

**EARLY CHILDHOOD TEACHERS' PEDAGOGICAL ASSESSMENT
LEADERSHIP PRACTICES AND SKILLS IN GHANA**

by

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DEDICATION

This study is dedicated to almighty God and my late mom, Maame Ama Owusuwaa.

DECLARATION

Student number: 66091012

“I declare that *EARLY CHILDHOOD TEACHERS’ PEDAGOGICAL ASSESSMENT LEADERSHIP PRACTICES AND SKILLS IN GHANA*

is my own original research and that all the sources that I have quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality software checker and that it falls within the acceptable requirement.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher educational institution.”



SIGNATURE

8th December 2022

DATE

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ABSTRACT

An effective pedagogical leader requires a variety of knowledge and skills for assessment leadership. This study aimed to determine how Ghanaian early childhood teachers perceive pedagogical and assessment leadership and how assessment literacy, technology, school culture, and gender influence pedagogical leadership in relation to classroom assessment and its associated challenges. The study employed a pragmatic philosophical perspective underpinned by Vygotsky's socio-cultural theory in a distributed leadership orientation. The study utilised a concurrent triangulation design within the mixed-methods approach. It also employed a descriptive survey for the quantitative phase and a case study for the qualitative approach. The quantitative datasets were collected by administering a questionnaire to 700 randomly selected respondents. In addition, semi-structured interviews were undertaken with ten purposively selected participants for the qualitative approach. Descriptive statistics, exploratory factor analysis, confirmatory factor analysis, measurement model assessment, and structural equation modelling were used to analyse the quantitative data. Six significant themes of teachers' pedagogical assessment leadership practices emerged from the qualitative thematic analysis after integrating both datasets as some convergence and divergence were discovered in the findings. The teachers accepted their roles as assessment and pedagogical leaders, assessors, and facilitators but have limited skills and knowledge. This unique scholarly finding led to the conceptualisation of pedagogical assessment leadership as the process of leading and teaching while collaboratively improving learning and assessment in the classroom and beyond. Male teachers were found to be more task-oriented and strict. In contrast, female teachers often relied on their lobbying skills to elicit support from their colleagues in classroom assessment practices. Lack of capacity and resources, resistance to change, frequent policy changes, and the fear of being perceived as all-knowing emerged as themes relating to the challenges teachers face as pedagogical assessment leaders. The results from the quantitative data also indicated that the teachers are literate in pedagogical leadership and assessment with an average score of $M = 3.10$ and $SD = 0.74$; $M = 3.11$ and $SD = 0.76$ respectively. Hypothesis testing revealed that teachers' classroom assessment practices and literacy and technology use have a significant influence in relation to their pedagogical assessment leadership practices with ($\beta = 0.510$, p -value = 0.000) and ($\beta = 0.089$, p -value = 0.01) respectively, but not to that of the school culture which recorded insignificant positive influence of ($\beta = 0.023$, p -value = 0.514). Similarly, a significant influence was observed regarding teachers' gender and their pedagogical assessment

leadership practices with ($\beta = 0.035$, p-value = 0.306). The findings are discussed using literature on teachers' leadership in pedagogy and classroom assessment practices in the early childhood setting. It is concluded that the teachers have limited pedagogical leadership skills in classroom assessment practices but felt a need to improve their practices. The study therefore identified a need for more training, communication, and encouragement to assist the teachers to attain the desired level of pedagogical assessment leadership skills and practices. The implications for educational policy formulation, research, practice, and teacher leadership development are also discussed.

Keywords: Ghana, pedagogical assessment leadership, early childhood education, teacher leadership, school culture, classroom assessment, literacy practice, gender, technology use.

Opsomming

'n Doeltreffende pedagogiese leier moet oor 'n verskeidenheid kennis en vaardighede vir assesseringsleierskap beskik. Hierdie studie wil vasstel hoe Ghanese vroeëkindereonderwysers pedagogiese en assesseringsleierskap beskou en hoe assesseringsgeletterdheid, tegnologie, skoolkultuur en geslag pedagogiese leierskap met betrekking tot klaskamerassessering en sy verwante uitdagings, beïnvloed. Die studie het 'n pragmaties-filosofiese perspektief gebruik wat deur Vygotsky se sosiokulturele teorie in 'n verspreide leierskaporientasie ondersteun word. Die studie het 'n samelopende triangulasie-ontwerp binne die gemengdemetodebenadering gebruik. Dit het ook 'n beskrywende ondersoek vir die kwantitatiewe fase en 'n gevallestudie vir die kwalitatiewe benadering gebruik. Die kwantitatiewe datastelle is ingesamel deur 'n vraelys aan 700 willekeuriggeselekteerde respondente te stuur. Vir die kwalitatiewe benadering is semigestruktureerde onderhoude bykomend onderneem met tien doelbewusgeselekteerde deelnemers. Beskrywende statistiek, verkenningsfaktorontleding, bevestigendefaktorontleding, metingsmodelassessering en strukturele gelykstellingsmodellering is gebruik om die kwantitatiewe data te ontleed. Ses betekenisvolle temas van onderwysers se pedagogiese assesseringsleierskappraktyke het uit die kwalitatiewe tematiese ontleding na vore gekom nadat beide datastelle geïntegreer is en enkele konvergensie en divergensie in die bevindings opgespoor is. Die onderwysers het hulle rolle as assesserings- en pedagogiese leiers, assessore en fasiliteerders aanvaar, maar het oor beperkte vaardighede en kennis beskik. Hierdie unieke wetenskaplike bevinding het tot die konseptualisering van pedagogiese assesseringsleierskap gelei as die proses om te lei en te onderrig terwyl leer en assessering terselfdertyd in die klaskamer en verder verbeter word. Daar is bevind dat manlike onderwysers meer taakgeoriënteerd en streng is. In teenstelling hiermee maak die vroulike onderwysers dikwels staat op hulle oortuigingsvaardighede om die ondersteuning van hulle kollegas in klaskamerassesseringspraktyke te kry. 'n Gebrek aan bevoegdheid en hulpbronne, teenstand teen verandering, gereelde beleidsveranderinge en 'n vrees om as alwetend gesien te word, het as temas wat met die uitdagings wat onderwysers as pedagogiese assesseringsleiers verband hou, na vore gekom. Die resultate van die kwantitatiewe data het ook aangetoon dat onderwysers geletterd is in pedagogiese leierskap en assessering met 'n gemiddelde puntetelling van onderskeidelik $M = 3.10$ en $SD = 0.74$; $M = 3.11$ en $SD = 0.76$. Hipotesetoetsing het aangetoon dat onderwysers se klaskamerassesseringspraktyke en

geletterdheid en tegnologiegebruik 'n betekenisvolle invloed ten opsigte van hulle pedagogiese assesseringsleierskappraktyke het met onderskeidelik ($\beta = 0.510$, p-waarde = 0.000) en ($\beta = 0.089$, p-waarde = 0.01), maar nie ten opsigte van die skoolkultuur nie, wat 'n onbeduidende positiewe invloed van ($\beta = 0.023$, p-waarde = 0.514) getoon het. Op soortgelyke wyse is 'n betekenisvolle invloed waargeneem wat betref die onderwysers se geslag en hulle pedagogiese assesseringsleierskappraktyke met ($\beta = 0.035$, p-waarde = 0.306). Die bevindings word met behulp van literatuur oor onderwysers se leierskap in pedagogie en klaskamerassesseringspraktyke in die vroeëkindere-omgewing bespreek. Die gevolgtrekking word gemaak dat die onderwysers beperkte pedagogieseleierskapsvaardighede in klaskamerassesseringspraktyke het, maar dat hulle die behoefte het om hulle praktyke te verbeter. Die studie het dus 'n behoefte aan verdere opleiding, kommunikasie en aanmoediging om die onderwysers te help om die verlangde vlak van pedagogiese assesseringsleierskapsvaardighede en -praktyke te bereik, geïdentifiseer. Die implikasies vir opvoedkundige beleidsformulering, navorsing, praktyk en onderwyserleierskapontwikkeling word ook bespreek.

