Docs in recent digital learning environments, it is intriguing to examine parents' self-efficacy, particularly among low-income families, through a collaborative tool such as Google Docs (Sudrajat & Purnawarman, 2019; Zhou et al., 2012). Since few studies employ Google Docs as a mediator to observe digital efficacy among parents, this study aims to explore parents' natural interaction while navigating Google Docs and identify barriers that may either hinder or enhance their involvement in their children's digital education.

By combining these methods, the study aims to capture both verbal accounts and observed behaviours, enriching the data and allowing for a more nuanced analysis of PI in digital learning. This methodological approach is designed to address the research questions comprehensively, considering both the subjective experiences of parents and their practical engagement with digital learning tools.

Sampling

This study employs a purposive sampling approach to recruit participants who can provide rich, relevant data to address the research questions (Etikan et al., 2016). The target sample size is 12 participants, which is deemed sufficient to obtain a comprehensive understanding of the phenomenon while remaining feasible within the time and resource constraints of a dissertation project. The sampling process begins with a comprehensive distillation of the study's criteria and purpose.

The inclusion criteria are transformed into a visually appealing and easily comprehensible poster designed to engage parents (See Appendix F). The poster serves as the primary recruitment tool, offering a clear and concise overview of the research project. Accompanying this poster are two crucial documents: a detailed information sheet and a consent form (See

Appendix G.1-G.2). This package is then dispatched directly to the principals of the targeted schools, ensuring that the initial point of contact is at the administrative level.

Upon receiving these materials, the school principals delegate the task to teachers, who act as intermediaries in the recruitment process. The teachers disseminate the posters to parents, through established communication channels such as school newsletters and digital platforms. Parents who express interest in participating in the study are asked to provide their contact information to the teachers. This step allows for a preliminary screening process and helps gauge the level of interest among the target population.

Finally, the teachers collate the contact information of interested parents and forward it to the researcher. This method maintains the confidentiality of parents' information until they have indicated their willingness to participate, while also leveraging the existing relationship between schools and parents to facilitate recruitment.

State Welfare Card as a low-income identifier

The primary criterion for identifying low-income parents is their status as state welfare cardholders (See Appendix H). This card is issued as part of Thailand's Pracharat Welfare Project, an initiative designed to support low-income individuals registered with the Ministry of Finance. Parents can use this criterion to self-assess their eligibility. Importantly, neither sensitive personal data nor copies of state welfare cards are collected.

This sampling strategy aims to ensure that participants have the relevant experience and context to provide meaningful insights into PI in digital learning among low-income Thai families. The age range of 22-50 years encompasses parents of secondary school children, while the income criterion ensures a focus on low-income households. Recruitment will be conducted through 3 local schools in Nakhon Pathom, Thailand, with potential participants screened to ensure they meet all criteria before being invited to participate in the study.

Interview

This study employs semi-structured interviews, with main questions framed by the HDS model while allowing room for exploration based on participants' responses. The interview questions (Appendix E) are developed under the HDS model to investigate influences and barriers to PI among low-income Thai parents. Following the Google document tasks, parents are invited to share experiences of their life contexts that may impact their involvement, creating a more flexible interview session built upon prepared questions.

A pilot interview was conducted with colleagues to test for potential obstacles, such as screen-sharing problems and process seamlessness. Issues discovered included text size and potential internet delays. These were addressed by redesigning presentation slides for clarity and providing additional instructions for parents on zooming in and out for a clearer screen view.

Interviews were conducted via the Line video call application, widely adopted among Thai parents. This platform was chosen to avoid burdening parents with learning new tools. Each interview lasted approximately two hours, structured as follows:

1. Explanation of the research and its benefits to participants
2. Discussion of parents' natural interaction with technology, relationship with their children, and their perceived role as parents in the digital era
3. Google document tasks
4. Reflection on their experience with Google Document basic functions, followed by further discussion on barriers and possibilities affecting their PI

The interview structure is thoughtfully designed to optimise data collection while ensuring participant comfort and engagement. It follows a logical progression:

The interview begins with an explanation of the research and its benefits. This approach serves multiple purposes: it establishes trust and rapport with participants, ensures informed consent

and adheres to ethical standards, and motivates participation by highlighting potential benefits. The discussion then moves to natural technology interaction, parent-child relationships, and perceived parental roles in the digital era. This section gathers baseline information on participants' current perspectives and practices, addressing the first research question. It also enhances familiarity with the topics, putting participants at ease, and provides context for subsequent tasks and reflections.

Next, parents are invited to perform 14 Google Docs tasks (See Appendix I). This practical, hands-on component allows for direct observation of participants' skills and challenges and provides concrete experiences for later reflection. Finally, participants are encouraged to reflect on their hands-on experience. This concluding section prompts immediate processing of the practical tasks, allows participants to articulate their thoughts and feelings about the experience, and broadens the connection between practical experience and parental involvement.

This structure progresses from general to specific and back to general, enabling participants to engage gradually with more challenging aspects of the interview. It ensures that practical tasks are contextualised within broader discussions, fostering deeper insights into the barriers and possibilities affecting parental involvement in the digital era. Interviews were recorded from start to finish, with field notes taken to highlight important observations. All data was securely stored in the University's OneDrive.

Data Analysis

The process of transforming raw data into meaningful insights begins with careful transcription and analysis (Braun & Clarke, 2006; Miles et al., 2014). This crucial phase forms the backbone of this research methodology, particularly for approaches that rely heavily on the nuances of language, Thai to English, and interaction, such as discourse, interactions with tasks assigned, and conversation analysis.

At the heart of this process lies the creation of detailed transcripts. These are not mere summaries, but rather faithful renditions of the recorded data (Oliver et al., 2005; Poland, 1995). The act of transcribing is far more than a clerical task; it's a deeply engaging process that immerses the researcher in the data (Lapadat & Lindsay, 1999; Bird, 2005). This immersion allows researchers to develop a deep familiarity with the content, facilitating the identification of emerging themes and nuances in the participants' responses (Tilley, 2003; Halcomb & Davidson, 2006).

As I meticulously convert audio recordings into text, I find myself listening with heightened attention, catching subtle inflexions, pauses, and tonal shifts that might otherwise go unnoticed. Simultaneously, I revisit my field notes, cross-referencing them with the recordings to ensure I capture the full context of each interaction. Gibbs (2018) emphasises the importance of this step, noting that it's not just about creating a record, but about deepening our engagement with the material. Through the act of transcription, I begin to notice patterns, themes, and points of interest that will guide the subsequent analysis.

Transcribing the data from Thai to English and challenges

As I decided to study Thai participants, whose language is distant from English and tonal in nature. The transcription process begins with writing in Thai and then carefully translating into English. This meticulous approach requires significant time and effort from both the researcher and participants to ensure accuracy and preserve meaning (Poland, 1995). A minute-by-minute transcription method is employed to guarantee that no detail is overlooked or taken for granted.

Several challenges emerged during the transcription process. Primarily, the quality of audio presented difficulties due to the uncontrollable nature of participants' devices used for remote interviews. Despite providing incentives and encouraging the purchase of high-speed internet for the interview day, there was no guarantee of device capacity or sound system stability to support a two-hour interview.

During the interviews, participants were not required to enable video for two reasons: to adhere to the ethics of data de-identification in this research and to facilitate their limitation on internet use. Consequently, the lack of non-verbal cues posed a challenge, as facial expressions and other non-verbal communication were not visible. However, close attention was paid to pauses, subtle tonal changes, and word choices to compensate for this limitation.

Another significant challenge lies in the nuanced use of pronouns in Thai, which often convey relationships and levels of intimacy between speakers. This aspect required careful consideration when parents referred to individuals or objects. Furthermore, as Thai is a tonal language, many sounds produce different meanings. In Thai, every syllable is pronounced in one of five tones: low (L), mid (M), high (H), falling (F), or rising (R). Correct tonal pronunciation is crucial for conveying the intended meaning of a word (**Table 1**). To ensure the accuracy and authenticity of the data, I repeatedly listened to the audio recordings, carefully verifying the meaning of each statement.

The verification process involved both me and the participants confirming the accuracy of the transcribed and translated messages, ensuring nothing was overlooked. All transcriptions are securely stored in the university's OneDrive to ensure data safety. Each file is named using a code rather than identifiable data to maintain confidentiality.

mai ^F	not; no
mai ^L	[is] new; modern; fresh
mai ^R	[word added at the end of a statement to indicate a question; "right?"]
mai ^F	to burn

Table 1 Thai Tones

In this study, Thai parents often employed colloquial phrases to express their thoughts and opinions, necessitating careful interpretation. These idiomatic expressions require a nuanced

understanding of both the phrases themselves and the contexts in which they are used. For example:

1. "ตาสีตาสา" (*dtaa^M see^R dtaa^M saa^R*) translated as "unsophisticated rural people," this phrase is often used self-deprecatingly or to describe a perceived lack of sophistication or education.
2. "งูงูปลาปลา" (*ngu^L ngu^L pla^M pla^M*). This idiom is translated as "snake-snake fish-fish," is used to describe having only a superficial or rudimentary knowledge of a subject, similar to the English phrase "a smattering of knowledge."

These culturally specific expressions present unique challenges in transcription and analysis, as their meanings often extend beyond literal translations. They provide insight into the parents' self-perceptions and attitudes towards digital learning, requiring careful consideration of cultural context in interpretation.

Google Docs tasks and data collection methods

Once collected, the observed proficiency and comfort of parents with basic Google functions were categorised into three tiers to effectively present the data, while maintaining a rich and qualitative way to capture the findings. The details of each rubric 1-3 have been developed and changed as follows:

- 1 = Persistent Challenges: Demonstrated limited proficiency
- 2 = Gradual Success: With repeated efforts, participants were able to employ the function
- 3 = Immediate Proficiency: Successfully navigated to and employed the function

The "Persistent Challenges" category encompasses parents who struggled significantly with the tasks. These individuals often made multiple errors when trying to identify or select the correct tools. Their responses frequently indicated confusion, and they often explicitly expressed their inability to complete the task, commonly using phrases like "I don't know."

