

Collaborative Digital Portfolio Assessment: Enhancing Partnership Between Teachers and Fathers in Early Childhood Learning

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ABSTRACT

The study aims to explore how the partnership between teachers and fathers could be enhanced through collaborative digital portfolio assessment. Females seem to play a leading role in early childhood education, contrary to their male counterparts. The latter takes a minimal supportive role, which necessitated this study. The purpose of the study is to explore why fathers' support seems inadequate in early childhood education, the importance of digital portfolios in modern-day learning assessment and the strategies that could be employed to engage fathers in digital portfolio assessment. Connectivism theory forms the basis for this study. The theory advocates for modern pedagogies and stakeholder collaboration in learning and assessment in the digital era. It upholds the use of digital tools in offering and assessing learning through connections, networks, technology and social interactions. It also promotes children's use of interactive online applications with the guidance of adults. The theory encourages collaborative efforts between children, peers and adults to enhance positive learning outcomes. The study is qualitative in nature and thus follows a qualitative approach. Data were generated through a critical review of the existing relevant literature. Thematic analysis was used to analyse data. The findings revealed that most fathers have been shown not to take part fully in early childhood learning because they are traditionally entrusted with financial support and family security. In a few cases where parental involvement is evident, females are the ones observed providing predominant early childhood support. The findings also point out that teachers seem to take total control of learning and development at this stage. The digital portfolio assessment pedagogy is deemed convenient and has the potential to reach out to most fathers in evaluating their children's performance and progress. Through training, partnerships and policy designs, digital portfolio assessment could be a useful tool for learning. The study concludes that the use of digital portfolio assessment tools in the modern world to evaluate children's different abilities, interests and shortcomings is requisite. The study therefore recommends the collaborative use of digital portfolios by teachers and fathers as an assessment tool to enhance teacher-father partnership and early childhood quality learning and development.

Keywords: collaborative portfolio assessment, early childhood care, education, digitalisation, teacher-father partnership

INTRODUCTION

The stage of early childhood education is considered a precious period in a child's development. The observation is consistent with Jun and Zainudin's (2025) postulation that early childhood education has a significant impact on children's cognitive, social, and emotional development. At this stage, the concerned stakeholders (the school and home) need to ensure the availability of the resources requisite to facilitate and support quality milestone development. The discussed phenomenon is affirmed by Mashudi et al. (2025) that promoting inclusive approaches in the design and implementation of technology-mediated parental involvement programmes is crucial for quality learning outcomes. One of the key components of quality

early learning is the collaboration of immediate and surrounding systems involved in a child's upbringing. Kagola (2024) affirms that the collaboration between teachers and parents is essential for creating a supportive environment for all learners through the provision of resources that support learning. The microsystem (the most significant level) is the first level of the Early Support Team that represents the environment that the child interacts with most directly, such as parents, teachers, schools and friends (Demissie & Pearse, 2025). The statement above implies that the child's education is a holistic process that involves the environment that the child lives in and interacts with, for it has an immense positive or negative impact on his/her performance. It is therefore important that each of the stakeholders plays their part adequately, especially fathers in the context of this study.

Furthermore, research also shows that technology has fundamentally reshaped parental engagement practices by enhancing accessibility, communication efficiency, and the ways parents can participate in their children's education (Mashudi et al., 2025). The assertion above implies that technology seems to provide a solution to the challenge of fathers' involvement in early childhood education because it creates ways in which fathers can effectively contribute to early childhood education. It can even facilitate fathers' involvement in child learning assessment since it suits their committed family and busy work schedules. Taking the discussion further is the understanding that the digital revolution has indeed reshaped education worldwide, and early childhood education (ECE) is no exception, requiring institutions to integrate technology into management and leadership while maintaining play-based and developmentally appropriate practices and collaborations (Syarifudin & Muttaqin, 2025). It can be inferred that the introduction of digital systems not only benefits learners and teachers but also the management and leaders within the education setting because it promotes collaboration among all stakeholders, accessibility and effective communication. Walland and Shaw (2022) also opine that digital portfolio assessment, which is a system that uses a collection of tools such as e-portfolios and multiple forms of media stored digitally – artefacts – can be used to evaluate and support teaching and learning. This tool is a crucial platform for monitoring and making a follow-up on children's developmental achievements occurring both at school and at home. Also, families, through fathers' liaison with the teachers, are frequently kept abreast of the progress children are making at this stage. This mode of assessment of children's development is an essential modern technological way of facilitating and monitoring learning. Sharing the same viewpoint are Thaanyane and Jita (2024), who state that these new assessment methods can replace the old methods, which present no place for the development of 21st-century skills needed for filling the gap between schooling and the labour market. The tool is considered not only interesting but enjoyable as well by technologically inclined children. Moreover, research also shows that several developmental skills such as numeracy and literacy are developed through this kind of interaction since timely feedback exchange occurs from both sides to further examine and strengthen the learning skills (Yulianto et al., 2025). In addition to the discussion above, through digital portfolio assessment, fathers become hands-on partners in children's learning. This has been proven by the literature to have a series of benefits, such as the use of digital systems to support planning, evaluation, documentation, and communication in ECE institutions (Syarifudin & Muttaqin, 2025). Literature proves that the quality of learning and assessment is proven to be best achieved through the use of collaborative digital platforms that become instrumental in enhancing communication between the school and the home, documentation and evaluation of children's progress, and also for further effective education mitigation and developmental programmes (Syarifudin & Muttaqin, 2025). The studies above have highlighted the importance of ECE, the importance of technology at this stage and digital portfolios. There is still a dearth of research on why fathers' contribution and participation in early childhood is low, the importance of collaborative digital portfolio assessment and strategies that could enhance digital portfolio assessment. The study therefore sets out to explore why fathers' participation in ECC is low, the importance of collaborative digital portfolio assessment and strategies that could enhance digital portfolio assessment.