Sleutelwoorde: Ghana, pedagogiese assesseringsleierskap, vroeëkindereonderwys, onderwyserleierskap, skoolkultuur, klaskamerassessering, geletterdheidspraktyke, geslag, tegnologiegebruik

Tshobokanyo

Moeteledipele yo o nonofileng mo mekgwathutong o tlhoka kitso le dikgono tse di farologaneng tsa go etelela pele tlhatlhobo ka tirisano le ba bangwe. Thutopatlisiso eno e ikaelela go tihomamisa tsela e barutabana ba thuto ya go sale gale ba kwa Ghana ba bonang ka teng boeteledipele mo mokgweng o ba rutang ka one le go dira tlhatlhobo le gore kitso ya go diragatsa tlhatlhobo, thekenoloji, mokgwatsamaiso wa sekolo, le bong di tlhotlheletsa jang boeteledipele mo mekgwathutong malebana le tlhatlhobo ya mo phaposiborutelong le dikgwetlho tse di amanang le yone. Thutopatlisiso e dirisitse ntlhatebo ya filosofi ya tharabololo ya mathata mo maemong a a rileng e e tshegediwang ke tiori ya ga Vygotsky ya loago le setso mo mokgweng o o anameng wa boeteledipele. Thutopatlisiso e dirisitse mokgwa wa go kgobokanya deitha e e seng ka ga dipalo le deitha e e ka ga dipalo mo molebong wa mekgwa e e tswakantsweng. Gape e dirisitse patlisiso e e tlhalosang dipalopalo mo legatong la tshekatsheko ya deitha ya dipalo le tshekatsheko le patlisiso e e tseneletseng e e dirwang mo maemong a mmatota ya kgobokanyo le tshekatsheko ya deitha e e seng ka ga dipalo. Dideithasete tse di ka ga dipalo di kgobokantswe ka go neela lenaane la dipotso go baarabi ba le 700 ba ba tlhophilweng kwa ntle ga thulaganyo epe. Mo godimo ga moo, go dirilwe dipotsolotso tse go bodiwang dipotso tse di se nang dikarabo tse di rileng, mo batsayakarolong ba le lesome ba ba tlhophilweng ka maikaelelo mo kgobokanyong le tshekatsheko ya deitha e e seng ka ga dipalo. Go dirisitswe mekgwa ya go sobokanya le go tlhalosa dipalopalo, tshekatsheko e e utololang dintlha tsa botlhokwa, tshekatsheko e e tihomamisang nepagalo ya kamano ya deitha, tlhatlhobo ya sekao sa tekanyetso, le mokgwa wa go lekanyetsa le go sekaseka kamano ya deitha go sekaseka deitha e e ka ga dipalo. Go tlhageletse dintlha di le thataro tsa botlhokwa tsa mekgwatiriso ya boeteledipele jwa tlhatlhobo ya thuto jwa barutabana go tswa mo tshekatshekong e e sekasekang le go tlhalosa deitha e e seng ka ga dipalo morago ga go kopanya dideithasete ka bobedi gonne go lemogilwe kopano le katogano go se kae mo diphitlhelelong. Barutabana ba amogetse ditiro tsa bone jaaka baeteledipele ba tlhatlhobo le mokgwathuto, batlhatlhabi, le bafatlhosi mme fela ba na le dikgono le kitso e e lekanyeditsweng. Phitlhelelo eno e e kgethegileng ya thuto e dirile gore go nne le ditlhaloso tsa dikakanyokgolo tsa boeteledipele jwa tlhatlhobo ya thuto jaaka tirego ya go etelela pele le go ruta ka go dirisana mmogo le ba bangwe go tokafatsa go ithuta le tlhatlhobo mo phaposiborutelong le kwa ntle. Go fitlhetswe fa barutabana ba banna ba tsepamisa thata mo go fitlheleleng maikaelelo a tiro e bile ba latela melao ka tsela e e gagametseng. Ka tsela e e farologaneng, barutabana ba basadi bone gantsi ba ne ba

ikaegile ka dikgono tsa bone tsa go tlhotlheletsa badiramongo ba bone go bona tshegetso mo go bone ka mekgwatiriso ya tlathobo ya mo phaposiborutelong. Tlhaelo ya bokgoni le ditlamelo, go gana phetogo, go fetolwa gangwe le gape ga pholisi, le poifo ya go bonwa jaaka maitsegotlhe di tlhageletse jaaka dintlha tse di amanang le dikgwetlho tse barutabana ba lebaneng natso jaaka baeteledipele ba tlathobo ya thuto. Dipholo go tswa mo deitheng e e ka lekanyediwang ka dipalo le tsone di kaile gore barutabana ba na le kitso ya boeteledipele le tlathobobo ya thuto ka maduo a palogare ya $M = 3.10$ le $SD = 0.74$; $M = 3.11$ le $SD = 0.76$ ka go latelana. Teko le papiso ya tshitsinyo e bontshitse gore mekgwatiriso ya tlathobo mo diphaposiborutelong tsa barutabana le kitso ya go kwala le go buisa, le tiriso ya thekenoloji di na le tlhotlheletso e kgolo malebana le mekgwatiriso ya bone ya boeteledipele mo tlathobong ya thuto ka ($\beta = 0.510$, $p\text{-value} = 0.000$) le ($\beta = 0.089$, $p\text{-value} = 0.01$) ka go latelana, mme e seng mo mokgwatsamaisong wa sekolo o o rekotileng tlhotlheletso e e siameng mme e se botlhokwa ya ($\beta = 0.023$, $p\text{-value} = 0.514$). Fela jalo, go bonwe tlhotlheletso e kgolo malebana le bong jwa barutabana le mekgwatiriso ya bone ya boeteledipele mo tlathobong ya thuto ka ($\beta = 0.035$, $p\text{-value} = 0.306$). Go sekasekilwe diphitlhelelo ka go dirisa dikwalwa tse di ka ga boeteledipele jwa barutabana mo mekgwatirisong ya tlathobo ya mo phaposiborutelong le mokgwathuto mo maemong a thuto ya go sale gale. Go nnile le tshwetso ya gore barutabana ba na le dikgono tse di lekanyeditsweng tsa boeteledipele jwa mokgwa wa go ruta mo mekgwatirisong ya tlathobo ya mo phaposiborutelong mme go tsewa gore go na le tlhokego ya go tokafatsa mekgwatiriso ya bone. Ka jalo, thutopatlisiso e lemogile tlhokego ya katiso e ntsi, tlhaeletsano, le thotloetso go thusa barutabana go fitlhelela maemo a a eletsegang a dikgono le mekgwatiriso ya tlathobo ya thuto. Go sekasekwa gape le dipoelo tsa tlhamo ya pholisi ya thuto, tlhotlhomiso, tiriso, le tokafatso ya boeteledipele jwa barutabana.

Keywords: Ghana, boeteledipele jwa tlathobo ya thuto, thuto ya go sale gale ya bana, boeteledipele jwa barutabana, mokgwatsamaiso wa sekolo, tlathobo ya mo phaposiborutelong, tiriso ya kitso ya go buisa le go kwala, bong, tiriso ya thekenoloji.