In the "Gradual Success" tier, parents demonstrated determination despite initial difficulties. While not immediately proficient, they showed progress through multiple attempts. These participants eventually completed the tasks after several tries, exhibiting a learning curve as they worked through the challenges.

The "Immediate Proficiency" level was characterized by quick comprehension and execution. Parents in this category successfully navigated to and employed the required functions with ease. They typically needed only one or two attempts to complete tasks correctly, demonstrating a high level of comfort and capability with the tools.

The results (see Table 2) offer an overview of parents' proficiency and comfort patterns, allowing for a comprehensive observation among 12 LIC parents while maintaining rich qualitative data.

Coding and Themes

This study employed thematic analysis to identify patterns within the data collected from interviews with low-income Thai parents (Braun & Clarke, 2006, 2019). The analysis process was guided by the Hoover-Dempsey and Sandler (HDS) model (1995), particularly focusing on the concepts of parental role construction, self-efficacy and life contexts.

Initially, transcripts were coded line-by-line, with attention paid to parents' expressions of their roles, challenges, and strategies in supporting their children's digital learning. The coding process was iterative, allowing for the emergence of new codes as the analysis progressed (Miles et al., 2014).

As themes began to emerge, they were reviewed and refined to ensure they accurately represented the data and aligned with the research questions. The main themes were identified (See Appendix J). The themes identified offer valuable insights into the lived experiences of these parents and provide a foundation for understanding the nuanced factors influencing parental involvement in digital learning contexts. These findings will be discussed

thoroughly in the findings and discussion chapter, where their implications for policy, practice, and future research will be explored in depth.

In conclusion, several themes emerged from the three main questions and sub-questions, providing a comprehensive picture of low-income Thai parents' experiences in supporting their children's at-home digital learning. These themes highlight the complex interplay between parental roles, self-efficacy, life contexts, and community support. The findings reveal both challenges and adaptive strategies employed by parents.

Ethical Consideration

Research involving human participants should be conducted ethically, ensuring informed consent and minimising harm. Interviewees should feel comfortable speaking candidly about their experiences, free from institutional, professional, or reputational concerns and obligations. This research has been approved by the Department of Education Departmental Research Ethics Committee (DREC) (Appendix K).

Chapter 5 Findings and Discussion

This section integrates the findings and discussion derived from the interviews and field notes. It offers insights into how LIC Thai parents construct their roles and responsibilities in their children's at-home digital learning. The analysis begins with an exploration of parents' perceptions, followed by their experiences with basic Google Documents tools. Parents' reflections on their confidence levels and the challenges they encountered during these practical exercises are examined, along with their strategies for overcoming these obstacles.

The discussion then delves into the impact of life contexts, focusing primarily on socio-economic factors and family culture, whilst remaining open to additional influential elements that emerged during the interviews. Current resources and support from relevant stakeholders are also scrutinised, with parents reflecting on existing provisions and potential future support that could enhance their involvement.

Throughout this section, verbatim quotes from participants are presented to illustrate key points. These findings are critically analysed within the context of the theoretical frameworks previously discussed, providing a comprehensive understanding of LIC Thai parents' involvement in their children's digital learning. This approach aims to offer nuanced insights into the complex interplay of factors affecting parental engagement in the digital education landscape.

Description of participants

The study comprised 12 participants (N=12), consisting of 11 females and 1 male, all residing in Nakhon Pathom, Thailand. The participants ranged from 30 to 50 years old, with annual incomes below 100,000 Thai baht. The majority were casual service providers. Recruitment was conducted through three local schools in Nakhon Pathom, with four participants selected from each school. All participants were thoroughly briefed on the data usage and storage protocols.

They were afforded the flexibility to pause or reschedule the interview as needed. It is noteworthy that all participants engaged in the interviews with a relaxed demeanour and natural conversational tone, contributing to the authenticity of the data collected.

Findings and discussions

Hoover-Dempsey et al. (2005) argue that parents' motivation to participate in their children's education is significantly influenced by how they perceive their role as parents. This concept, termed parental role construction, refers to parents' beliefs about what activities they should engage in to support their children's educational journey. In this manner, I interviewed parents about how they think about their roles and responsibilities.

RQ.1 Role Construction: How do LIC Thai parents develop their understanding of what it means to be involved in their children's digital learning?

Q1.1: How do you perceive your role and responsibilities in your child's digital learning?

1.1.1 Supervision and caution regarding digital dangers

Upon reflection, parents identified several themes regarding their role in their children's home-based digital learning. A prominent theme that emerged was their perceived responsibility to supervise and caution about the dangers that come with the use of digital tools and the internet. For example:

Parent 1 - "[...] when students use the internet to chat with various people, I will warn them not to chat too much because we don't know who they are. Nowadays, there are many cases of sexual harassment and scams through phone calls. I mostly watch over this matter [...]"

The findings reveal that parents predominantly perceive their roles as monitors of their children's social media interactions and internet use. Parental insights demonstrate a significant influence of news reports on their perceptions of media and digital engagement, particularly

regarding online dangers. Several parents articulate specific concerns about sexual harassment, scams, and general online safety, indicating an awareness of potential digital threats.

The predominantly negative focus of media reports on digital risks rather than benefits has been shown to amplify parental anxieties and significantly influence their attitudes towards children's independent online activities (Bennetts et al., 2022). This is also highlighted by **Parent 11** "*[...] I regularly remind my child to be cautious when using social media. I frequently talk about this because, nowadays, scammers often hide behind social media. Most of what I know comes from watching the news.*" And "*[...] I also have the duty to warn about the dangers that come with the internet because I watch the news all the time [...]*" said **Parent 6**.

The media-induced apprehension often translates into heightened parental and the adoption of restrictive strategies. Parents, driven by the desire to protect their children, implement these measures in response to perceived threats such as cyberbullying, interactions with strangers, and various online risks (Hayes et al., 2021).

"[...] I monitor my child's internet usage because there are many dangers, whether they come from themselves or from others. I teach my child that when using Facebook, if it's not necessary, don't post anything. Focus on just observing and learning for educational purposes. Posting something that is not beneficial can backfire on us. For example, things that create expectations, like promising rewards, because no one will give us something for free. I believe this issue is unavoidable since students spend more time with their phones than with us."

(Parent 9)

Further investigation into this phenomenon could provide valuable insights for relevant stakeholders on how social media and news outlets shape Thai parents' attitudes towards their parental roles in the digital era. Such research could illuminate the effectiveness of existing campaigns and inform the development of future initiatives aimed at promoting positive PI in children's digital learning. Nonetheless, it is crucial to acknowledge that the digital divide remains a significant challenge. Households with lower digital literacy, often characterised by

limited access to digital technologies and less developed digital skills, may face substantial barriers in leveraging online resources. This disparity could potentially exacerbate existing educational and socioeconomic inequalities (Ratanabanchuen, 2021).

The data also reveals a notable limitation in parents' academic involvement in their children's digital learning. This is exemplified by **Parent 7**'s statement: *"I warn him about the use of these media and the dangers on the internet. But when it comes to homework, I don't see him doing much because I sell goods at the night market until 8 PM, so I don't often see my child doing homework."* This observation aligns with Perrigo et al.'s (2022) argument that LIC parents often face constraints in time and proficiency with educational materials, which impedes their ability to effectively engage in their children's academic activities.

1.1.2 Oversight of homework and general guidance

Three parents articulated their roles as supervisors of their children's digital learning activities. **Parent 1,4 and 5** leverage available resources to provide assistance, engaging in tasks such as information retrieval and aiding in the fact-checking process. These findings demonstrate their commitment to supporting their children's educational journey within the constraints of their circumstances. Upon further inquiry into specific examples of assistance, it became evident that the academic support parents provide is generally limited in scope and depth. Their involvement typically encompasses basic guidance and is constrained by the boundaries of their own knowledge and expertise. For example:

Parent 4 - *"I talk on the phone with my child regularly. My child tells me various stories. [...] I also help by checking if they are missing anything or doing things correctly, providing advice on specific matters (In the Thai context, this means parents typically offer advice or guidance only on subjects they feel comfortable with or have some knowledge about.) [...]"*

Parent 5 - "[...] I help find information that students need for their work and sometimes take them to print their assignments. [...] My main role is to help verify if the information my child asks about is correct, assist in finding additional information, or use my experience to see if it matches what I've heard or encountered."

However, one parent intentionally limits their academic involvement in their children's digital learning, partly due to perceived limitations in their own expertise. This is exemplified by **Parent 1's** statement- *"I also keep an eye on his homework submissions. When there is something, he doesn't understand, he comes to ask me... As a parent, I watch from a distance to allow him to be responsible for himself. I think I can only help him to a certain extent because I haven't used a computer for a long time. I used to use it when I worked, but now I've forgotten [...]"*

Parent 1 initially indicates a deliberate choice to maintain distance, ostensibly to foster their child's independence and sense of responsibility. However, upon further reflection, they reveal that their ability to assist is constrained by their own lack of familiarity with current computer technology. This nuanced response illuminates the complex interplay between parental intentions and practical limitations. It highlights how resource constraints and gaps in technological expertise can impede parents' full engagement with their children's digital learning, even when they recognise the importance of such involvement.

The parent's admission reveals a broader implication: the rapid evolution of digital technologies can create a knowledge gap between generations, potentially affecting parental confidence in supporting their children's digital education. This generational gap primarily stems from the differing levels of technological familiarity and adaptability between parents and their children. In this dynamic, children often exhibit greater proficiency in navigating digital spaces compared to their parents (Juliana & Anshori, 2023). This situation underscores the need for ongoing digital literacy support for parents, particularly in communities where access to and familiarity with current technologies may be limited.

Moreover, this example illustrates the multifaceted nature of PI in digital learning. It encompasses not only direct academic assistance but also the cultivation of self-reliance and problem-solving skills in children, as parents navigate the balance between support and fostering independence in the digital age.