Problem Statement

There seems to be no collaborative digital portfolio assessment between teachers and fathers at ECE. The observation is consistent with the findings that students are still taught and assessed through traditional approaches because teachers tend to avoid integrating collaborative practices in their teaching (Thaanyane & Jita, 2024). The absence of collaborative digital portfolio assessment negatively impacts the performance of

children because teachers only rely on classroom performance, and they are the sole assessors of learning. This notion affirms that traditional assessments are usually once-off and can only provide information on what students can do at a particular time, mostly in the classroom (Ugwoke et al., 2025). Furthermore, fathers can distance themselves from observing and assessing the performance of their children at that level, waiting for feedback from the school since teachers assess through teacher-made tests that are given by the teachers at the end of a lesson, mid-semester or end of the semester to ascertain what the students have learned (Ugwoke et al., 2025). On the contrary, the introduction of collaborative digital portfolio assessment means that the child's performance can be monitored even at home by parents, especially fathers, whose participation in ECE is seemingly low. In their study, Zakaria, Omar, Aziz & Said (2022) state that collaborative digital portfolio assessment will maximise parents' roles in ensuring that their young children fully optimise the use of technology safely and effectively to improve teaching and learning experiences in education. Moreover, Tata (2025) avers that active parental involvement in children's digital lives can have beneficial effects, safeguarding them from the potential risks associated with excessive technology use. Similarly, digital parenting interventions use technologies such as computers, apps, or smartphones to enhance parenting skills and practices that promote ECD, including stimulation, early learning, and responsive parent-child interactions (Jäggi et al., 2025). On the same note, this era has seen the rise of Information and Communication Technologies that reshape teaching, learning, and communication dynamics (Mashudi et al., 2025). The statement above implies that digital portfolios are crucial in modern-day learning assessment. The study therefore explored the importance of digital portfolio assessment and the strategies that could be employed to engage fathers in the collaborative digital portfolio assessment process in ECE. The main research question is: How can collaborative digital portfolio assessment enhance partnerships between teachers and fathers in early childhood learning? The following sub-questions guided the study: 1) Why does fathers' support in ECE seem inadequate? 2) What is the importance of collaboration in digital portfolio assessment? 3) What are the strategies that can enhance teacher-father partnerships and quality learning and development through digital portfolio assessment?

THEORETICAL FRAMEWORK

Connectivism theory provides a lens for this study. The theory was introduced by George Siemens in 2004 and later developed by Stephen Downes in 2005. It offers a more adaptive model suited for the digital age, where learning is viewed as a process of connecting information across networks (Alam, 2024). The scholar further highlights that the theory is also premised on the collaboration of different structures that contribute to sharing interests, knowledge, perspectives, expertise and opinions through online interactions. By implication, the theory promotes the use of technology (digital platforms) to access and retain information from different sources and stakeholders (parents and students) in teaching and learning. It thrives in dynamic, open-ended learning environments where the teacher acts as a guide or network curator, helping students develop the skills needed to connect with diverse sources of knowledge and collaborate with peers across digital platforms (Alam, 2024). In the context of this study, the teacher acts as an overseer who facilitates and guides the flexible learning environments (home and school) to improve students' learning through their peers and digital platforms. The theory therefore advocates for the use of modern technology to align with the demands of the digital world, and a teacher should act as a facilitator, not a sole source of knowledge, who guides students and parents in navigating and evaluating information learned (Alam, 2024). The theory bridges a gap between the traditional school and other structures that have an interest in a child's learning.