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LIST OF ACRONYMS

ALI	-	Assessment Literacy Inventory
ASLS	-	Assessment Leadership Survey
PTLA	-	Principals Technology Leadership Assessment
ACECQA	-	Australian Children's Education & Care Quality Authority
AGFI	-	Adjusted Goodness of Fit Index
CFA	-	Confirmatory Factor Analysis
CMIN/df	-	Chi-square Minimum/Degree of Freedom
CPD	-	Continuing Professional Development
CR	-	Composite Reliability
CRC	-	Convention on the Right of Children
ECE	-	Early Childhood Education
EFA	-	Exploratory Factor Analysis
GFI	-	Comparative Fit Index
GOG	-	Good of Fit
IEL	-	Institute for Educational Leadership
IIEP	-	International Institute of Education Planning
MOE	-	Ministry of Education
NaCCA	-	National Council for Curriculum and Assessment
NECGTAG	-	National Early Childhood Graduate Teachers Association of Ghana
NTC	-	National Teaching Council
PALS	-	Pedagogical Assessment Leadership Skills
PASEC	-	Programme for the Analysis of Education Systems
RMSEA	-	Root Mean Square Error of Approximation
SC	-	School Culture
SEM	-	Structural Equation Modelling
SPSS	-	Statistical Package for the Social Sciences

SRMR	-	Standardised Root Mean Square Residual
TECH	-	Technology
TLI	-	Tucker-Lewis Index
TPALSPCAS	-	Teachers' Pedagogical Assessment Leadership Skills and Practices in Classroom Assessment Survey
UBE	-	Universal Basic Compulsory Education
UNESCO	-	United Nation Educational, Scientific and Cultural Organisation
UNICEF	-	United Nations Children's Fund

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CHAPTER 1

CONCEPTUALISATION AND ORIENTATION OF THE STUDY

1.1 INTRODUCTORY ORIENTATION

It is often said that the quality of a nation depends on its citizens and human resources (Akala, 2020). In equal measure, the citizenry's quality depends on its schooling system, while the quality of the school depends on its teaching force (Singh et al., 2021). No school, therefore, can be better than its teaching force. Given the pivotal role that teachers play in a nation's educational system, the leadership provided at all levels is of particular concern (Akala, 2020).

Numerous scholars, such as Darlington et al., (2020), Tan et al., (2020), and the Wallace Foundation (2013), conclude that leadership is second to classroom instruction among all the school-related factors that contribute to what students learn at school. In modern-day teacher education, teacher leadership is gradually gaining more attention in the research community in education. Owing to this rich experience, Gabriel (2005), suggests four main domains that drive the teacher leader: (a) influencing school culture, (b) building and maintaining a successful team, (c) equipping other potential teacher leaders, and (d) enhancing or improving student achievement. Supovitz (2018), following a thorough review of related literature, rather conceptualised three characteristics of teacher leadership. These are leadership for pedagogical improvement, teacher capacity development, and the allocation of specific roles for classroom teachers.

The technical knowledge and the skills associated with teacher leadership might include leading the process of gathering and interpreting student test scores as one of the teacher's core pedagogical activities. These requirements certainly add to the numerous tasks of teachers (Poglinco et al., 2003). Typically, there are seven domains of responsibility expected of teacher leaders and their related functions (Teacher Leader Exploratory Consortium, 2011). These expected domains of teacher leadership practices can be categorised as follows:

- i. Fostering a collaborative culture;
- ii. Accessing and using research to improve instructional practice;
- iii. Promoting professional learning;

- iv. Facilitating improvements in teaching and learning;
- v. Promoting the use of assessment data; and
- vi. Improving outreach and collaboration with families and the community and advocating for the profession.

The research conducted for this study involves assessing student data in order to improve teachers' pedagogical leadership skills and their associated assessment practices. York-Barr and Duke (2004), define teacher leadership as the process whereby teachers collectively or individually attempt to influence other teachers, principals, and other staff within the school setting while striving to improve instructional practices that improve students' learning outcomes and overall school improvement.

1.2 MOTIVATION FOR THE STUDY

The overriding purpose of this study is to address the following question:

- i. How do Ghanaian early childhood teachers perceive the concept of pedagogical and assessment leadership in their classroom practices, the factors influencing it, and its associated challenges?

The need to explore the factors that influence early childhood teachers' pedagogical leadership in order to gain a clearer perspective and better appreciation of teachers' assessment leadership practices was inspired by the researcher's personal experience as a former kindergarten teacher, early childhood pre-service teacher, and educator. Furthermore, assessment in early childhood education (ECE) emerged as a topic of interest for the researcher owing to his university teaching background. The researcher has taught undergraduate courses (such as the assessment, documentation, and evaluation of preschool children and educational psychology). Serving as a mentor for pre-service early childhood teacher candidates has also allowed the researcher to apply theory to practice, appreciate the value of assessment in early childhood, and investigate the impact of diverse perspectives of pedagogical leadership on children's learning and development.

The related background has motivated and nurtured the researcher's desire to engage in the current study, and to examine the dynamics of early childhood teachers' perceived pedagogical leadership skills, which influence their classroom assessment skills and practices. Having read the research conducted by the Organisation for Economic Co-

operation and Development (OECD, 2011; 2015; 2016; 2017; 2018; 2019), the researcher felt the need to expand its scope by gauging the classroom assessment practices of early childhood teachers in Ghana, since the researcher works in the country. There was also a need to explore how pedagogical leadership in classroom assessment can be contextualised and conceptualised from the African perspective.

The curriculum planners in Ghana, the National Council for Curriculum and Assessment (NaCCA), support this goal relating to the essential role that teachers play in implementing curriculum, and the informal nature of assessment practices in ECE in Ghana. For a child's early development, learning-centred pedagogy is preferred. Although the standard-based curriculum is a comparatively new term, teachers' classroom assessment practices should be as informal as possible (NaCCA, 2018). Early childhood teachers should not be tempted to subject children's work to a formal assessment. Some informal techniques, such as observation, speech communication, and gallery work, provide children with the opportunity to look at, and appreciate other pupils' work (Ministry of Education, MOE, 2016).

Similarly, in other parts of Africa, such as with the South African Foundation Phase, teachers are expected to employ developmentally appropriate assessment tools such as observation, documentation, and portfolio building in assessing children's learning outcomes (Department of Basic Education, DBE, 2015). Compared to related research studies on educational policies at the primary and secondary levels, only a limited number of studies have been undertaken on early childhood policy. Moreover, relevant studies of ECE have paid more attention to dimensions other than pedagogical leadership in classroom assessment. Systematic studies that cover multiple dimensions that influence teachers' pedagogical leadership skills in classroom assessment practices are also lacking. Hujala et al., (2016), and Bøe., et al., (2022), corroborate these statements and state that research on leadership in early childhood is relatively new; therefore, a need exists for more comprehensive research to be undertaken.

1.3 BACKGROUND AND CONTEXT

Leadership permeates through every aspect of human endeavour, and the early childhood setting is unlikely to be an exception. Diamond and Spillane (2016), and Kemethofer et al., (2022), are of the view that the ultimate goal of every school, being teaching and learning, will never be effective in the absence of effective and collaborative educational leadership. Therefore, school leadership is often conceptualised as the major variable which is only second to the actual classroom teaching, in terms of its positive or negative influence on children's learning outcomes (Grissom., 2004, 2021; Waniganayake et al., 2017). No meaningful learning takes place in the absence of sound pedagogical leadership (Institute for Educational Leadership, IEL, 2000). Such leadership in the school setting goes beyond someone in authority influencing followers and rather occurs in a distributed form (Boe et al., 2022).

The traditional view of educational leadership in early childhood has centred on programme administration, supervision, and staff development in order to promote the development of the teaching profession and equally in a culturally contextualised environment (Wise & Wright, 2012). Teacher leadership as a subset of educational leadership has also traditionally been conceptualised as positional or centre-based leadership. Nonetheless, Silver et al., (2002), are of the opinion that these two types of leaders cannot be located in the classroom and call for the third form of teacher leadership in a form of distributed leadership. Silver et al., (2002), accept pedagogical leadership and assessment leadership as the third wave of teacher leadership. Both are emerging fields with a dearth of research – not much is known about the leadership roles, knowledge, and skills of classroom teachers.