1.1.3 Provision of technological resources

Beyond monitoring homework submission and providing general guidance, some parents recognised their responsibility to ensure access to adequate technological resources. Specifically, they perceived their role as encompassing the provision of suitable devices and reliable internet connectivity for their children's digital learning needs. For example:

***Parent 5** - "[...] and I am responsible for the internet expenses. I pay for both the monthly internet plan and have installed Wi-Fi for my child to use at home."*

***Parent 6** - "[...] I also have to monitor what internet plan for my child to use and purchase a mobile phone."*

***Parent 8** - "Most of the time, I just check if the internet usage is sufficient. However, students consult their studies with their older siblings more often"*

The findings reveal parents' willingness to invest in facilitating their children's digital learning, despite their constraints. This demonstrates their prioritisation and awareness of the need for adaptation in the evolving educational landscape. However, this forced adaptation, often occurring without due consideration of parental readiness, merits careful attention. The rapid integration of technology and increasing dependence on digital education may place an additional burden on underprivileged parents as they strive to keep pace with these advancements. It's crucial to note that merely equipping households with internet access and devices does not necessarily guarantee effective utilisation or increased PI, as these factors are closely tied to digital literacy levels and other contextual elements.

Furthermore, evidence suggests that children often rely on support from extended family members, particularly older siblings (*Parent 8*). This phenomenon can be attributed to the technological gap between generations. The swift progression of technological advancements exacerbates this divide. While children typically adapt quickly to new digital platforms and interfaces, parents may struggle to keep up with the rapidly evolving digital landscape. This disparity can lead to significant challenges in parental oversight of digital learning activities. It may also impact parents' confidence in guiding their children's online experiences, potentially affecting the quality and extent of PI in digital education.

Conclusion on Parents' role construction

Parents' perceptions on their roles and responsibilities concentrate on three dimensions which are (1.) Supervision and caution regarding digital dangers: Parents primarily perceive their role as protectors, heavily influenced by media reports about online risks. This leads to a focus on monitoring and restricting children's internet use, potentially at the expense of exploring educational benefits. (2.) Oversight of homework and general guidance: While some parents actively engage in supervising homework and providing assistance, others struggle due to time constraints or limited technological expertise. This highlights a generational digital divide that can impact parental confidence and involvement. (3.) Provision of technological resources: Parents recognise the importance of providing necessary devices and internet access for digital learning, demonstrating their willingness to invest in their children's education despite financial constraints.

Overall, the findings indicate that parents tend to adopt a more reactive than proactive approach to supporting their children's digital learning. They often focus on warning children about digital threats and providing resources only, when necessary, largely due to financial limitations. Sophisticated academic-related guidance is limited, primarily due to parents' lack of expertise in certain areas. Interestingly, the study reveals a dual impact of news and media on parents' perceptions of digital learning and their roles and responsibilities. While media

influence can heighten awareness of online risks, it also has the potential to positively shape parents' understanding of digital learning opportunities. This presents a promising avenue for leveraging media influence to enhance PI while mitigating the digital divide.

RQ.2 Self-Efficacy: What obstacles do LIC Thai parents encounter when attempting to utilise use features in Google Docs required to support their children's learning?

Table 2 presents a general overview of parents' observed fluency in using and navigating Google Documents basic functions (Please refer to each function in Appendix I).

To guide the observations of parents' interactions with Google Docs functions, I developed a three-tier framework:

3 = Immediate Proficiency: Successfully navigated to and employed the function

2 = Gradual Success: With repeated efforts, participants were able to employ the function

1 = Persistent Challenges: Demonstrated limited proficiency

The scale allows us to categorise and describe parents' experiences consistently across different functions, while still maintaining the rich, contextual detail characteristic of qualitative research. It is important to note that this framework served as a guide for our qualitative observations rather than a quantitative measure.

Functions	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
1.	3	3	2	3	1	2	3	2	3	2	1	3
2.	1	3	1	1	1	1	2	1	3	1	1	3
3.	1	1	2	2	1	1	2	2	3	3	1	2
4.	1	1	2	2	1	1	1	1	3	1	1	2
5.	1	3	3	3	1	1	2	2	3	3	3	3
6.	3	3	3	3	3	3	3	3	3	3	1	3
7.	2	1	3	3	3	2	2	2	3	2	2	3
8.	1	1	3	3	3	1	1	1	3	2	1	2
9.	1	1	2	1	1	1	1	1	3	3	1	3
10.	1	1	2	1	1	1	1	1	2	2	1	2
11.	1	1	2	1	2	1	2	1	3	3	2	3
12.	2	3	3	3	3	1	3	2	3	3	2	3
13.	1	1	1	1	1	1	1	1	2	1	1	2
14.	3	3	3	3	3	1	3	3	3	3	1	3

Table 2 An overview of parents' observed fluency

The observation revealed that the majority of parents successfully identified the 'share' (Function 6) function in Google Docs and demonstrated a robust understanding of its role and the outcomes of its use, despite the interface utilising a phonetically adopted English word. This finding challenges the assumption that foreign language terminology invariably hinders parents' ability to digital functions. Instead, it suggests that when the adopted word is commonly used in daily life in Thailand, such as 'share', parents can intuitively grasp its meaning and purpose. Similarly, the term 'Print' (Function 14) is another widely adopted word in Thailand that parents readily recognised and understood in the digital context. This further reinforces the observation that familiarity with certain English terms, due to their widespread use in Thai society, can facilitate digital navigation even among users with limited English proficiency.

However, it would be premature to conclude that this finding indicates LIC parents have fully overcome the language barrier. Follow-up interview questions (Q.2.2) revealed that linguistic challenges persist in their interactions with digital tools. While parents demonstrated

proficiency with certain widely adopted English terms in digital interfaces, this familiarity does not extend to all aspects of digital literacy.

The ability to recognise and use functions like 'share' and 'print' represents a localised adaptation to commonly encountered digital terminology rather than a comprehensive overcoming of language barriers. In-depth interviews highlighted that parents continue to face significant linguistic challenges when engaging with more complex or less frequently encountered digital functions which will be discussed more nuancedly in the Q.2.2.

While parents demonstrated proficiency with commonly used functions, more complex operations such as inserting tables and saving files in different formats presented significant challenges. These difficulties in navigating advanced features were articulated by **Parent 11**, who stated - *"I still feel disconnected from these technologies. Maybe because I don't use them much, I don't practice much."*

This observation highlights a crucial distinction between basic and advanced digital literacy skills among LIC parents. While familiarity with everyday technology terms facilitates the use of simple functions, the lack of regular exposure to more sophisticated features creates barriers to their effective utilisation. This finding has important implications for digital literacy initiatives targeting LIC parents. It indicates that while building on familiar concepts can provide a strong foundation, programs must also address the gap in advanced digital skills.

Following their hands-on experience with the 14 basic functions of Google Documents, participants were presented with a follow-up question:

Q2.1: How confident do you feel in your ability to support your child's digital learning after experience using and navigating Google Documents basic functions?

2.1.1 Confidence in ability to learn with practice and available resources

Upon reflection on the Google Docs tasks, a significant proportion of participants indicated that were they to have access to a computer—a resource currently unavailable to them—they would be capable of acquiring the requisite basic digital skills through consistent practice. The

parents' responses suggested a perception that these functions, while unfamiliar, are not inherently beyond their grasp given the appropriate resources and time for regular engagement for example:

***Parent 1** - "For those who don't know, they see it as difficult, but for those who have studied, it's not a barrier, like students who have studied about certain topics or knowledge before. As for myself, I don't have the basics, but I feel that learning this is not overly difficult."*

The perspectives shared by **Parent 2** and **Parent 4** revealed important insights into the complex relationship between parental education, self-efficacy, and digital literacy among LIC Thai parents. Although not having pursued higher education, **Parent 2** expressed confidence in her ability to engage with digital technologies, attributing her current highlighted limitations primarily to lack of exposure rather than innate capability. Likewise, **Parent 4** acknowledged the need for more practice and access to devices to enhance her digital skills.

***Parent 2** -"I haven't pursued higher education, but I feel it's not beyond my capabilities. The challenge is mainly because I haven't had the chance to work with or handle these technologies before [...]"*

This is further highlighted by **Parent 4** - *"It's not difficult for me, but I need to study more because I haven't used these tools for a long time. I've seen these tools occasionally, and I also don't have a computer device with me."*

The findings reveal parents' positive attitudes and confidence towards digital tools, exemplified by their receptiveness to Google Documents. This openness can be interpreted as a willingness to learn and adapt to new technologies, demonstrating a positive attitude towards lifelong learning—a crucial trait in the rapidly evolving digital landscape (Latchem, 2014; Merriam & Kee, 2014). **Parent 9** particularly stood out, showing excellent proficiency in navigating and employing basic Google Docs functions (**Table 2** – P.9).

She expressed - *"The main obstacles are likely understanding and interpretation. Because if we read and understand, look and try to understand, like seeing a symbol and understanding this is*

for printing, this is for coloring, it makes it easier to use. But if in the end we don't understand or don't try to understand, everything becomes difficult. And experimenting isn't wrong. If you do it wrong, you can just go back or correct it. But if you don't try at all, you won't know how to do it, or if it's really right or wrong (Parent 9)". This parent exemplifies the potential for LIC parents to engage effectively with digital tools when given the opportunity. Her approach of experimenting, understanding symbols, and learning through trial and error demonstrates a growth mindset that could significantly benefit her children's digital learning journey. This disposition is fundamental for future development, providing a foundation for relevant stakeholders and policymakers to establish programs or initiatives promoting digital skills among LIC parents.

However, the lack of access to devices underscores how socioeconomic factors can impede digital skill development and, by extension, parents' ability to support their children's digital learning (Livingstone & Helsper, 2007; Van Dijk, 2020). In the light of this, **Parent 5** offers insight on how the absence of a device hinders her ability to unlock her potential - *"I don't think it's overly difficult. Sometimes I just don't understand certain symbols. If I had my own computer, it would be easier for me to understand."*

The concept of the digital divide offers a valuable lens through which to understand the complexities of this spectrum (Ragnedda & Muschert, 2018). It foregrounds the paradox of parents possessing confidence and positive attitudes towards digital learning yet lacking the necessary devices to fully engage with these technologies. This dichotomy between willingness and access illustrates the multifaceted nature of the digital divide, which extends beyond mere access to technology to encompass issues of digital literacy, skills, and usage (Hargittai, 2002; Warschauer, 2004). It underscores the need for comprehensive approaches that address both the attitudinal and material aspects of digital inclusion.