Holistically, connectivism theory becomes a vital tool in facilitating effective collaboration between teachers and stakeholders, such as fathers in this context (digital learning assessment). It connects and unites all stakeholders digitally regardless of time and space, thus allowing each member to contribute effectively to teaching and learning in early childhood. Taking the discussion further, Voskoglou (2022) opines that learning is focused on connecting specialised information sets, and the connections that enable us to extend our knowledge are more important than our current state of knowing. That is, the information provided by fathers at home and the knowledge children acquire outside class play a very important role in monitoring and improving the educational development of a child. Furthermore, it could also be through online platforms such as Zoom, Teams, Google Meet that interactive sessions could occur between the school and

home. Taking the discussion further is the understanding that interactive play-based learning with minimal screen time has been proven to be an ideal equilibrium point that meets the demands of the digital era without compromising children's developmental needs (Syarifudin & Muttaqin, 2025). This entails reporting from both sides on the child's progress, documentation of the children's developmental milestones, and discussion on the strategies that would best suit early childhood learning. Practically, connectivism theory becomes evident where efforts to improve quality in ECE should involve evidence-based approaches, such as the integration of technology in management, the implementation of digital leadership, and the application of play-based interactive learning and assessment (Syarifudin & Muttaqin, 2025). Connectivism therefore provides a useful theoretical lens for understanding teacher–father collaborative assessment through digital portfolios. It views knowledge as distributed across networks and learning as the process of establishing and navigating connections among people, information, and digital resources. In early childhood assessment, digital portfolios can support these connections by creating a shared space where teachers and fathers document, access, interpret, and discuss children's learning. Teachers contribute professional assessment knowledge, while fathers provide insights into children's interests, experiences, and learning behaviours across home and community contexts.

LITERATURE REVIEW

Digital Learning Through Digital Portfolio Assessment and Parental Role/Engagement

In the modern technological dispensation, children are surrounded by digital devices from birth (Çelik et al., 2023). Digital portfolios are therefore crucial resources for assessing, documenting, and communicating learning progress in early childhood (LaelaSari et al., 2026). Their significance lies in their capacity to record children's work, including videos, photographs, audio recordings, and observation reports, as evidence of learners' developmental milestones. Digital portfolios stand out from traditional ones, which document only paper reports of children's activities (Singleton et al., 2026). Additionally, e-portfolios are recommended to help teachers monitor and develop follow-up programmes on children's achievements and shortcomings (Rochmawati et al., 2026). Similarly, digital portfolios have become essential for promoting parental engagement in children's development (Urbina et al., 2025). Teachers use these portfolios to communicate children's progress with parents and to suggest intervention programmes (Rochmawati et al., 2026). Equally important, parents use these resources to provide information about the progress made in learning and the areas that need support, based on their interests, experiences, and how they learn at home (Urbina et al., 2025). Parents, on the other hand, become active stakeholders who not only wait to receive information about their children's progress from the school (Çelik et al., 2023). Parents understand their children better, including how they learn, and therefore provide essential support that facilitates various skills acquisition (LaelaSari et al., 2026). Significantly, teachers get additional perspectives regarding children's background and interests that may not be visible in the classroom (Rochmawati et al., 2026). However, several factors influence parental engagement, especially fathers, as necessitated by this study, in digital portfolio assessment. These include aspects such as access to technology, availability of electricity, digital and early childhood learning support competence, a conducive environment, and quality of communication between the parents and the teachers in support of children's learning (Urbina et al., 2025).

Why Fathers' Support in ECE Is Low

Fathers' support in ECE remains low due to societal norms, economic pressures, and systemic barriers that prioritise mothers as primary caregivers. Sharing the same viewpoint are Osborne and Ahinkorah's (2024) postulation that, despite the impact of engaged fatherhood on children's cognitive, emotional, and social development, many fathers encounter barriers such as economic pressures, cultural norms, and migration. The scholars further emphasise that, likewise, mothers are typically recognised as the primary caregivers, providing foundational emotional support and nurturing, while fathers are denied the same privilege by cultural norms. Taking the discussion further is the observation that mothers are reported as more highly engaged than fathers across various learning activities, which proves low father representation in the early childhood phase (Moisi et al., 2025). The fathers' role in caring for young children is still under scrutiny, and many early childhood interventions implicitly assume that parenting young children is the sole

responsibility of the mother (Evans & Jakiela, 2025). Though there is a recent growing recognition of fathers' positive influence on child development, their participation in their children's early learning is still inadequate. Recent studies highlight that demanding workplace commitments, persistent gender stereotypes and lack of male-tailored policies discourage paternal involvement in early learning. Evans and Jakiela (2025) further affirm that, most notably, fathers appear less inclined to participate in parenting education programmes that are mainly targeted to mothers, which, as a consequence, limits the potential of fathers. The implication of the assertion above is that since parenting education programmes mostly involve women, fathers seem to pay less attention, which limits their chances of taking part in early childhood learning.