Relevant literature on educational leadership in the last decade, such as Battistone et al., (2019); Buckmiller et al., (2017); Cruickshank, (2017); and Day et al., (2016), has further demonstrated and documented the influence of quality teacher leadership on student learning outcomes and achievement, primarily through effective teaching and assessment practices. Traditionally, the school principal was primarily responsible for a school's overall performance. The pedagogical leadership model envisages classroom-based teachers as the leaders of assessment practices, who will lead the discussion especially during professional community sessions (Eubank-Morris, 2017). Kagan and Bowman (1997), categorise six specific domains in ECE which require sound educational

leadership, namely pedagogical, management, advocacy, community, conceptual, and career development. Furthermore, for example, Abel et al., (2017), reconstruct the entire leadership framework process. They differentiate numerous aspects of leadership in ECE to loosely include these three domains: leadership essentials, administrative leadership, and pedagogical leadership.

Researchers mostly opine that pedagogical leadership differs from conversational leadership traditional form of the leadership approach, which is associated with effective administrative management. Pedagogical leadership fosters relationship building, knowledge sharing, and promoting staff development in the school context to aid teaching and learning, with particular attention to classroom assessment processes (Male & Palaiologou, 2013).

Stiggins and Duke (2008), and Xie et al., (2020), are of the opinion that every effective pedagogical leader also requires knowledge and skills in assessment leadership. The concept of assessment leadership or leadership in classroom assessment has seen limited research, although it has been found in the educational literature since the early 1990s, as part of instructional leadership (Cizek, 1995, 2004; Cizek et al., 2019; Linqunti, 2014). Assessment leadership may be defined as the extent to which school leaders exhibit and demonstrate their level of knowledge and skills and their attitudes, values, and dispositions regarding assessment practices (Stiggins & Duke, 2008).

Eubank-Morris (2017), and Xie et al., (2020), view assessment leadership as the process whereby school leaders establish and use an inquiry-based approach to become assessment literate whilst effectively employing assessment practices with the goal of improving student learning outcomes. With this in mind, assessment leadership is the process of influencing others in the making of shared decisions during classroom assessment practices. For example, it can be undertaken by assigning tasks to teachers in the course of rotating assessment leadership responsibilities within the classroom and the wider school system. Similarly, innovative technologies in the modern world can positively influence classroom assessment practices as well as the skills of teachers to appreciate students' learning outcomes (Hodges et al., 2020). At the core of collaborative instructional leadership practices lies rich assessment and information technology use, which provide fertile grounds for research on pedagogical leadership in classroom assessment (Noonan & Renihan, 2012; Stiggins & Duke, 2008).

The literature on issues such as gender, technology, and school culture, with their mediated influence on teachers' pedagogical assessment leadership skills in the classroom, is abundant in some developed countries, such as Sweden, the UK, the USA, Canada, Japan, and Australia (Abel et al., 2017; Danniels et al., 2020; Hujala et al., 2016; Neumann et al., 2019; Sergiovanni, 1998; Waniganayake et al., 2012). On the other hand, a chronic dearth of research on the early childhood setting exists in the African, in particular, Ghanaian, contexts. Most of the studies conducted on pedagogical leadership, even in the western world, often employ either case studies or surveys with few or none employing a mixed-methods design. These studies primarily concentrate and centre on the administrative heads who often have limited knowledge and literacy relating to assessment practices at the expense of the actual classroom teachers (Bloom, 2005; Rodd, 2013; Siraj-Blattchford et al., 2014). Given this circumstance, there is a need also to explore and research the curriculum in early childhood, and how assessment literacy, gender, technology, and the specific school culture influence teachers' pedagogical and assessment leadership skills and practices.

The present study focuses on the pedagogical area of the six leadership roles expected of an early childhood teacher. Pedagogical and assessment leadership encompass the view that practitioners assume responsibility for being the leaders in facilitating developmentally appropriate pedagogical practices, with a special emphasis on their classroom assessment practices in promoting effective learning outcomes.

Recent studies of ECE focus on teachers' classroom assessment practices, with particular emphasis on the observation and documentation of children's learning outcomes. Classroom assessment is frequently viewed as the feedback mechanism for informing the attainment of quality classroom teaching and learning processes, with classroom teachers being the principal architects thereof (Sherpard, 2019). Similarly, other scholars posit that assessment forms the core component of the academic roles of educators (Holroyd, 2000), and of the overall quality of teaching and learning in higher institutions (James et al., 2002).

In this respect, teachers' assessment practices have been conceptualised in terms of two critical approaches: (a) the rise of large-scale assessment, and (b) changes in teachers' classroom assessment practices. Large-scale assessments are typically used for evaluative functions, which have been controversial in academic literature in recent

times, with parents and children often rejecting such grading (Brookhart et al., 2016; Duncan & Noonan, 2007). However, Neumann et al., (2019), categorise teachers' assessment practices according to the use of three tools – teacher-made classroom tests, externally designed standardised tests by national or state assessors, and those from commercial developers.

Essentially, teachers have been rigorous in probing effective ways to improve their classroom assessment practices and skills (Australian Children's Education and Care Quality Authority, ACECQA, 2018). Notably, ECE scholars have expressed concerns about the quality of teachers' assessment practices (Education Review Office, 2015), as classroom assessment practices are generally very emotive and have a deep moral basis. It is a delicate matter, as it concerns culture, ethics, and confidentiality, requiring high level of professionalism in the field of ECE (Carr & Luken, 2014).

Effective pedagogical leadership skills are a critical requirement for the sound assessment of children's learning outcomes, which is premised upon the reflective interpretation of assessment data. Holroyd (2000), views assessment as the core role of teachers. With this in mind, assessment in early childhood requires a decisive leader who understands quality and developmentally appropriate assessment practices. Nonetheless, quality itself may be a tough notion to comprehend as our understanding thereof is not static but reflects the context in which it occurs (Dahlberg et al., 2013). Identifying key options from the literature for what constitutes quality assessment practices will provide assistance to educators in this regard (Shepard, 2019).

Combining the recent interest in ensuring global standards and uniformity for teachers' instructional practices in early childhood suggests that cross-country learning and the sharing of classroom assessment practices are imperative. In this vein, a new phenomenon has been developed in the last decades for ensuring global standards and uniformity regarding teachers' instructional practices. Countries continuously reform teacher education, curricula, instruction, and assessment practices. Teacher leadership research and practices have emerged as a discipline globally (Donkor, 2015). For example, a report from the World Bank (2013), shows that Ghana is not performing well on the international stage in basic education for children's literacy and numeracy skills. In light of this, the overriding questions to answer are as follows:

- i. How do Ghanaian early childhood teachers perceive pedagogical and

assessment leadership in the classroom?

- ii. How do assessment literacy, gender, school culture, and technology influence their pedagogical assessment leadership skills and practices and associated challenges?

1.4 PROBLEM STATEMENT

The influence of educational leaders would not be complete and all-encompassing if school principals were given priority over the teacher leaders in terms of education and training in pedagogical issues (Shen et al., 2019). Modise (2019), Thomas (2020), and Thomas (2014), contend that the time is ripe for the leadership at the early childhood level to broaden its focus from the managerial to embrace the process of leading teaching and learning undertakings with a vision that situates pedagogy as the core ingredient of leadership in the enactment of the curriculum. Similarly, Roscoe (2013) and Scott (2016, 2018), indicate that the promotion of appropriate classroom assessment forms a unique component of pedagogical leadership.

Charteris and Smardon (2022), Stiggins and Duke (2008), and Wolf (1993), also believe that every effective teacher-leader requires knowledge of and skills in assessment leadership, which is a component of teacher leadership and pedagogical leadership. The role of the assessment leader entails multifaceted tasks and conditions. Assessment literacy plays a role in pedagogical leadership, assessment culture, and technology use in organising assessment data (Ball, 2017; Eubank-Morris, 2017; Fuller., 2016; International Institute for Educational Planning (IIEP), & United Nation Children Fund (UNICEF), 2022; Smith, 2019; (UNICEF & UNESCO), 2012).