Furthermore, this situation aligns with the concept of digital capital, as proposed by Ragnedda (2018), which considers how digital skills and access interact with other forms of capital (economic, cultural, and social) to influence individuals' capacity to benefit significantly from digital technologies. In the case of these LIC parents, their positive attitudes represent a form of

cultural capital that could potentially be leveraged to enhance their digital skills, provided that the material barriers to access are addressed.

These insights suggest that interventions aimed at bridging the digital divide should not only focus on providing access to devices and internet connectivity but also on nurturing and capitalising on the existing positive attitudes towards digital learning among LIC parents. Such holistic approaches could potentially accelerate digital inclusion and enhance parents' capacity to support their children's digital learning experiences.

Q2.2: What aspects of digital learning do you find most challenging to assist with?

2.2.1 Challenges with English language terms

Some parents see the phonetically adopted English words and English language in general as barriers; if it were in Thai, they could manage it better. For example:

***Parent 1** - "[...] Language is also a barrier. If we encounter only English, we won't understand. Some people can't read it. Not just adults, sometimes even kids don't know. If it's in Thai, it's somewhat manageable."*

***Parent 2** - "[...] Some of it is in English, and I'm not very good at English. But if it were in Thai, I could manage."*

AMost of the participants' highest education attainment is junior high school or even lower. This knowledge gap hinders their ability to fully engage with technology. This is also highlighted by **Parent 8** "The language barrier prevents me from using it to its full potential." And **Parent 9** "For the average person with basic skills in using tools, the main obstacle would likely be language [...]"

Parents' insights on their perception of language barriers reveal a significant disparity between those who are English proficient and those who are not. In this context, they refer to the "average person" as someone with a basic understanding of English. This linguistic divide stems from unequal access to quality education, a problem that is unevenly distributed across many countries and often aligns with existing social disparities.

While English is commonly taught in secondary and higher education, a significant portion of the population in developing nations never reaches these educational levels (OECD/UNESCO, 2016). Even for those who do, the quality of English instruction is often compromised by inadequately trained teachers with limited English proficiency themselves (Karanjakwut & Sripicharn, 2024). In many cases, proficient English acquisition is primarily achievable through costly private education (Warschauer, 2004).

Research also indicates a notable linguistic disparity on the internet: approximately 60% of content on the World Wide Web is in English, yet only 29% of internet users are native English speakers (Fairweather, 2003). Although Google's collaborative learning and educational tools are now available in multiple languages, some features still retain English-based terminology. This linguistic barrier poses challenges for LIC parents who, while able to read the words, may struggle to comprehend their meaning and functionality. This situation highlights the persistent language divide in digital spaces and its impact on users from non-English speaking backgrounds, particularly those from economically disadvantaged communities.

The occupational and lifestyle factors of individuals significantly influence their daily language usage and proficiency. This is evident in **Parent 8's** assertion: *"I don't use it much in my daily life. I don't really understand it"*. This statement highlights how individuals from disadvantaged groups, who have less frequent encounters with English in their daily lives, often find themselves struggling with both phonetically adopted English terms and English words compared to their more privileged counterparts.

This linguistic disparity is not merely a matter of education but is deeply intertwined with socioeconomic factors. Individuals in certain professions or social strata may have limited exposure to English, leading to a cycle of linguistic disadvantage. This phenomenon aligns with the concept of "linguistic capital" as discussed by Bourdieu (1991), where language proficiency becomes a form of cultural capital that can be converted into social and economic advantages.

The impact of this linguistic divide is particularly pronounced in the digital age, where English often serves as the lingua franca of technology and the internet. As Warschauer (2004) argues

in his work on technology and social inclusion, the ability to effectively use English in digital contexts can significantly affect an individual's capacity to fully participate in and benefit from the digital world.

Moreover, this linguistic inequality can have far-reaching consequences beyond mere communication (Bourdieu, 1991). Research demonstrates a strong correlation between language proficiency and labor market outcomes, suggesting that limited English skills can translate into reduced economic opportunities (Boonpattanaporn, 2012; Franco & Roach, 2018). This linguistic disadvantage compounds the existing hardships faced by LIC groups and threatens to further widen the socioeconomic divide.

In the context of PI in children's digital learning, this linguistic barrier can create a significant hurdle. Parents with limited English proficiency may find themselves less able to navigate digital learning platforms, understand educational content, or effectively support their children's engagement with English-language digital resources.

2.2.2 Lack of confidence due to educational background

Some parents find themselves lacking confidence due to their educational background or perceived absence of prerequisite knowledge. For example:

***Parent 7** - "I think I don't know anything at all. I haven't practised using these technologies at all. I just picked up my phone and used it a little bit, that's all. I feel that I have very little knowledge. The fact that I could do the test was just because I was guessing. Some things are similar to what's on the phone."*

This sentiment aligns closely with Bandura's (1986) concept of self-efficacy, which he defines as "People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances. It is concerned not with the skills one has but with judgments of what one can do with whatever skills one possesses" (p. 391).

Parent 7's assertion about her perceived lack of knowledge exemplifies this concept, highlighting how individuals' beliefs about their capabilities can significantly influence their approach to technology use. This parent's lack of confidence in their technological skills, despite being able to locate and use some functions, underscores the powerful role that self-perception plays in shaping one's engagement with digital technologies.

Moreover, this example illuminates the broader issue of the digital knowledge gap. It demonstrates how disparities in exposure to and familiarity with technology can lead to significant differences in digital self-efficacy among different segments of the population. This gap is not necessarily reflective of actual abilities, as evidenced by **Parent 9**'s successful completion of the test, but rather of perceived capabilities and comfort levels with technology.

***Parent 9** - "The main obstacles are likely understanding and interpretation. Because if we read and understand, look and understand, like seeing a symbol and understanding this is for printing, this is for coloring, it makes it easier to use [...]"*

This finding has important implications for efforts to bridge the digital divide. It suggests that interventions aimed at improving digital literacy should not only focus on skill development but also on boosting individuals' confidence and self-efficacy in using digital technologies. By addressing both the skill and psychological aspects of digital engagement, we may be better equipped to support parents like **Parent 7** in fully participating in and benefiting from the digital aspects of their children's education.

Q2.3: How do you overcome difficulties when trying to help your child with digital tasks?

2.3.1 Use of search engines and translation tools

Most parents use Search engine and Translation tool to address difficulties that encounter for example:

***Parent 1** "[...] If I am stuck with language when searching for information, I use Google Translate."*

Parent 2 *"For language problems, I use translation tools [...]"*

Parent 5 *"I search the internet for additional information to check if it's correct [...]"*

Parent 7 *"Language is an obstacle because I don't know anything about English. If I encounter words I don't understand, I use Google Translate."*

These responses indicate that parents view search engines as powerful tools to assist both themselves and their children when facing academic-related issues or general inquiries. This behaviour aligns with statistics showing that a significant portion of the population in central Thailand has internet access, allowing them to tap into the vast repository of knowledge available online.

The parents' use of these digital tools reflects a growing trend of leveraging technology for educational support and information gathering. It demonstrates a level of digital literacy and an understanding of the internet's potential as a resource for learning and problem-solving.

However, while this reliance on online resources is promising, it also raises important considerations. The effectiveness of using search engines and translation tools depends greatly on the users' ability to critically evaluate and verify the information they find. As Julien and Barker (2009) note, the ability to locate information does not necessarily equate to the skill of critically assessing its reliability and relevance. Additionally, Livingstone and Helsper (2007) also argue that access to technology alone does not guarantee its effective use; skills, literacy, and critical engagement are equally important.

2.3.2 Reliance on hands-on practice

Some parents demonstrate a preference for experiential learning when confronting unfamiliar digital tools or concepts. This approach is exemplified by the following statements:

Parent 10 *"Mostly, if I don't understand a tool, I'll click on it to try it out, see what it's for. I solve problems by doing."*

Parent 11 *"Mostly it comes from hands-on practice. Like when I volunteered, it was quite difficult to understand at first, but after studying for a while, it became easy for me."*

Parent 12 *"I rely on learning and memorising, and also from past work experience."*

These responses highlight the diverse learning styles employed by parents as they navigate the digital landscape. While some find it beneficial to search for methods or examples on the internet, others prefer a more hands-on, experiential approach to learning. This variation in learning strategies aligns with established theories of adult learning, particularly Kolb's Experiential Learning Theory (Kolb, 1984), which emphasises the importance of concrete experiences in the learning process.

The preference for hands-on practice demonstrated by these parents reflects a kinesthetic learning style, where understanding is gained through active engagement and practical application (Fleming & Mills, 1992). This approach can be particularly effective in developing digital skills, as it allows learners to explore the functionalities of digital tools in a real-world context, fostering a deeper understanding through trial and error.

Moreover, the comments from **Parent 11** and **Parent 12** underscore the importance of repeated exposure and practice in building confidence and proficiency with digital tools. This aligns with the concept of situated learning (Lave & Wenger, 1991), which posits that learning is inherently tied to authentic activity, context, and culture.

However, it is crucial not to overlook the readiness of tools and devices in this discussion. Each individual from diverse backgrounds requires different and tailored attention, and the availability and accessibility of appropriate digital tools play a significant role in their learning

process. This consideration aligns with the digital divide framework (Van Dijk, 2020), which emphasises that access to technology is just the first step; the ability to effectively use these tools is equally important and often varies based on socioeconomic factors.

The need for tailored attention and appropriate tools highlights the complexity of addressing digital literacy among diverse populations. It suggests that a one-size-fits-all approach to digital skill development may be insufficient. Instead, interventions should consider not only different learning styles but also the varied levels of technological readiness and access among learners.

Conclusion on Self-Efficacy

The aspect of self-efficacy amongst LIC parents, regarding their confidence and obstacles, offers a nuanced and complex picture of the challenges and opportunities in supporting their children's digital learning. As they navigate the unfamiliar terrain of tools such as Google Docs, these parents reveal a tapestry of resilience, apprehension and determination. unveil their children's digital learning. As they navigate the unfamiliar terrain of tools such as Google Docs, these parents reveal a tapestry of resilience, apprehension and determination.