The Importance of Collaborative Digital Portfolio Assessment in Early Learning

Collaborative digital portfolio assessment is of great importance in early childhood learning. The observation is consistent with Hu et al.'s (2021, p. 1528) declaration that "it is through the digital portfolio assessment that father involvement in assessing children's progress could be enhanced as well as through consideration of children's active learning and parents' support for creating viable online learning communities". By implication, the above scholars argue that since technology has made most things easily accessible, fathers' busy life commitments could be made flexible through electronic assessment portfolios. Mashudi et al. (2025) affirm that technology through digital communication tools fosters paternal involvement. In addition, meetings with children and teachers could also be scheduled at times that best suit both teachers and fathers. Through engagement with the children's teachers, fathers could learn the best approaches to their children's learning and assessment at home. Mashudi et al. (2025) aver that other studies also confirmed that special features in technology related to home-school communication can overcome language and literacy barriers in diverse communities while enhancing participation and long-term behaviour change in high-risk populations. One of the educators has noted that "younger children need parental assistance; otherwise they will not take the initiative to watch the videos as assigned by the teachers" (Hu et al., 2021, p. 1526). That is, the inclusion of both parents in their children's education is important. As an exchange in assessing children, fathers would have a say in what best suits their children's learning process. There are, however, some studies that have noted some challenges to the use of digital portfolio assessment, such as a lack of parental and teacher digital skills as well as the monitoring of children's screen use (Anggraeni et al., 2025; Fitriani et al., 2025; Tafrihah et al., 2024). Empirical evidence suggests that unregulated screen exposure is associated with delayed language development, reduced school readiness, and developmental disparities (Syarifudin & Muttaqin 2025). It is therefore through this collaboration that the prevalent challenges could be mitigated. As opposed to previous practice, when traditionally females were more hands-on in early learning tasks, males in recent years are considered valuable stakeholders in ECE.

Strategies to Promote Teacher–father Collaboration in Portfolio Assessment in Early Learning

Strategies for using technology as a tool for bringing both operational children's worlds (school and home) together for the enhancement of quality early learning are essential. These developments are likely to be driven by advancements in technology and evolving educational practices, including curriculum changes and policy shifts (Mashudi et al., 2025). Additionally, to monitor the use of digital learning when assessing various skills, literature suggests policies that address the accessibility of technological facilities as strategies to facilitate smooth father engagement in children's progress and assessment. This could be done through guidance for policymakers, school principals and ECE teachers in designing digital-based quality improvement programmes (Syarifudin & Muttaqin 2025). It can be inferred that there is a need for all stakeholders to come up with relevant strategies to accommodate fathers through the use of digital portfolio assessment in ECE. The idea is in line with the understanding that there is a pressing need to move beyond descriptive analyses toward impact-oriented studies that examine outcomes related to family well-being, child development, and digital equity (Mashudi et al., 2025).

Table 1 summarises the reviewed studies to demonstrate the evidence supporting each theme.