Wilson (2016), indicates that school culture extends beyond daily routines and practices; saliently, it includes the mindsets of teachers regarding the rationale for their practices. Pedagogical leaders must create a learning culture while encouraging an attitude and the values of sharing knowledge and skills for overall school improvement (DuFour et al., 2008, 2009; Guskey, 2000, 2009, 2015). Duke (2004), concludes that no school can improve students learning without sound assessment leadership practices, which integrate curriculum and instruction with the analysis of assessment data to gauge students' learning outcomes. The concept of leadership in assessment is under-researched, although it has been found in the educational literature since the early 1990s,

as part of instructional leadership (Cizek, 1995; Liguanti, 2014). Assessment leadership or pedagogical leadership in classroom assessment represents the extent to which school leaders exhibit and demonstrate their level of knowledge and skills, and their attitudes, values, and dispositions regarding assessment literacies, skills, and practices (Stiggins & Duke, 2008).

According to Lingman and Lingman (2016), a high level of assessment literacy in an educational leader is a cornerstone for an improved school-based assessment process. However, they contend that school leaders and teachers often exhibit limited competencies or skills in school-based assessment. Historically, leaders of educational institutions have not been sufficiently provided with a variety of learning opportunities to educate themselves on sound classroom assessment practices, particularly the early childhood teacher (Chappuis et al., 2016; Cruickshank, 2017; Dahlberg et al., 2013; O'Connor, 2017). Hence, how early childhood teachers in Ghana would conceptualise pedagogical assessment leadership remains an open question.

The literature on issues such as gender, technology, culture, and their mediating influence on teachers' pedagogical assessment leadership skills in the classroom is abundant in developed countries such as Sweden, the UK, the USA, Canada, Japan, and Australia (Abel et al., 2017; Danniels et al., 2020; Hujala et al., 2016; Neumann et al., 2019; Sergiovanni, 1998; Waniganayake et al., 2012). Furthermore, Wang (2018), indicates the close relationship between school culture, technology and leadership the world over, including in Chinese traditions. Be this as it may, a chronic dearth of research exists on the early childhood education setting in Africa, and specifically Ghanaian, context.

On the global stage, Hallinger (2018), affirms that female instructional leaders outperform their male counterparts in terms of general instructional activities. Empirical evidence shows that, in several Francophone African countries, female elementary school pedagogical leaders out-perform their male counterparts with regard to the reading and numeracy skills of their school children who participated in the 2019 Programme for the Analysis of Education Systems (PASEC) (IIEP Dakar & UNICEF, 2022). The question remains: compared to men, how do female assessment leaders perform in an Anglophone African country such as Ghana?

In the few global research studies of early childhood pedagogical leadership practices, the research designs mostly involve surveys and case studies and not necessarily a mixed-methods approach (Alameen et al., 2015; DBE, 2012; OECD, 2015; World Bank, 2013). Appiah (2022), in a qualitative study involving 19 heads of schools and classroom teachers in Ghana, recommends that a mixed-methods approach be used to gauge teachers' conceptualisations and perceptions of pedagogical leadership. The question remains as to whether using a mixed-methods approach enriches the study of this phenomenon in the Ghanaian context.

Existing studies of early childhood leadership have focused on school principals rather than on classroom teachers. Among these studies are Cruickshank, (2017); Heikka et al., (2013); Kivunja, (2015); McCrea, (2015); Siraj-Blattchford et al., (2014). Ackah-Jnr and UDAH (2021), and Wolf (2019; 2020), indicate that training and preparation of teachers in Ghana are inadequate at the pre-service, induction, and continuing professional development levels. Hence, the teacher respondents in this study might as well be ill-prepared to lead pedagogically in ECE settings in Ghana (Adamu-Issah et al., 2007; Agbenyeya, 2018; Amakye & Ampah-Mensah, 2013).

The need exists to conduct research to gauge the perspective of the classroom teacher, who is often seen as the leader of the curriculum in early childhood settings. Due to the contextualised nature of pedagogical and assessment leadership, the researcher has sought to fill this void by means of a contribution to the literature, methodology, and practice associated with the major factors influencing early childhood teachers' pedagogical leadership skills and practices in their classroom-based assessments in the Ghanaian context. Thus, the present study intends to explore the following question:

- i. How do Ghanaian early childhood teachers perceive the concepts of pedagogical and assessment leadership and the extent to which assessment literacy, gender, school culture, and technology influence their pedagogical assessment leadership skills and practices, and the challenges associated with these?

1.5 THE RESEARCH AIM AND OBJECTIVES

This section describes the goals and objectives of the study, as stated in the research problem statement.

1.5.1 Aim of the study

This study employs an extensive review of related literature as well as subsequent fieldwork to answer this important question:

- i. How do Ghanaian early childhood teachers perceive pedagogical and assessment leadership and the extent to which assessment literacy, gender, school culture, and technology influence their pedagogical and assessment leadership skills and practices, and the challenges associated with these?

1.5.2 Objectives of the study

- i. To explore how Ghanaian early childhood teachers understand the concept of pedagogical assessment leadership.
- ii. To explore how Ghanaian early childhood teachers assess their self-perceived pedagogical and assessment leadership literacy skills in the classroom.
- iii. To determine the influence of technology on Ghanaian early childhood teachers' pedagogical assessment leadership skills and practices in the classroom, whilst exploring the challenges they face.
- iv. To confirm the statistically significant influence relating to Ghanaian early childhood teachers' self-perceived pedagogical assessment leadership skills in their classroom practices, in terms of assessment literacy, gender, and school culture.

1.6 RESEARCH QUESTIONS AND HYPOTHESES

This study seeks to explore and address the following question:

- i. What are Ghanaians' early childhood teachers' perceptions of the concept of pedagogical assessment leadership, as regards the skills and practices involved, and of the extent of the influence of assessment literacy, gender, school culture, and technology use on their pedagogical assessment skills and practices, and the challenges associated with these, in relation to the children's learning outcomes?

1.6.1 Primary research question

The study is guided by the following primary research question:

- i. How do Ghanaian early childhood teachers conceptualise pedagogical leadership, assessment leadership, and pedagogical assessment leadership?

1.6.2 Secondary research questions

The specific research sub-questions are as follows:

- i. How do early childhood teachers understand pedagogical leadership and assessment leadership? (Qualitative).
- ii. How do early childhood teachers conceptualise pedagogical assessment leadership? (Qualitative).
- iii. To what degree are the early childhood teachers skilful in their classroom assessment literacy and pedagogical assessment leadership practices? (Quantitative).
- iv. What challenges do early childhood teachers face as self-perceived pedagogical assessment leaders? (Qualitative).

1.6.3 Research hypotheses

Based on the purpose of the study, the following hypotheses were formulated to guide the study:

Ho1: There is no statistically significant positive influence of teachers' classroom assessment literacy on their pedagogical assessment leadership practices.

Ho2: There is no statistically significant positive influence of technology teachers use in classroom assessment on their pedagogical assessment leadership practices.

Ho3: There is no statistically significant positive influence of teachers' school culture on their pedagogical assessment leadership practices.

Ho4: There is no statistically significant influence of teachers gender on their pedagogical assessment leadership practices.

1.7 SIGNIFICANCE OF THE STUDY

The relevance of the current research study lies in it establishing of a strong relationship with the three significant reasons for research studies, as suggested by Creswell (2015), Creswell and Guetterman (2019), and Creswell and Poth (2018). The study intends to contribute to existing knowledge, to improving professional practices, and to policy formation in relation to early childhood teachers' pedagogical leadership skills in classroom assessment practices. The study also aims to demonstrate how gender, school culture, and technology influence such practices and to examine the

challenges related to these practices. The findings and results provide a deeper contextualisation and conceptualisation of early childhood teachers' pedagogical and assessment leadership skills and propose a new construct, "pedagogical assessment leadership".