The findings paint a vivid portrait of parents standing at the crossroads of traditional and digital worlds. Many express a quiet confidence, a belief that with the right resources and opportunities, they could master these new digital skills. This confidence, however, is often tempered by the stark reality of their circumstances - a lack of access to computers, limited exposure to digital technologies and the ever-present constraints of time and resources that characterise life in low-income communities.

The prevalence of English in digital interfaces creates a linguistic complexity that many parents struggle to navigate. Yet, in the face of this challenge, parents turn to translation tools and search engines, transforming these digital aids into bridges across the language divide.

The findings unveil a spectrum of learning approaches, as diverse as the parents themselves. Some embrace the tactile, hands-on approach, learning through trial and error, their fingers dancing across unfamiliar keyboards as they explore and discover. Others lean on the vast knowledge repository of the internet, seeking out tutorials and explanations, turning the very technology they're trying to master into their teacher.

Underpinning these experiences is the profound influence of self-efficacy. Parents' beliefs about their own capabilities cast long shadows over their interactions with technology. For some, past educational experiences or perceived knowledge gaps erect invisible barriers, whilst for others, a spark of confidence ignites a willingness to explore and learn.

As we contemplate these findings, we are reminded that the journey towards digital inclusion is not just about providing access to technology. It's about nurturing confidence, addressing language barriers and creating learning opportunities that resonate with diverse life experiences and learning styles. It's about recognising that in the hands of these parents lies not just the future of their children's education, but a key to unlocking broader social and economic opportunities.

RQ.3 Life Context: What obstacles in terms of life context do they consider affecting their ability to be involved in their children's digital learning?

Q3.1: What are the main obstacles you face in supporting your child's digital learning (socio-economics and family culture)?

3.1.1 Resource scarcity

Parents identify resource scarcity as a significant barrier to acquiring essential equipment, particularly computers, due to financial constraints, for example:

Parent 1 *"We lack equipment. I don't have enough resources to support or buy equipment for my children.*

Parent 3 *"[...]I'm not very skilled, and we don't have a computer at home either."*

Parent 4 "[...]It would be good to practice, but we don't have equipment to practice with."

Parent 10 " Having equipment is a main factor. Without it, it's like lacking opportunities. Access to equipment would help develop both myself and the students."

Parent 12 "The internet isn't very stable, and I don't have a computer or good internet for my child to use properly"

These testimonies underscore a crucial insight: while mobile devices are ubiquitous, they are insufficient for comprehensive digital learning. To effectively navigate and utilise the digital-mediated world, a computer becomes an essential household tool. This necessity creates a stark divide between those who have access to both mobile and computer platforms and those who rely solely on mobile devices for internet access.

Research by de Araujo & Reinhard (2019) corroborates this observation, indicating that lower-income groups often depend exclusively on mobile devices for internet access. This limitation can significantly hamper the development of comprehensive digital skills compared to those with access to both mobile and computer platforms.

The implications of this resource scarcity extend far beyond mere inconvenience. Studies, such as that by De Haan et al. (2002), have demonstrated that the acquisition of digital skills is influenced more profoundly by the home environment and access to technology than by formal education. This finding highlights the critical importance of home computer access in shaping digital literacy and, by extension, educational outcomes.

The rapid digital transition necessitated by global trends has exacerbated this issue, placing unprecedented pressure on LIC parents. They find themselves compelled to acquire additional resources to ensure their children receive quality education, regardless of their financial constraints.

3.1.2 Time constraints due to work commitments

Several parents highlight time constraints as a significant barrier to acquiring new digital skills.

For instance:

Parent 6 *"I'm always out of sync with my child due to work. I come home when he goes to study, I go to work when he comes home to sleep."*

Parent 11 *"I don't have many opportunities to practice because I don't have time"*

These statements underscore a critical issue faced by many LIC Thai parents, particularly those working in industrial regions. Long working hours, coupled with commuting time, severely limit parents' ability to engage meaningfully with their children's education, especially in the digital realm.

Research by Chivanon & Wacharasin (2012) highlights that in Thailand's industrial regions, parents working extended hours in factories struggle to find time for crucial interactions with their young children, which are essential for their development. StGeorge & Fletcher (2012) further emphasise that commuting time exacerbates this issue, leaving parents with minimal opportunities to engage in nurturing and guiding activities with their children as mentioned by **Parent 3 and 7** - *"I haven't practiced using these technologies for a long time, since my early working days."* and *"I work all day and come home at 8 PM, so I don't have time to look after my child's studies."* respectively.

LIC parents in Thailand, earning less than 100,000 baht annually, face a multifaceted challenge. They are not only expected to navigate pressing social and economic pressures but are also called upon to invest time in their children's education for long-term benefits. This dual expectation creates a significant burden on these families.

Research indicates that individuals in low-income brackets often encounter substantial obstacles that lead them to devalue long-term investments, such as their children's education. This devaluation primarily stems from immediate financial pressures and systemic barriers. Studies have shown that financial worries can cause parents to prioritise immediate returns

over future benefits, resulting in an undervaluation of long-term educational investments (Lichand et al., 2020).

The complexity of this situation cannot be overstated. These parents are caught in a precarious balance between meeting immediate needs and investing in their children's futures. The constant stress of financial insecurity can significantly impact decision-making processes, often forcing a focus on short-term survival rather than long-term planning (Hughes et al., 2022).

Moreover, the expectation for these parents to contribute substantially to their children's education, particularly in the rapidly evolving digital landscape, adds another layer of complexity. This expectation may not fully account for the time constraints, limited resources, and psychological toll of persistent financial stress that these families experience.

It is crucial for relevant stakeholders — including policymakers, educators, and community leaders — to recognise and account for these complex circumstances when seeking collaboration or implementing educational initiatives. A nuanced approach is required, one that acknowledges the multifaceted challenges faced by LIC parents and seeks to address both immediate needs and long-term educational goals.

3.1.3 Family dynamics and invitation influencing help-seeking behaviours

Family culture and feelings of invitation, particularly children's help-seeking behaviour, also influence PI. Several parents reported that their children tend to seek assistance from others rather than approaching them directly. For example:

Parent 1 "[...]Normally, the students go to their aunt because she has a printer and a computer."

Parent 8 "[...] My child usually consults their older sibling rather than coming to me."

These statements reveal a compelling aspect of family dynamics in the context of digital learning. The generational knowledge gap emerges as a crucial factor influencing children's decisions on whom to approach for help. This tendency for children to seek assistance

elsewhere may lead parents to feel uninvited or untrusted in their children's digital learning journey. This perception of being sidelined is intensified by the technological gap, where parents less adept in digital matters experience a sense of inadequacy and heightened stress, consequently limiting their participation in their children's online educational journey (Hou et al., 2024).

This dynamic is not solely concerned with how parents perceive their expertise, but also how children view their parents' technological capabilities. Children may gravitate towards family members they perceive as more technologically savvy, often younger relatives or siblings. This aligns with the concept of "digital natives" and "digital immigrants" proposed by Prensky (2001), where younger generations are often perceived as more adept with digital technologies.

Resource availability also impacts where and who children are inclined to approach. As **Parent 1** notes, the availability of necessary technology (printer, computer) in relatives' homes may drive children to seek help there. This observation resonates with the findings of Livingstone and Helsper (2007), who highlight how access to digital resources within the home environment significantly influences children's digital engagement and learning opportunities.

Moreover, this situation may exacerbate what Hargittai and Hinnant (2008) term the "second-level digital divide," where disparities in digital skills and usage patterns, rather than mere access to technology, become the primary source of educational inequality. Parents who feel excluded from their children's digital learning experiences may miss crucial opportunities to develop their own digital skills, potentially widening this divide.

Q3.2: What support or resources do you currently have or are provided by the community or relevant stakeholders?

3.2.1 Perceived lack of current support

The majority of parents reported a lack of support and resources from both the community and relevant stakeholders. Their experiences highlight a significant gap in external assistance for digital learning. For instance:

Parent 7 *"I think the relevant agencies still don't provide enough help because I've never received much support from them."*

Parent 10 *"Personally, I think the relevant agencies provide little help because I don't see any activities or donations to the school [...]"*

The experiences of 10 out of 12 parents regarding external support from relevant stakeholders nuanced reveal a significant absence of structured assistance from both community organisations and governmental agencies. This pattern suggests a systemic issue in the distribution and communication of educational support to low-income families.

Parent 10's observation about the lack of visible "activities or donations to the school" underscores the importance of tangible and recognisable forms of support. This insight implies that even if support mechanisms exist, they may not be effectively reaching or being acknowledged by the intended beneficiaries. Such invisibility of support can have far-reaching consequences; the perceived absence of assistance may discourage parents from actively engaging in their children's digital learning, as they might feel inadequately equipped and unsupported in this crucial role.

These findings raise critical questions about the allocation of resources for digital learning support and whether these resources are effectively reaching the most vulnerable populations. The apparent gap between the provision of support and its perception by the beneficiaries points to potential inefficiencies in the current support system.

Moreover, this situation highlights a possible disconnect between policy intentions and ground-level realities. It suggests a need for a more approach to support provision, one that considers not only the existence of resources but also their visibility, accessibility, and relevance to the target population.

Q3.3: What type of support or resources would help you be more involved in your child's digital education?