Study	Main focus	Key findings	Relevance to the theme
Cabrera et al., 2018	Barriers to father engagement	Fathers are generally regarded as the primary economic providers for their families, which often results in the assumption that they are less involved.	Direct
Condon et al., 2022	Barriers to father engagement	Fathers' parenting behaviours may be transmitted across generations, with fathers potentially reproducing patterns of involvement.	Direct
Demissie and Pearse, 2025	Approaches to teacher–father collaboration in digital portfolios	For father training programmes at school, there is a need for connections and relationships that are further strengthened through the fathers' breakfast club at the nursery and other parental engagement activities such as informal catch-ups over a cup of coffee.	Direct
Han et al., 2023	Barriers to father engagement	Father involvement may also differ according to the gender of the child, as some fathers find it easier to engage with boys.	Direct
Hu et al., 2021	Significance of digital portfolio assessment	Educators believe that online learning communities could connect fathers and schools and foster interaction.	Direct
Jun and Zainudin, 2025	Significance of digital portfolio assessment	Teachers must guarantee that digital tools are utilised in a balanced and purposeful manner aligned with developmental goals, solely for the purpose of improving early childhood skills acquisition.	Direct
Li, 2024	Barriers to father engagement	Fathers' approaches to early childhood learning, including educational background, income level, and geographic location.	Direct
Mashudi et.al. 2025	Approaches to teacher-father collaboration in digital portfolios	Digital communication tools should be accompanied by strategies that enhance digital literacy among both parents and educators, supported by ongoing professional development.	Direct
Ozcinar, 2020	Barriers to father engagement	Negative attitudes among families and practitioners, communication barriers, and cultural misconceptions within school programmes hinder father involvement	Direct
Silence, 2020	Barriers to father engagement	Lack of parental cooperation leads to low father engagement.	Direct
Smith, 2020	Barriers to father engagement	Fathers' perceptions of their role and identity may limit their involvement, and caregiving and educational responsibilities are regarded as women's roles.	Direct
TaṬa, 2025	Approaches to teacherfather collaboration in digital portfolios	Fathers also indicate a need for support in navigating the complex digital environment and understanding how digital technologies impact child development.	Direct

Thaanyane and Jita, 2024	Approaches to teacher–father collaboration in digital portfolios	Enforcing quality education through employing digital strategies in promoting active learning and engagement, communication skills, and addressing challenges such as access to technology and training for teachers and parents.	Direct
Walland and Shaw, 2022	Significance of digital portfolio assessment	E-portfolios have been shown to create opportunities for collaboration in that they provide a shared online space where collaboration can be facilitated and recorded.	Direct
Wenwei Luo et al., 2024	Significance of digital portfolio assessment	Touchscreen devices have seamlessly been integrated into the fabric of modern education, and touchscreen technology holds immense potential as a profound learning tool and approach to teaching children various early skills.	Direct
Zakaria et al., 2022	Significance of digital portfolio assessment	The use of digital assessment portfolios is a useful medium for children’s learning, as it is revealed that fathers agree that children would learn new and useful things on the computer.	Direct

To ensure that the literature review remained focused, relevant and aligned with the study objectives, clear inclusion and exclusion criteria were established. These criteria guided the systematic selection of relevant studies and ensured that the evidence included was appropriate and of sufficient quality. Clear and well-defined inclusion and exclusion criteria are essential for effective and systematic literature screening (Page et al., 2021).

Table 2. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Studies published in peer-reviewed academic journals.	Non-peer-reviewed sources, including blogs, magazines, news articles, and commercial websites.
Studies published between 2018 and 2025.	Studies published outside the specified date range, except for seminal theoretical works considered essential to the study.
Studies published in English.	Studies published in languages that the researchers could not reliably translate or evaluate.
Studies focusing on digital portfolios or e-portfolios in educational settings.	Studies focusing exclusively on paper-based or other non-digital portfolios.
Studies examining digital portfolios as tools for assessment, documentation, reflection, feedback, or communication.	Studies focused solely on the technical development, design, or programming of portfolio systems without an educational focus.
Studies addressing paternal, parental, or family engagement through digital technologies.	Studies that are unrelated to parents, families, teachers, learners, or educational engagement.
Studies examining fathers’ involvement or participation in children’s learning, development, or assessment.	Studies focusing exclusively on mothers, where there is no relevance to broader parental or family engagement.
Studies examining teacher–parent or	Studies focusing exclusively on teacher–teacher or student–

teacher–father collaboration in children’s learning or assessment.	student collaboration, without relevance to teacher–parent or teacher–father engagement.
Studies conducted in formal educational settings, including early childhood, preschool, primary, and other relevant school contexts.	Studies conducted exclusively in corporate, workplace, or other non-educational settings.
Empirical studies employing qualitative, quantitative, or mixed-methods research approaches.	Studies that do not provide sufficient methodological information to assess their relevance, quality, or credibility.
Conceptual or theoretical studies that make a substantive contribution to understanding connectivism, digital learning, or collaborative assessment.	Publications that only mention connectivism or digital technology without providing substantive theoretical relevance to the study.
Studies providing findings that are relevant to and contribute to addressing the research questions.	Studies that do not provide findings or information relevant to the research questions.
Studies providing sufficient information about the participants, research context, methodology, and findings.	Duplicate publications or multiple records reporting findings from the same study, with only the most complete and relevant version retained.