The study also explores and explains how these classroom assessment practices may differ among early childhood teachers in Ghana. The knowledge gained about assessment through pedagogical leadership practices in the ECE setting is critical to bridging the gaps in the literature, and in the methods and professional practice employed. In addition, the study attempts to gain a better perspective and appreciation of the proper strategies for quality early childhood policy formulation relating to pedagogical leadership skills and developmental assessment practices among the early childhood teachers in Ghana.

1.8 RESEARCH ASSUMPTIONS

In the present study, the following assumptions were made:

- i. Early childhood teachers are skilful and literate in their classroom assessment practices.
- ii. The participants in the study have similar basic knowledge and training relating to developmentally appropriate classroom assessment practices.
- iii. All early childhood educators are familiar with concepts such as assessment, pedagogy, pedagogical and assessment leadership.
- iv. The practice and management of ECE institutions is in line with international trends as regards the use of technology in classroom assessment practices and gender sensitivity in school leadership.

1.9 PARADIGM, METHODOLOGY, APPROACH, RESEARCH DESIGN, AND ENQUIRY STRATEGY

Generally, concepts such as research design, paradigm, and methodology need to be explained to reduce potential confusion often associated with their usage and application in an educational research report of this nature.

1.9.1 The research paradigm

A research paradigm concerns the worldview or common set of beliefs or philosophical assumptions regarding the shared acceptance among scientists about how reality or truth ought to be viewed and addressed (Creswell & Creswell, 2018; Morgan, 2014). Generally, in research, a paradigm may consist of four parts: ontology, epistemology, methodology, and methods, in accordance with Crotty's (1998), research paradigm typology.

Ontology is concerned with the nature of our beliefs about existence or form and the nature of the reality that constitutes the truth of existence (Crotty, 1998; Guba & Lincoln, 1984; Lincoln et al., 2018). Grix (2004), believes that ontology is the point of variance of all forms of research. Epistemology deals with the nature and theory of knowledge, or the ways of knowing the truth about nature or reality (Crotty, 1998; Morgan, 2014). It concerns the process of knowing what one claims to know. The relationship between ontology and epistemology, therefore, is that they form the basis of research. Grix (2004), contends that ontology and epistemology can easily be viewed as the basic elements on which research work is grounded. In this study, the pragmatic worldview is employed. The researcher desires to gain multiple perspectives on, and in-depth knowledge of, how early childhood education teachers in Ghana conceptualise pedagogical assessment leadership.

In knowing the nature and form of what exists and how it exists, clarification must be provided regarding what one values in research work. The answer to the question of what one values in research ought to be arrived at honestly and ethically, and this forms the basis of axiology in research. Expanding the elements of the research paradigm from ontology, epistemology, and methodology, Heron and Reason (1997), include the values of being, that is, the axiology. Axiology concerns the nature and form of value and involves a consideration of what is intrinsic and worthwhile to the researcher (Heron & Reason, 1997). Simply, axiology is the study of the theory of values, including one's values, which is considered desirable in research work. Human values in the course of living affect how research work is conducted. What humans value underpins our research work, indicating what humans think constitutes the desirable purpose of ethical research work.

In line with the preceding discussion, the researcher's assumptions regarding ontology,

epistemology, and axiology in this study determined its methodology and the use of ethical methods to study Ghanaian early childhood teachers' pedagogical assessment leadership skills and practices in the form of their classroom observation and documentation using a pragmatic worldview. Methodology constitutes the master blueprint that determines the choice and use of certain approaches or research methods to gather data to derive the required knowledge (Crotty, 1998).

1.9.2 Methodology

Methodology concerns the theory of the scientific study of methods employed when solving a research problem. On the other hand, methods involve a range of strategies used in research data collection procedures and inform the basis for making inferences and interpretations in order to acquire knowledge of the world (Cohen et al., 2011; 2013). In summary, methods of inquiry are indications of the researchers' philosophical assumptions about what constitutes how knowledge about the world or humans can be derived honestly and are the basis of axiology in research.

This study's nature of enquiry in an attempt to find out the truth was influenced by both the positivist (quantitative) and interpretive (qualitative) paradigms to guide the study along the dimensions of ontology, epistemology, axiology, and methodology, in line with Denzin and Lincoln (2013; 2018). This research design originated from the researcher's paradigmatic perspective of the world of research. Many have opined that the use of mixed methods approaches acts as a positive strength when conducting research in education. They conclude that qualitative and quantitative research methodologies work in a complementary manner to increase the depth of a study (Creswell & Creswell, 2018; Patton, 2015; Small, 2011; Yilmaz, 2013). The author of this present study views the breadth and the width of the concept of pedagogical leadership skills from the perspective of early childhood teachers in Ghana as does he the factors that influence these skills in the teachers' classroom assessment practices and the challenges related to these practices.

Creswell and Creswell (2018), assert that, as regards methodology, researchers often validate knowledge claims from constructivist perspectives, using the multiple views from the various participants to develop a pattern. This study attempts to understand the participants' perspectives in social settings through the participants' own interpretations

without wanting to arrive at a predetermined result. This notion is in line with the interpretive paradigm since it explains the teachers' views on the contextual and conceptual understanding of their pedagogical assessment leadership skills without the researcher interrogating theories or making any inferences.

The factors influencing the teachers' pedagogical assessment leadership in their classroom assessment practices are assessed in this study. A quantitative approach was used to determine the relationships between the dependent and independent variables. The researcher relied on a post-positivist perspective to verify claims by measuring and analysing the relationships while using pedagogical and assessment leadership scales in a form of a questionnaire to solicit data on their perspectives on the phenomenon studied from the teachers.

1.9.3 Research Approaches

The research approach is the plan and procedure used in research which details the steps – involving inductive (qualitative), deductive (quantitative), and/or abductive (mixed methods) logical reasoning – from broad assumptions to detailed methods of data gathering, analysis, and interpretation (Saunders et al., 2003). In order to explore early childhood teachers' pedagogical assessment leadership skills and practices and their related influencing factors in Ghana, the researcher prioritised the abductive over the single inductive and deductive methods of logic reasoning and inferences. This then formed the basis of the research approach.

The researcher obtained guidance from the numerous debates regarding the rationale for employing the mixed methods approach, such as those in Creswell and Creswell (2018). They firmly believe that mixed methods are highly efficient in social science research. These methods employ the discovery of patterns, that is, induction; and the testing of theories and hypotheses; whilst using abduction to merge the two in order to uncover the best and most plausible set of explanations to one's findings and results. The researcher utilised this approach to generate answers to questions about pedagogical leadership skills in classroom assessment practices among Ghanaian early childhood teachers.

Typically, the fundamental rule for the mixed methods-research approach is that the

combination of the qualitative and quantitative methods, which provides a more holistic and complete understanding of a research problem than either approach does alone (Creswell, 2015). The goal of the mixed-methods paradigm is not a refutation of either the qualitative or quantitative approaches but rather to combine the positive and negative aspects of each in a single study (Mayoh & Onwuegbuzie, 2014). The researcher hopes to achieve a broader understanding of the matter under study by utilising both qualitative and quantitative approaches. The primary usage of the mixed methods was premised on the fact that the researcher intends to generalise, contextualise, triangulate, confirm, and contradict the findings and results of the research into Ghanaian ECE settings.

1.9.4 Research design

A research design is often viewed as the all-encompassing strategy that a researcher adopts to incorporate the various components of the study in order to address the research problem logically. It thereby constituting the blueprint for data gathering, measurements, and analysis (University of South Carolina, USC, 2020; Creswell & Creswell, 2018). The research design details the techniques and methods selected to undertake the research inquiry.