3.3.1 Desire for future support and training

The majority of parents express a desire for support from relevant stakeholders. However, they also acknowledge various impediments to their participation, including motivational factors, time constraints, and other contextual challenges. These complex circumstances highlight the multifaceted nature of PI in digital learning. For instance:

Parent 1 *"If relevant agencies had a budget to support parents in learning about technology, I would feel like joining. But it depends on when it is and if it's convenient to go or not."*

Parent 2 *"I want relevant agencies to come and support, but it's quite difficult because parents are of working age now. They probably don't want to study anymore [...]"*

Parent 3 *"[...]It might take time and we need to see if participants see the importance, or how much they can apply it to benefit themselves or students."*

Parent 10 *"If there was equipment support, it would probably allow parents to practice using it and then teach students. But most parents don't have much time because they have to work. They might need to see the benefits and necessity clearly before having the motivation to participate."*

The findings reveal a notable interest among parents in receiving support from relevant stakeholders, signalling their willingness and openness to enhance their digital skills, ultimately

contributing to their children's digital learning. This readiness represents a positive foundation for potential interventions. However, despite their interest, parents identify several significant barriers to their participation:

- 1.) Time Constraints: As evidenced by *Parent 1* and *Parent 10*'s comments, work commitments substantially limit parents' availability for training.
- 2.) Motivational Factors: *Parent 3* and *Parent 10* emphasize the necessity of clear benefits and relevance to motivate participation.
- 3.) Contextual Challenges: *Parent 2* highlights age-related reluctance to engage in learning among working-age parents.

These insights provide a crucial foundation for policymakers and decision-makers, outlining key attributes and factors to consider when implementing campaigns. Resource dependency and practical application emerge as critical aspects requiring attention. *Parent 1*'s comment about budget support underscores that financial resources are a crucial enabler of participation. Furthermore, *Parent 3* and *Parent 10* stress the importance of practical applicability in any training provided, indicating a preference for skill-based, directly beneficial learning experiences.

Multiple parents (*3 and 10*) emphasise the need for clear communication of benefits to drive motivation, indicating that perceived value is a key factor in engagement. This underscores the importance of not just providing support, but effectively articulating its relevance and potential impact on both parents and their children's educational outcomes.

Additionally, time constraints and motivation also play pivotal roles in shaping participation. *Parent 2*'s observation about working-age parents being potentially less inclined to study reflects broader generational attitudes towards lifelong learning. This insight suggests the need for age-sensitive approaches in designing learning interventions.

Conclusion on life context findings

The findings under life context theme illuminate the multifaceted challenges faced by LIC Thai parents in supporting their children's digital learning. The lack of essential equipment, particularly computers, is consistently identified as a major barrier. This scarcity extends far beyond mere inconvenience, fundamentally impacting the development of comprehensive digital skills and educational outcomes. The study reveals that reliance on mobile devices alone is insufficient for effective digital learning engagement, underscoring the critical need for more robust technological resources in LIC households.

Work commitments severely limit parents' ability to engage with their children's digital education. Long working hours and extensive commuting times leave little opportunity for meaningful interaction, creating a challenging balance between meeting immediate financial needs and investing in children's long-term educational future. This time poverty highlights the broader socioeconomic pressures faced by LIC families and their impact on educational support.

The study further uncovers a significant generational divide in digital literacy, influencing children's help-seeking behaviours. Children often approach siblings or other relatives perceived as more technologically savvy, potentially leaving parents feeling excluded from their children's digital learning journey. This dynamic not only affects PI but also risks exacerbating the digital divide within families and communities.

Furthermore, the research reveals a perceived lack of current support from community and governmental stakeholders. The absence of visible, structured assistance may discourage parental engagement in digital learning, pointing to a critical gap in existing support systems.

Despite these substantial challenges, parents express a strong desire for future support and training. However, their potential participation is contingent on addressing several key factors:

- Flexibility to accommodate work commitments
- Clear articulation of benefits and relevance of digital learning
- Age-sensitive approaches to learning that consider generational attitudes
- Provision of necessary resources and equipment to bridge the technological gap

These findings underscore the complex, multifaceted nature of PI in digital learning for LIC families in Thailand. They highlight the urgent need for nuanced, targeted interventions that address not only technological access but also time constraints, motivational factors, and family dynamics. Future initiatives should focus on creating visible, accessible, and relevant support systems that acknowledge the unique challenges faced by LIC parents in Thailand's rapidly evolving digital education landscape.

Previous work and present study in comparison

Previous studies highlight the exacerbating inequality and digital divide faced by disadvantaged groups, particularly in the rapidly evolving digital realm that has obliged Low-Income Community (LIC) parents to involuntarily adapt to a swiftly changing digital learning environment at home. This study reveals numerous linkages with existing literature, while also offering new insights.

Parental role construction emerges as a crucial factor in parents' decision-making processes regarding involvement. The findings of this study indicate that LIC parents tend to adopt a more reactive than proactive role. Despite exhibiting willingness and confidence that, with practice and available resources, they might be able to utilise digital tools and engage in their children's home-based digital learning, the digital divide continues to obstruct their full participation. As noted by Easterbrook et al. (2022) and Molla et al. (2023), parents from disadvantaged socioeconomic backgrounds face significant barriers, including financial hardship, limited technological resources, and inadequate internet access, which impede their ability to effectively support their children's learning.

This study underscores the multifaceted nature of the digital divide, which remains a significant challenge for low-income families despite high overall rates of internet access in Thailand. The findings align with previous research while providing context-specific evidence of these challenges. Moreover, linguistic disparities in digital content emerged as a significant theme, highlighting how language can further exacerbate the digital divide, particularly for non-English speaking, low-income communities.

The complex interplay of factors revealed in this study — including resource scarcity, time constraints due to work commitments, language barriers, and varying levels of digital self-efficacy - aligns with and extends the existing literature on the challenges faced by LIC parents in supporting their children's digital education. The parents' expressed willingness to learn, despite these obstacles, presents a potential avenue for intervention and support.

These findings call for nuanced attention from relevant stakeholders to carefully craft policies and programs that fit the specific needs of LIC parents. Future initiatives should consider not only the provision of technological resources but also address time constraints, language barriers, and the development of digital confidence among parents. By acknowledging and addressing these multifaceted challenges, stakeholders can work towards more inclusive and effective strategies for supporting PI in digital learning among LIC families in Thailand.

Chapter 6 Conclusion and Recommendations

This chapter synthesises the key findings of this study and their theoretical implications. It explores how these insights can inform stakeholders and policymakers about barriers to PI in children's home-based digital learning. The discussion encompasses a summary of main discoveries, their theoretical and practical implications, and how they contribute to understanding the digital divide and PI models in the context of low-income Thai families.

The chapter critically examines the study's limitations, reflecting on methodological constraints and potential biases. Finally, it proposes recommendations for future research, suggesting avenues for further investigation to address gaps in current knowledge and enhance understanding of PI in digital education.

By consolidating findings, implications, limitations, and future directions, this conclusion aims to provide a comprehensive view of the study's contribution to the field and its potential impact on educational practices in Thailand.

Key findings

The study's findings, within the framework of the Hoover-Dempsey and Sandler (HDS) model, uncover an intricate landscape of parental involvement (PI) in the digital learning of children from low-income Thai households.

Regarding role attribution, parents predominantly perceive themselves as digital overseers, responsible for supervising their children's technology usage and shielding them from online risks. This viewpoint is notably shaped by media representations of digital threats, intensifying parents' sense of immediacy in fulfilling this protective role. Despite limited resources, parents endeavour to offer fundamental guidance and technological assistance to their children, showcasing a dedication to their educational welfare.

The investigation into parental self-assurance in digital competencies produced diverse outcomes. Upon introduction to Google Docs, numerous parents exhibited a remarkable level of confidence in their capacity to acquire new digital skills through sufficient practice. Nonetheless, this confidence was tempered by the stark obstacles they encounter. Primarily, the lack of computer access and stringent time limitations impede their capability to consistently acquire and apply these skills. The prevalence of English terms in digital interfaces proves to be a notably challenging barrier, frequently leading parents to feel disconnected from the tools essential to their children's education. In response to these hurdles, parents have devised various coping mechanisms, such as depending on search engines and translation tools, and embracing a hands-on, trial-and-error method when feasible.

The life contexts of these families significantly influence their involvement. Prolonged work hours and demanding job obligations severely constrain parents' capacity to actively participate in their children's digital education. This time scarcity often gives rise to a generational gap within families, prompting children to seek assistance from siblings or other younger relatives perceived to be more adept with technology. Consequently, parents frequently find themselves unintentionally excluded from their children's digital learning processes, further widening the disparity between parental intent and actual participation.

Upon scrutinising the broader support ecosystem, a troubling scenario comes to light. Parents consistently express a perceived lack of structured aid from community entities and governmental bodies in facilitating digital education. This absence of institutional support leaves many families feeling isolated in their endeavours to navigate the digital educational domain.

Notwithstanding these multifaceted obstacles, the study revealed a glimmer of optimism and resilience. Parents articulated a strong inclination for assistance and training to enhance their capacity to support their children's digital learning. Nevertheless, their enthusiasm is practical, contingent on such initiatives accommodating their time constraints and clearly illustrating tangible advantages.

These findings delineate a deliberate portrayal of the challenges and potential avenues for enhancing parental involvement in digital learning among low-income Thai families. They underscore the necessity for tailored interventions that address not only technological accessibility but also time constraints, language barriers, and the intricate family dynamics at play within this distinctive socio-economic setting.

Theoretical Implications

The findings of this study provide notable contributions to current theoretical frameworks, specifically the Hoover-Dempsey and Sandler (HDS) model of Parental Involvement (PI) and theories related to the Digital Divide (Dijk, 2020).

Initially, this research expands the HDS model through the contextualisation of parental role development and self-efficacy within the digital learning environment of low-income Thai households. The prevalent view of parents as digital protectors, primarily concerned with safeguarding against online risks, introduces a novel aspect to the conventional understanding of parental role construction. This protective approach, significantly impacted by media representations, implies that role establishment in digital contexts might be more reactionary and externally guided than previously conceptualised.

With respect to self-efficacy, our results both uphold and question elements of the HDS model. While parents exhibit assurance in their capacity to acquire digital competencies, aligning with the model's stress on self-efficacy, the practicalities of limited resources and language obstacles introduce complexities not entirely addressed in the original framework. This indicates a necessity for a more nuanced comprehension of self-efficacy that accommodates structural hindrances beyond individual belief systems.

This study makes a substantial contribution to the advancing notion of the digital divide. The outcomes uncover a multifaceted digital disparity that surpasses mere technology access, encompassing challenges related to digital literacy, linguistic proficiency, and time constraints.

This reinforces and broadens Van Dijk's (2020) assertion for a more holistic grasp of digital inequality, emphasising how socioeconomic elements interact with digital involvement in intricate manners.