RESEARCH METHODOLOGY

This study adopts a qualitative research approach informed by the constructivist paradigm. Qualitative research is defined as an inquiry process of understanding where a researcher develops a complex, holistic picture, analyses words, reports, and detailed views of the informants, and conducts the study in a natural setting (Creswell & Creswell, 2018). In this study, the researchers have critically reviewed the existing literature to identify and synthesise empirical and conceptual studies on digital portfolios, teacher–father collaborative assessment, digital learning, parental engagement, connectivism, low contribution of fathers in early childhood learning, the importance of collaborative use of digital portfolio assessment and strategies that could be employed to enhance collaborative use of digital portfolio assessment by fathers and teachers in early childhood learning. Google Scholar was used to systematically search relevant literature using combinations of keywords such as digital portfolio, e-portfolio, digital assessment, parental engagement, teacher–parent collaboration, collaborative assessment and digital learning. Where multiple publications reported similar findings from the same study, the most comprehensive and relevant publication was retained to avoid duplication and overrepresentation of evidence. The intention was to find the trend and the gap, thus creating new knowledge.

Data Analysis

Data were analysed qualitatively. According to Wallstreetmojo and Vaidya (2023). Qualitative analysis can be defined as a method of analysing a particular subject using non-numeric and non-quantifiable indicators, behaviour, and characteristics to determine its overall situation, quality, value, or any other parameter. It includes interpreting, identifying, and examining patterns and themes in textual data and determining how they help understand the phenomena more profoundly for answering questions (Islam & Faraj, 2022). This study therefore adopted thematic analysis, which refers to a process of segmentation, categorisation and relinking of aspects of the data prior to the final interpretation (Matthew & Liz, 2010). Furthermore, according to Castleberry and Amanda (2018), TA can also be defined as a method for systematically identifying, organising, and offering insight into patterns of meaning (themes) across a dataset. In the context of this study, we critically reviewed the relevant literature, compiled it, then disassembled the data to create meaningful groupings, identified patterns, categorised them into themes that go together or have

connections, interpreted them and made analytic conclusions; thus, constructing new knowledge. The analysis involved six interconnected stages (adapted from Braun and Clarke, 2019).

Table 1. Six stages of thematic analysis

Steps in thematic analysis	Process involved
Step 1: Data Familiarisation	The researchers thoroughly examined and reviewed the data to develop a comprehensive understanding of its content, context, and participants. During this process, initial observations were recorded, and recurring patterns, key concepts, and emerging ideas were noted for further analysis.
Step 2: Coding of data	Relevant sections of the data were identified and labelled based on recurring ideas, words, phrases, and concepts. A consistent coding framework was applied throughout the analysis, with all codes systematically documented to ensure clarity and consistency.
Step 3: Categorising the codes into themes	The codes were grouped into categories based on their similarities, differences, and relationships. Each code was systematically documented, monitored, and assigned to an appropriate category throughout the analysis process.
Step 4: Reviewing the final themes	Overarching themes emerging from the identified categories were developed and refined. These themes captured the central meanings and patterns within the data and were aligned with the research questions.

The following themes emerged from the review and analysis of the literature.

Table 2. Identified themes

Theme number	Theme identified
1.	Digital portfolio assessment tools for teacher-home communication
2.	Scarcity of father support at ECE
3.	Teacher-father collaborative interpretation of digital portfolio assessment
4.	Barriers to meaningful teacher-father collaboration in digital portfolio assessment
5.	Approaches to enhancing collaboration between teachers and fathers in digital portfolio assessment.

FINDINGS AND DISCUSSION

The findings revealed reasons for low father participation in ECE, the importance of collaborative digital portfolio assessment in strengthening teacher–father partnerships, and strategies to promote teacher–father collaboration in digital portfolio assessment at ECE. During the literature review, findings emerged under these related themes: digital portfolio assessment tools for teacher–home communication; scarcity of father

support at the ECE level; teacher–father collaborative interpretation of digital portfolio assessment; barriers to meaningful teacher–father collaboration in digital portfolio assessment; approaches to enhancing collaboration between teachers and fathers in digital portfolio assessment.

Digital Portfolio Assessment Tools for Teacher–Home Communication

This theme answered the research question: The importance of digital Portfolio Assessment

The findings from the review of the related literature revealed the significant role played by digital portfolios in the assessment of children’s work in early learning. Different models of online learning have considered different pedagogical approaches and technologies which are most suitable for children's learning needs (Hu et al., 2021; Jun & Zainudin, 2025). For instance, literature reveals that touchscreen devices have seamlessly been integrated into the fabric of modern education and that touchscreen technology holds immense potential as a profound learning tool and approach to teaching children various early skills (Wenwei Luo et al., 2024).