1.9.5 Strategies of inquiry

In order to fully understand the perspectives on early childhood teachers' pedagogical assessment leadership skills and their related influencing factors in Ghana, along with the challenges faced, the current research employed mixed methods, specifically the concurrent triangulation approach. Several scholars, such as Creswell and Creswell (2018), and Hayashi et al., (2019), assert that, in terms of this form of enquiry, researchers often validate knowledge claims, primarily from the constructivist point of view, such as the multiple views of different participants with the intention of developing a pattern.

This study attempts to understand the perspectives of the participants in social settings through interpretations without wanting to arrive at a predetermined outcome. This attempt aligns with the interpretive paradigm since it aids in the exploration of the views of the teachers on their contextual and conceptual understanding of pedagogical leadership.

Concurrently, regarding teachers' pedagogical assessment leadership skills and the factors that influence these, a quantitative approach was employed to examine the relationships between the predictor and outcome variables involved. In this sense, the researcher relied on the post-positivist perspective to verify claims by measuring and analysing the relationships. The relationships were analysed using a leadership scale in a form of a questionnaire to solicit data from the teachers, whilst gauging their perspectives about the phenomenon studied. Thus, with the use of both the quantitative and qualitative research approaches, the researcher hoped to gain detailed insight into the problem under study and to be able to generalise, contextualise, and compare the findings and results, whilst triangulating the data to ensure credibility. This approach provides a comparative advantage over a mono-method research design, which would limit the study.

1.10 DATA GATHERING PROCEDURES

This section summarises how the data collection procedures were undertaken in the course of the study, including site selection, sampling, and data gathering itself.

1.10.1 Site selection

The study of early childhood teachers' pedagogical and assessment leadership skills and practices in Ghana would have benefited from sampling respondents from all 10 administrative political municipalities in the Greater Kumasi Metropolis. However, such sampling was realistically not possible owing to time and budgetary constraints. Rather, researcher decided to use a sample that may be representative of the country as a whole by selecting teachers from the second largest metropolitan city, Kumasi. It is the most cosmopolitan city in the country, as its population includes members of all the ethnic groups in Ghana.

In order to achieve limited generalisation of the results of this study, the researcher carefully selected sample sites from the 10 municipalities that form the Greater Kumasi Metropolitan Assembly. The municipalities have the largest number of early childhood schools in Ghana and accommodates members of every ethnic group in Ghana (Ghana Statistical Service, 2021).

1.10.2 Sampling

The researcher relied on an in-depth assessment of the early childhood teachers' perceptions of their pedagogical and assessment leadership skills and practices. Hence, a multistage sampling procedure was strategically employed. The choice of this technique was affordable the researcher, allowing the opportunity to split the entire population into groups for easy sampling. In the context of this research, the multistage sampling procedure allowed the researcher to use different sampling techniques in the study. It also aided the selection of the participants, who provided vital data for the study. Sampling offers an accurate understanding of how each participant in the study was selected. In this sense, the researcher also accepted the belief that a multistage sampling technique offers a means to access the most significant and vital data from participants (Creswell, 2014; Creswell & Poth, 2018).

1.10.3 Data gathering tools

In order to collect detailed descriptions of data to answer the sub-questions of the study, the researcher adopted and adapted a questionnaire from multiple sources using a semi-structured interview guide (see Appendices F and G). The questionnaire was a five-point Likert scale, ranging from agree or disagree for a set of statements (Appendix F). The interview guide was furthermore useful as it assisted the researcher to assess the participant's perceptions in some depth (see Appendix G). The use of multiple methods led to data triangulation (Thanh & Thanh, 2015), which resulted in a detailed understanding of the early childhood teachers' pedagogical and assessment leadership skills in relation to their classroom assessment practices in Ghana.

1.10.4 Reliability, validity, and trustworthiness

Issues of validity and reliability emerge with the use of the qualitative approach. Lincoln and Guba (1985), and Lincoln et al., (2018), propose four main domains for evaluating the accuracy of the qualitative data collection process. These are credibility, transferability, dependability, and conformability. This study acknowledged the framework of validity and reliability in the quantitative phase.

1.10.4.1 Reliability

The composite reliability (CR) of the scales and the internal reliability of items by Hair et al., (2010), were carefully examined. For the CR and the items' internal consistency, CR and Cronbach's alpha ratios were required to meet the minimum threshold of 0.7 for social and behavioural science studies (Bagozzi, 1993; Fornell & Larcker, 1981; Henseler et al., 2014). Following best practice, the scales' reliabilities were confirmed by comparing the results with those previously studied.

1.10.4.2 Validity

Hayashi et al., (2019), explain validity as the extent to which an item in the questionnaire measures exactly what it sought to measure. To ascertain the validity of the instrument, experts in the field of early childhood education and educational research were consulted to assess the questions in order to determine that the variables were accurately measured by the instrument in the study. The experts' assessments led to modification of the questions. Again, in the qualitative phase, the data were presented back to the participants to confirm what was actually said during the interview. The intent was to engage in member checking to confirm the themes that emerged from the data gathered (Saldana, 2016). Some minor corrections were pointed out by the interviewees relating to their pedagogical leadership roles and assessment literacies. The step served as a method of ensuring the credibility of the findings in the study.

1.10.4.3 Dependability

The issue of dependability is associated with the need to acknowledge the ever-changing context within which the study takes place. This researcher, therefore, used member checking and independent assessors to check and predict possible changes that might occur in the settings and how such changes could affect the researcher's approaches and the findings of the study.

1.10.4.4 Conformability

Conformability, on the other hand, deals with the extent to which the results or findings can be corroborated or substantiated by others. The researcher ensured proper documentation of the procedures involved through triangulation, an audit trail, peer review, and the rechecking of the data throughout the study.

1.10.4.5 *Trustworthiness*

Amankwaa (2016), Guba (1981), and Hammarberg et al., (2016), state that a study can be trustworthy only if the researcher ensures its truth, value, applicability, consistency, and neutrality. Trustworthiness is one of the most important difficulties to attain in research, especially in mixed methods studies (Montuschi, 2014). The core reason always involves the argument that qualitative research is subjective and value-laden (Montuschi, 2014). The traditional means of confirming the rigorous nature of research has often been that of validity and reliability (Kusi, 2012). Fundamental procedures to ensure dependability, confirmability, credibility, and transferability, as prescribed by Silverman (2015), were followed to guarantee the trustworthiness of the study.

1.11 ETHICAL CONSIDERATIONS

The researcher received ethical clearance certificate from the University of South Africa's College of Education (see Appendix D). Permission and approval were sought from and granted by the relevant regulatory bodies in the educational sector in Ghana, namely the Ministry of Education, the Metropolitan Educational Directorate, as well as the various research sites and the research participants. Participants from the selected ECEs in Ghana who volunteered were duly briefed on the study's main aim. Similarly, the issue of informed consent was also thoroughly discussed with the participants in the course of the research process. Furthermore, before data collection commenced, a firm assurance was provided to the respondents regarding the confidentiality and anonymity of the information that was sought.

1.11.1 Confidentiality

An official letter of ethical clearance was issued by the Department of Education at the University of South Africa confirming that the data gathering instrument was not harmful to the participants. This was followed by written letters of consent that was issued to every participant, assuring him or her about the voluntary and confidential nature of the study and of the possibility of opting out at any given time. These were signed by all the participants. Confidentiality in a research study concerns the process of handling the information regarding the respondents confidentially. This includes the principle of trust: the researcher assured the participants that their trust would not be exploited for personal gain.

In line with international best practice, the information gathered from the early childhood teachers in Ghana was treated with strict confidentiality, and the respondents' identities were not disclosed in writing. The data are reported here in aggregate form. Codes were used on the interview transcript and the questionnaire in place of their names to ensure the highest level of confidentiality. Furthermore, only codes (pseudonyms) were used on the interview transcripts to ensure the privacy of the respondents' and the confidentiality of the data obtained from them. The researcher employed all the required steps to ensure the confidentiality of the data used in the study.