Moreover, the research enriches theoretical dialogues on family systems in the digital era. The observed inclination for children to seek digital aid from siblings or tech-savvy relatives challenges conventional PI models. This observation indicates a necessity for theories that acknowledge the dispersed nature of digital assistance within family networks, especially in situations where parents may possess limited digital competencies.

Furthermore, the investigation contributes to theories of adult learning and technology adoption in settings with limited resources. The tactics utilised by parents to overcome digital hurdles, such as depending on search engines and practical experimentation, inform theories of informal learning and digital skill acquisition. This underscores the significance of contemplating contextual factors and learner-centered strategies in models of adult digital literacy advancement.

Lastly, this study enriches broader theoretical deliberations concerning the intersection of education, technology, and societal inequality. Our results propose that the rapid digitisation of education might be perpetuating existing social disparities, challenging idealistic perspectives of technology as an equaliser in education. This emphasises the necessity for more critical theoretical approaches that evaluate how digital learning environments could replicate or intensify socioeconomic gaps.

In conclusion, while the findings predominantly uphold existing theoretical frameworks, they also unveil areas where these models might necessitate refinement or expansion to comprehensively capture the intricacies of Parental Involvement in digital learning within underprivileged communities. This study underscores the requirement for more contextually attuned theoretical approaches capable of accommodating the distinct challenges and strategies employed by disadvantaged families in navigating the digital educational domain.

Practical Implications

The findings of this study offer several important practical implications for policymakers, educators, and community leaders striving to enhance PI in children's digital learning among low-income Thai families.

First and foremost, the study emphasises the immediate requirement for specialised digital literacy initiatives aimed at parents. These initiatives should be tailored to the specific needs and limitations of LIC families. Due to the time constraints faced by many parents, adaptable, modular learning alternatives should be taken into account. These could involve brief, targeted workshops, online instructional sessions, or mobile applications for learning that parents can utilise at their convenience. The content should prioritise practical, hands-on abilities that directly support children's digital education, such as navigating common educational platforms and basic troubleshooting.

Addressing the language barrier is of utmost importance. The predominance of English in digital interfaces poses a notable obstacle for many parents. Developers of educational technology and digital learning platforms should prioritize the development of interfaces and resources in the Thai language. Additionally, translation tools and materials with bilingual support should be incorporated into digital learning environments to enhance parental involvement.

The shortage of technological resources, particularly computers, in low-income households poses a significant obstacle. Policymakers and educational institutions should contemplate measures to enhance access to digital devices. This could involve subsidized computer schemes, community technology centres, or collaborations with private sector entities to offer affordable devices. Furthermore, efforts to enhance internet connectivity in low-income regions are crucial to ensure fair access to digital learning resources.

The study reveals a perceived lack of structured support from community organisations and governmental agencies. This gap presents an opportunity for the development of community-

based digital learning hubs. These centres could offer access to technology, provide training for parents, and serve as a bridge between families and educational institutions. Such initiatives could leverage existing community structures and potentially involve tech-savvy youth as mentors, addressing both the resource gap and the generational digital divide.

Given the protective stance many parents adopt towards digital engagement, there is a clear need for balanced education about online safety and the positive aspects of digital learning. Media literacy programmes that help parents critically evaluate online information and understand both the risks and benefits of digital engagement could be beneficial. This could help shift the focus from pure protection to informed guidance.

The finding that children often seek help from siblings or other family members suggests the potential for family-based learning initiatives. Programmes that encourage intergenerational learning and knowledge sharing within families could be effective. This approach could help parents feel more included in their children's digital learning journey while also capitalising on existing family dynamics.

Lastly, the study highlights the need for a holistic approach to supporting PI in digital learning. This involves recognising that digital skills are just one part of a broader set of challenges faced by low-income families. Initiatives should be integrated with broader social support programmes addressing issues such as time poverty, work-life balance, and overall family well-being.

In conclusion, these practical implications call for a multi-faceted, collaborative approach involving educational institutions, policymakers, technology developers, and community organisations. By addressing the specific barriers identified in this study and building on the strengths and strategies already employed by families, there is significant potential to enhance PI in digital learning and, ultimately, improve educational outcomes for children LIC Thai families.

Limitations of the Study

This research was conducted remotely with parents in Thailand due to resource constraints, which resulted in several limitations. Primarily, this approach restricted the depth of engagement in examining self-efficacy, particularly in observing Google Docs proficiency among low-income (LIC) parents.

A significant limitation arose from the use of the computer interface for Google Docs during the study. This choice may not accurately reflect the participants' real-life interactions with digital tools, as LIC parents predominantly use smartphones to access digital content, tools, and applications. The disparity between the computer-based interface used in the study and the mobile interfaces typically encountered by participants in their daily lives may have influenced the observed levels of proficiency and comfort with the tool.

Additionally, the study's reliance on self-reported data and remote observations may have introduced potential biases or inaccuracies in assessing participants' true capabilities and challenges. The inability to control the participants' environment during the study could have introduced variables that affected their performance or responses.

These limitations highlight the need for caution in generalising the findings and underscore the importance of future studies that can address these constraints through more immersive, in-person research methodologies tailored to the specific technological contexts of LIC families.

Recommendations for Future Research

The limitations and methodological approaches of this study offer valuable insights to guide future research in the field. There are several key areas that require further investigation. One notable discovery from this study was the significant involvement of mothers or female guardians as the primary supervisors of children's education. The gender gap in parental involvement warrants a more in-depth examination. Subsequent research endeavours could

focus on the contributions of fathers and male guardians to children's digital education, exploring the factors that impact their level of participation. A comparative assessment of maternal and paternal engagement might provide a deeper understanding of gender-specific challenges and possibilities in promoting children's digital learning.

To address the limitations of remote research, future studies could employ in-person observational methods. This approach would allow for a more nuanced understanding of parents' interactions with digital tools in their natural environment. Researchers could observe real-time problem-solving strategies, non-verbal cues, and family dynamics that may be missed in remote settings.

A longitudinal study tracking PI over an extended period could provide valuable insights into how digital literacy and engagement evolve over time. This could help identify critical periods for intervention and support, as well as long-term impacts of various factors on PI.

Given the prevalence of smartphone use among low-income parents, future research should focus on mobile interfaces and applications. Studies could be designed to examine parental proficiency and engagement with educational apps and mobile-optimized learning platforms, reflecting more accurately the digital tools parents use in their daily lives.

By addressing these areas, future research can build upon the foundation laid by this study, contributing to a more comprehensive understanding of PI in children's digital learning among low-income Thai families. Such research would be highly beneficial in guiding policy-making and practical implementations aimed at promoting successful parental participation in an ever-evolving digital academic environment.

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Appendices

Appendix A – Thailand’s digital economy and society development plans (Translated version)

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**Appendix B – Example of a multiple-choice
Digital Literacy Assessment (Translated version)**

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**Appendix C - Status of Media and Information Literacy and
Digital Understanding among Low-Income Thai citizen
(Translated version)**

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Appendix D – The Hoover-Dempsey and Sandler Model

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Appendix E – Interview Questions

Interview questions include:

RQ.1 Role Construction:

- How do you perceive your role and responsibilities in your child's digital learning?

RQ.2 Self-Efficacy:

- How confident do you feel in your ability to support your child's digital learning after attempting to use and navigate basic Google Docs functions?
- What aspects of digital learning do you find most challenging to assist with?
- How do you overcome difficulties when trying to help your child with digital tasks?

RQ.3 Life Context:

- What are the main obstacles you face in supporting your child's digital learning (socioeconomics and family culture)?
- What support or resources do you currently have or are provided by the community or relevant stakeholders?
- What type of support or resources would help you be more involved in your child's digital education?

Appendix F – Call for participation Poster (Thai)

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Appendix G.1 – Participant information sheet

Barriers to Digital Parental Support

PARTICIPANT INFORMATION SHEET

Version 2, 21 Feb 2024

Central University Research Ethics Committee Approval Reference: [xxxxxxxxxx]

We would like to invite you to take part in a research project. This sheet provides some information to help you decide whether to do so. Please take time to read this carefully and discuss it with friends, family, or your GP if you wish. If there is anything that you do not understand, or if you would like more information, please ask us. Please take time to consider whether you wish to take part.

What is the purpose of the research?

We want to learn about parents' barriers to parental support and involvement, especially media and information literacy and resources availability, which is necessary to help their children's at-home digital learning. We will use the Google Docs function as a mediatory tool to closely observe parents' self-efficacy and confidence in navigating this tool. Google Docs is a tool that lets you create documents and collaborate on them online with others. We want to see if parents can use Google Docs comfortably, or if they have problems using it.

We also want to understand the underlying issues that make it difficult for parents to support children's home-based digital learning, such as language barriers, internet access, digital literacy gaps, etc. By learning about the problems parents face, we can better understand how to assist parents in using technology to support their children's learning and provide them with better support. The goal is to identify areas where parents need more assistance so we can inform stakeholders and advocate for resources to improve their digital literacy and ability to participate in their children's at-home education using technology.

Why have I been invited to take part?

You have been invited to take part in this research because you

1. are identified as a parent/primary caregiver of at least one school-aged child enrolled in grades 7-10 secondary school.

2. are holding Thai nationality and currently reside in Thailand
3. have an annual household income lower than 2200 pounds (100,000 Thai baht)
4. are between 22-50 years of age
5. are responsible for and monitor their enrolled child's at-home education
6. have access to at least one electrical device able to access Google Docs
7. have internet access required for the online interview and task performance via Line video call

We will be recruiting up to 12 participants in this research.

Do I have to take part?

No. It is up to you to decide if you want to take part in this research. You can stop at any time, without giving a reason and without negative consequences, by contacting us. *The deadline by which you can withdraw any information is 25/06/24.* If you withdraw from the study, any data collected up to that point will still be used in analysis

What will happen to me if I take part in the research?

This study will be conducted fully remotely via Line video call at a time convenient for you during April-May 2024. Your informed consent to participate will be collected verbally again at the start of the call after reviewing all participation details, which you can withdraw at any point without penalty.