Furthermore, the literature also revealed that teachers of a language course which made use of e-portfolios regard these as some of the learning approaches favoured by students in early learning (Walland & Shaw, 2022:371). Evidence from the literature further proves how developmental milestones are enhanced through the use of technological learning platforms, such as a common communication application (app) (WhatsApp) in Hong Kong, and the invitation of parents to get more involved to improve children's online learning outcomes in enhancing the early learning assessment process (Hu et al., 2021). In addition, literature has also revealed that platforms such as virtual field trips, educational videos, and online storytelling platforms give new chances for young learners to discover the world outside their immediate context, enhancing learning assessment (Jun & Zainudin, 2025). However, close monitoring is considered to be crucial in ensuring the effective use of technology in learning assessment. Literature also proposes that teachers must guarantee that digital tools are utilised in a balanced and purposeful manner aligned with developmental goals, solely for the purpose of improving early childhood skills acquisition (Jun & Zainudin, 2025).

Scarcity of Father Support at the ECE Level

Findings reveal factors from both the home and school environments that result in the scarcity of fathers in ECE; these include their socioeconomic status, cultural norms and practices, and levels of education. In the home context, fathers are generally regarded as the primary economic providers for their families, which often results in the assumption that they are less involved than mothers in interacting with and supporting their children (Cabrera et al., 2018:2). The literature further suggests that a lack of cooperation, communication, and mutual respect between parents can weaken the father–child relationship (Sillence, 2020). Negative attitudes among families and practitioners, communication barriers, and cultural misconceptions within school programmes, particularly those serving multilingual and immigrant families, also hinder fathers’ participation in teaching and learning (Ozcinar, 2020). Moreover, fathers’ perceptions of their role and identity may limit their involvement, particularly where traditional gender norms associate men with physically demanding work, such as construction, while caregiving and educational responsibilities are regarded as women’s roles (Smith, 2020:4).

Evidence also indicates that fathers’ parenting behaviours may be transmitted across generations, with fathers potentially reproducing patterns of involvement or non-involvement experienced during their own childhoods (Condon et al., 2022). Father involvement may also differ according to the gender of the child, as some fathers find it easier to engage with boys than girls, and such differences may limit girls’ opportunities to benefit from paternal support and may negatively affect the development of skills such as self-esteem and harmonious social interactions (Han et al., 2023). Furthermore, studies show that in traditional families, mothers tend to invest more in their children’s education than fathers, largely because of traditional gender-role attitudes, fathers’ working hours, and the gendered division of family responsibilities (Han et al., 2023). These factors collectively demonstrate that father involvement in children’s education is shaped by interconnected family, cultural, social and economic factors.

Teacher-Father Collaborative Interpretation of Digital Portfolio Assessment

There are advantages of using collaborative digital portfolio assessment. The findings from the literature reveal that educators believe that online learning communities could connect fathers and schools and foster interaction that could help align with educators' support for children's learning needs (Hu et al., 2021). The statement implies that, in the context of this study, online teaching and learning is a requisite platform that can influence fathers not only to take part in ECE but even in their assessment. That means they can easily be involved in collaborative portfolio assessment because it is digital and it saves time, contrary to the normal one-sided classroom assessment in the form of tests and/or examinations. It also implies that fathers will be able to take part in their children's education without considering cultural norms that regard males in children's lives as home security and financial providers while women seem more hands-on in child-rearing.

Another finding is that digital platforms are considered the best tools to engage males in early learning. They can use other online learning resources such as online educational games, online educational videos, and online parent–child activity designs by loading them onto the digital-mediated learning platforms or school internet (Hu et al., 2021). Furthermore, literature also shows that recently, there is interest portrayed by fathers in early learning through their desire for practical advice on managing time as well as content in digital technological use, protecting their children from online risks, and encouraging healthy digital habits. Fathers also indicate a need for support in navigating the complex digital environment and understanding how digital technologies impact child development and health (Taṭa, 2025). The literature also shows that the use of digital assessment portfolios is a useful medium for children's learning, as it is revealed that fathers agree that children would learn new and useful things on the computer, followed by children gaining valuable IT skills which would be useful for them in the future (Zakaria et al., 2022). It can be understood that a collaborative portfolio assessment tool not only benefits fathers but also all stakeholders because it promotes the acquisition of computer literacy.

Furthermore, literature also highlights that the application of technology in ECE points to the enhancement of the relationships between teachers and fathers in the sense that children will access digital resources, share them and then comment on their experiences by asking questions and providing explanations on those platforms (Hu et al., 2021). Such activities help build the connection between home and school undoubtedly.