The total anticipated time commitment is 2.5 hours split into three sessions:

1. Skills Assessment:

- Hands-on attempt of basic Google Docs tasks
- Total time: 60 minutes

2. Semi-Structured Interview

- Answering interview questions about difficulties encountered
- Total time: 60 minutes

3. Response Review

- Verify accuracy of documented interview responses
- Total time: 30 minutes

Sessions will be recorded (Audio and Video) for the researcher to accurately capture your insights. Photographs of the tasks completed within Google Docs will also be taken as part of collecting capability evidence for the analysis. These recordings will be stored securely and will only be accessible to the primary researcher and supervisor. They will not be used in research outputs. As a participant, you are encouraged to pause, re-schedule, or stop any part of the study tasks if you require.

Are there any disadvantages or risks in taking part?

We recognise a potential discomfort or stress from being observed and evaluated during the Google Docs skills observation component can occur during the interview. Attempting unfamiliar technology tasks could highlight one's own digital literacy gaps which may cause uneasiness. However, you are encouraged to pause, re-schedule, or stop any part of the study tasks if you require. Your comfort is most important. There is no pressure to rush or finish everything perfectly. We want this to be a positive experience for you while we learn about how to provide better technology help.

Are there any benefits in taking part?

We hope this research helps create awareness about how to help different groups in need become more tech-savvy. More importantly, joining this study should give you useful personal information on your own abilities to find and use online media to help your child learn at home. The main benefit should be what you take away for your personal situation. But we also aim to spark bigger conversations on how we can transform the landscape of digital literacy and access among Thai families.

Expenses and payments

You will receive 500 Thai baht for participation.

What information will be collected and why is the collection of this information relevant for achieving the research objectives?

Data Collected:

1. Video and audio recordings of remote skills assessment and interview sessions. These recordings will be stored securely and will only be accessible to the primary researcher and supervisor. They will not be used in research outputs.
2. Photographs evidence of Google Docs tasks completed
3. Transcripts of responses to interview questions

4. Consent records
5. Contact details for the purpose of this research only
6. Task results
7. Field notes

Storage:

1. Digital data will be stored on a password-protected researcher's University OneDrive account only accessible to the primary researcher and supervisor.
2. Any physical data (printed transcripts) will be stored securely in the researcher's office.

Identification:

1. Participant names and any references within the data that might make the respondents identifiable will be replaced with unique numeric codes for any raw data/transcripts.
2. A separate encrypted document linking codes to names will be securely kept by the primary researcher.
3. You will be identifiable in the recorded videos. However, these will be stored securely as above, only seen by the primary researcher and supervisor, and not used in any outputs from the research.

Access:

1. Only the primary researcher and their supervisor will have access to the deidentified data.
2. Should translation or transcription support be required; authorised personnel would sign confidentiality agreements.
3. The video data will only be accessible by the primary researcher and supervisor.

Retention:

1. Data will be retained for the duration of the study until October 2024.
2. Records with identifiable and de-identified information will then be destroyed.

We will keep *contact details* about you until October 2024 after the study has finished. This excludes research documents with personal information, such as paper consent, which will be stored safely in lockable cabinets in a secure University of Oxford building for 5 years (screening forms), and for 5 years after publication or public release of the work of the research (consent forms).

The researcher, supervisor, translator, and transcriber will have access to the research data.

With your consent, we will keep your contact details on a secure database in order to let you know about future studies. We will keep a copy of your consent form with this database, as your consent is our legal basis for re-contacting you under UK data protection law. If you are contacted about a future study, you **do not** have to agree to participate. You can have your details removed from the database at any time by contacting the researchers. If you do not consent for your contact details to be kept, they will be deleted as soon as no longer needed for this study.

Will the research be published? Could I be identified from any publications or other research outputs?

The findings from the research will be written up in a dissertation. I would like your permission to use direct quotations and for your name to be attributed to these but without identifying you in any research outputs.

Data Protection

The University of Oxford is the data controller with respect to your personal data and, as such, will determine how your personal data is used in the research.

The University will process your personal data for the purpose of the research outlined above. Research is a task that we perform in the public interest.

Further information about your rights with respect to your personal data is available from <https://compliance.web.ox.ac.uk/individual-rights>.

Who has reviewed this research?

This study has ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: **xxxxx**).

Who do I contact if I have a concern about the research or I wish to complain?

If you have a concern about any aspect of this research, please contact xxxxxxx or research supervisor xxxxxxx, and we will do our best to answer your query. I will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Medical Sciences

Interdivisional Research Ethics Committee (MS IDREC) at the University of Oxford who will seek to resolve the matter as soon as possible - Email: ethics@medsci.ox.ac.uk; Address: Research Services, University of Oxford, Boundary Brook House, Churchill Drive, Headington, Oxford OX3 7GB.

Appendix G.2 – Consent form

ARTICIPANT CONSENT FORM

CUREC Approval Reference: xxxxx

Barriers to Parental Support: Understanding LIC Thai Parents' drawbacks in supporting children's home-based digital learning."

Study Summary: We want to learn about parents' drawbacks in supporting children's home-based digital learning, especially media and information literacy and resources availability, which is necessary to help their children's at-home digital learning. We will use the Google Docs function as a tool to closely observe whether parents know how to navigate Google Docs basic functions. Google Docs is a tool that lets you create documents and collaborate on them online with others. We want to see if parents can use Google Docs comfortably, or if they have problems using it.

We also want to understand the underlying issues that make it difficult for parents to involve in children's home-based digital learning, such as language barriers, internet access, digital literacy gaps, etc. By learning about the problems parents face, we can better understand how to assist parents in using technology to support their children's learning and provide them with better support. The goal is to identify areas where parents need more assistance so we can inform stakeholders and advocate for resources to improve their digital literacy and ability to participate in their children's at-home education using technology.

*Please initial
each box*

1 I confirm that I have read and understand the information sheet version dated _____ for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2 I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without penalty by contacting the researcher. The deadline by which you can withdraw any information is 25/06/24. If you withdraw from the study, any data collected up to that point will still be used in analysis

3 I understand that research data collected during the study may be looked at by designated individuals from the University of Oxford where it is relevant to my taking part in this study. I give permission for these individuals to have access to this data.

4 I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.

5 I understand that all information will be kept strictly confidential except in rare circumstances in which it is judged that I am, or someone else is, at immediate risk of serious harm, or where information is requested by a court of law.

6 I understand how to raise a concern or make a complaint.

7 I agree to take part in the above study.

Optional: I agree that my contact details can be retained in a secure database so that the researchers can contact me about future studies. YES/ NO

Appendix H – Qualifications for State Welfare Cardholders

Qualifications for State Welfare Cardholders:

1. Must be a Thai national.
2. Must be at least 18 years old.
3. Must have a low income, with an average annual income for oneself and family not exceeding 100,000 baht per year. Other assets must not exceed 100,000 baht per person per year.
4. Must have a housing loan limit not exceeding 1.5 million baht and a car loan limit not exceeding 1 million baht.
5. Must not own any real estate.

Appendix I – Google Docs practical tasks and questions

The figure originally presented here cannot be made freely available via ORA because of copyright.

Q.1 Interface (Identify the Google Docs icon)

The figure originally presented here cannot be made freely available via ORA because of copyright.

Q.1 Interface (Open and create a new document)

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Google Docs Interface that was used to observe

Google Docs practical tasks and questions:

1. Can you identify the Google Docs icon to open and create a new document?
2. Rename the document to 'Science Report'.
3. Can you apply bold, italic, and underline to the text on the document?
4. Can you move the text to the middle of the page?
5. Your child wants to undo what they just did. How do you help them?

6. Your child wants to share their document with a friend. How do you help them?
7. Your child wants to share their document link with a teacher, but they do not want anyone to edit their document; only commenting is allowed. How do you help them?
8. Your child has just inserted an image on-screen. They would now like to reposition it so it is in the middle of the page. What are some ways to help them move the image?
9. Can you create custom tables (e.g., 4x3 tables)?
10. Your child asks you to help edit the table by adding or deleting rows and columns and changing the borders. How do you help them?
11. Your child wants to recover a previous version (e.g., from 10 minutes ago) of their work. How do you help them?
12. Your child changed their mind and wants to remove a friend's access to the document. How do you help them?
13. Your child wants to download a completed document in a different format:
 - 13.1. Microsoft Word (.docx)
 - 13.2. PDF document (.pdf)How do you help them save a file in a different format?
14. Can you select a printer and print a file?

Appendix J – Themes

1. Parental Role Construction:
 - Supervision and caution regarding digital dangers
 - Oversight of homework and general guidance
 - Provision of technological resources
2. Self-Efficacy in Digital Skills:
 - Confidence in ability to learn with practice and available resources
 - Challenges with English language terms
 - Lack of confidence due to educational background
3. Strategies for Overcoming Digital Challenges:
 - Use of search engines and translation tools
 - Reliance on hands-on practice
4. Life contexts constraints:
 - Resource scarcity (lack of computers and stable internet)
 - Time constraints due to work commitments
 - Family dynamics influencing help-seeking behaviours
5. Community and Stakeholder Support:
 - Perceived lack of current support
 - Desire for future support and training

Appendix K – Ethical Approval

UNIVERSITY OF OXFORD
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Director Professor Victoria Murphy



5th March 2024



RESEARCH ETHICS APPROVAL

Research title: Barriers to Digital Parental Support

Research ethics reference: [REDACTED]

The above research has been considered on behalf of the Department of Education Departmental Research Ethics Committee (DREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to confirm that, on the basis of the information provided to the DREC, ethics approval has now been granted for this research. Please note the following:

Reference: Please ensure that you **use this ethics reference number** on all your own consent processes with participants.

Personal data: It is the responsibility of the PI to ensure that all personal data collected during the project is managed in accordance with the University's [guidance and legal requirements](#).

In-person activities: Any data collection involving in-person interactions with participants must have an up-to-date fieldwork risk assessment in place; further guidance is available from the Safety Office's [website](#).

Amendments: Please notify the committee if you intend to make any amendments to the information in your ethics application as submitted at date of this approval, as all changes must receive ethical approval prior to implementation. The amendment form is available on the [SSH IDREC webpage](#).