In some studies, e-portfolios have been shown to create opportunities for collaboration in that they provide a shared online space where collaboration can be facilitated and recorded, which can then be assessed indirectly through reflective practices (Waland & Shaw, 2022). That means even fathers can take part in the assessment of their children through digital portfolio assessment.

Barriers to Meaningful Teacher–father Collaboration in Digital Portfolio Assessment

Literature on the barriers to meaningful teacher father collaboration in digital portfolio assessment reveals factors that influence fathers' approaches to early childhood learning, including educational background, income level, and geographic location (Li, 2024). The implication is that some fathers may not take part in their children's education because of low levels of education, which can lead to ignorance. Other factors include low income, which may restrict their ability to contribute fully financially to their children's education. In some cases, the place and environment one lives in could negatively influence thinking. Another challenge, as shown in the literature, is parents' expression of concerns about potential negative impacts related to digital teaching and learning, including excessive screen time, reduced outdoor activities, and negative emotions when using digital media (Li, 2024). It can be inferred that parents are concerned that young children may spend more time indoors on computers or cell phones at the expense of playing outside and socialising with their peers, especially because, at that age, children are full of energy and enjoy engaging in physical activities. The analysis is consistent with the observation that fathers are aware of the impact of their involvement on young children and the risks technology use towards the children (Zakaria et al., 2022).

Approaches to Enhancing Collaboration Between Teachers and Fathers in Digital Portfolio Assessment

The literature has revealed several approaches that could be implemented to enhance collaborative digital portfolio assessment at the foundation phase: First, there should be technological support and training of both teachers and fathers in the use of the digital platforms for assessment (Walland & Shaw, 2022). The initiative will enable teachers to deliver meaningful feedback and assessment. Sharing the same viewpoint are Mashudi *et.al.* (2025), stating that in practice, digital communication tools should be accompanied by strategies that enhance digital literacy among both parents and educators, supported by ongoing professional development in pedagogical digital competence. That is, training of all stakeholders on the use of digital tools is crucial. Furthermore, the findings also point out that appropriate online learning for young children should take into consideration their age, developmental needs, online safety and environmental health (Hu *et al.*, 2021). By implication, it should be noted that in the use of digital platforms in teaching and learning, age and stages of growth should not be ignored. The reason is that digital technology may expose young children to content beyond their age. It should therefore be regulated and monitored closely. To control the use of online teaching and learning, parents should be guided in the effective implementation of early learning on digital assessment, while still enforcing quality education through employing digital strategies in promoting active learning and engagement, communication skills, and addressing challenges such as access to technology and training for teachers and fathers (Thaanyane & Jita, 2024). In addition, the literature also reveals that for father training programmes at school, there is a need for connections and relationships that are further strengthened through the fathers' breakfast club at the nursery and other parental engagement activities such as informal catch-ups over a cup of coffee (Demissie & Pearse, 2025). Initiatives such as regular formal or informal meetings between teachers and parents (fathers) could promote collaborative digital portfolio assessment easily.

CONCLUSIONS

The study concludes that fathers do not take part in early childhood learning because of cultural and societal norms and expectations as well as economic factors. In fact, they are expected to provide security and financial support. Women, on the other hand, are culturally expected to play a leading role at that delicate age. On the other hand, it is also concluded that recently, some men seem interested in the educational development of their children from a very young age. As a consequence, teacher–father collaboration in digital portfolio assessment is crucial and required because it not only enables fathers' participation but also improves all stakeholders' relationships and technological skills. It also improves children's performance because a child gets support not only in the classroom from teachers but also from parents at home. The findings also revealed that portfolios serve as a means of communication to bridge the gap between home and school in developing the acquisition of skills in early childhood.

RECOMMENDATIONS

The study recommends that fathers should take part in their children's early education regardless of culture and traditions. The reason is that in some families there are no mothers, while in others; fathers are already taking responsibility for their children's early education. Another reason is that culture is dynamic and roles have been exchanged and twisted; for example, in some families, women are the breadwinners and providers, unlike in the past when men were the sole providers. This implies that men should also play that motherly role requisite at the ECC level. It is also recommended that collaborative digital portfolio assessment be implemented at ECC because it promotes partnership between teachers, learners and parents. It also recommends that special digital training be given to all stakeholders so that the assessment will be done correctly and systematically. This is in line with the understanding that policymakers, educators, and caregivers must adopt an open-minded stance, recognising both the potential and pitfalls of digital learning and assessment and to facilitate this, educational institutions could offer training programmes for educators, focusing on AI applications and their potential pedagogical implications (Luo *et al.*, 2024).

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