1.12 THEORETICAL VIEW

Theories are a cohesive collection of verified broad propositions generally accepted as true. A theory is often viewed as a set of interrelated ideas and facts that attempts to explain or predict a phenomenon or event (Mackey & Jacobson, 2011). Hence, theories are used to shape participants' ideas and concepts in order to achieve the aim of any study (Mackey & Jacobson, 2011). The researcher believes that theoretical review forms an integral part of scholarly research, in which activities based on principles and practices are used to justify the course of action. Tewel (2015), indicates that theoretical underpinning helps to predict and understand participants' assumptions about how knowledge is gained and explained.

This study is underpinned by Vygotsky's social constructivism and socio-cultural theories (Black & William, 2009; Gipps, 1999; Shepard, 2000; Vygotsky, 1978, 1997; Willis, 1993, 2009) along with the distributive and assessment leadership framework (Chappuis et al., 2016; Duke 2004; Harris & Spillane, 2008; Spillane, 2005; Spillane & Diamond, 2007; Stiggins & Duke, 2008). Biggs and Tang (1997), argue that judgment or assessment is required to be holistic and consistent with a socio-cultural situated approach. Further work needs to be undertaken to develop approaches to assessment practices that cohere with a socio-cultural perspective on learning.

Using social constructivist theory to develop instructional and assessment systems requires an understanding of both general theories of the nature of human learning and development and of discipline-specific models of learning in practice (National Research Council, 2015). In light of this, the researcher values the social-cultural dimension of the teachers and the learning process as well as of the assessment practices.

The focus of distributed leadership has been on student achievement and progress towards the development of teaching (Aldaihani, 2020; Lumby, 2017). Situational leadership and contemporary leadership theories best formulate the concept of distributed leadership by collaborating and distributing leadership responsibilities mutually (Malloy, 2012; Ozer & Beycioglu, 2013; Spillane & Diamond, 2007). Distributed leadership refers to a collective and interactive approach to leading in terms of which leadership roles go beyond the traditional positional leaders, who often just manage but do not lead the schools (Spillane, 2006; Woods, 2016).

1.13 DELIMITATION OF THE STUDY

Delimitation of a study usually involves those unique attributes that emanate from possible limitations to the scope of the study and, by extension, the conscious discretionary decisions about what to exclude or include in the study as a whole (Bloomberg & Volpe, 2019; Simon & Goes, 2013). This study was delimited to current school early childhood teachers at 350 private and public early childhood centres within the Kumasi Metropolis. The perceptions and understandings of other relevant stakeholders outside the classroom, such as non-teaching staff members, students, parents, and people from the community were not included in this study. Furthermore, of the numerous mixed-methods tools of data triangulation, this study primarily employs only in-depth interviews and a questionnaire as data collection methods. Discussions on the pedagogical leadership practices and skills of the early childhood teachers centred on only distributive, pedagogical, and assessment leadership orientations, without exploring other forms of educational leadership.

1.14 KEY CONCEPTS

Assessment – The collection of information used to make educational decisions about children or a group of children or to evaluate a programme’s effectiveness (Jackman, 2013).

Assessment as learning – The process whereby students become adept at personally monitoring what they are learning and use what they discover to make adjustments, adaptations, and even major changes to their thinking. With teacher guidance, students develop, practice, and become comfortable with reflecting and critically analysing their

learning. Opportunities for assessment as learning can take place in kindergarten using learning journals provided at centres, self-assessment, peer assessment, and portfolio assessment (Jackman, 2013).

Assessment for learning – Provides teachers with information about what their students know and can do or identifies gaps students may have in their knowledge. The process is designed to provide teachers with the information required to modify and differentiate teaching and learning activities. Examples of assessment for learning in kindergarten include observation, reading, and writing conferences, direct communication, demonstrations, and running records (Jackman, 2013).

Assessment of learning – What students know and demonstrate and whether or not they have met expectations or goals of the curriculum. The process is designed to provide summative evidence of achievement to parents, other educators, students, and outside groups. Examples of assessment of learning in kindergarten include performance tasks, portfolios, and retelling (Jackman, 2013).

Assessment leadership – The process whereby school leaders establish and use an enquiry-based approach to become assessment literate while effectively employing assessment practices with the goal of improving student learning outcomes and of influencing teacher colleagues to adopt developmentally appropriate practices in classroom assessment (Eubank-Morris, 2017).

Assessment literacy – The extent to which key persons or groups are informed of knowledge, appreciation, and capabilities regarding assessment techniques, procedures, and applications (Eubank-Morris, 2017).

Curriculum – A multi-levelled process that encompasses what happens in an early education classroom each day, reflecting the philosophy, goals, and objectives of the early childhood programme (Jackman, 2013).

Developmentally appropriate practice – The curriculum planning philosophy expressed by National Association for the Education of Young Children (NAEYC) defines and describes what is developmentally appropriate for young children in childhood programmes serving children, and their families, from birth to the age of eight years (Jackman, 2013).

Evaluation – The process of analysing and interpreting the information gathered through the process of assessment. Its purpose is to make judgments and decisions about student learning (Jackman, 2013).

Leadership – The act of influencing or guiding individuals or groups to achieve an organisational goal (Mayesky, 2013).

Learning – Change in behaviour or cognition that occurs as children construct knowledge through active exploration and discovery in their physical and social environments (Mayesky, 2013).

Mixed-methods research – The combination of two main research paradigms, that is, of quantitative and qualitative approaches, into a single style of research for the purpose of triangulation (Creswell & Creswell, 2018).

Pedagogical leadership – One key function of leadership is facilitating teaching and learning in ECE settings (OECE, 2019)

Pedagogy – The science, craft, and art of teaching and facilitating a conducive learning environment (Mayesky, 2013).

Portfolio – A collection of a child's work over time, and a record of the child's process of learning (Jackman, 2013).

Scaffolding – The adjustable support the teacher offers in response to the child's level of performance (Jackman, 2013).

Socio-cultural theory – Vygotsky's theory emphasises that a child's learning development is affected by culture and family environment (Vygotsky, 1978).

Teacher leadership – Sharing responsibilities and tasks among teachers in a school setting. This concerns organising learning and understanding the connections between knowledge and practice (Adams., 2020).

Theory – A set of systematic ideas and beliefs that try to predict or explain any given phenomenon or a group of facts that have been repeatedly tested (Jackman, 2013).

1.15 CHAPTER DIVISION

This study comprises six chapters. Chapter 1 deals with an essential aspect of the study, comprising the background to the study, the statement of the problem, the rationale, and a simple description of the research methodology adopted. The key concepts of the study as a whole are also clarified. Chapter 2 reviews the relevant literature in order to clearly state this study's main theoretical underpinnings. It further focuses on explaining the main conceptual framework of the study.

Chapter 3 provides descriptions of the methodology, research design, and the methods involved. Chapter 4 presents the findings of the qualitative data analysis. It also deals with the results of the quantitative dataset analysis and with their integration. Chapter 5 discusses the findings and results of the study, offering possible explanations for the variations and similarities encountered relative to the findings of previous studies in educational literature. This is followed by a summary of the discussion. Chapter 6 presents a summary, and the conclusions and recommendations of the study.

1.16 CHAPTER SUMMARY

This study seeks to explore and understand an important question: what are Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership skills in classroom assessment practices, what factors influence these, and what challenges are associated with them? The study employs a mixed-methods approach within the pragmatic paradigm and is underpinned by socio-cultural, assessment, and distributed leadership theories.

The findings and results are expected to contribute to the seemingly limited scholarship on the subject of teachers' pedagogical leadership in classroom assessment at the early childhood level in Ghana and on the African continent more broadly.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The literature supporting this study was gathered from various sources, such as theoretical and empirical studies sourced from the internet, journals, abstracts, and books. This chapter reviews the academic literature related to the study. It begins with an overview of early childhood education in Ghana and of the theoretical and conceptual framework underpinning this study. Educational and early childhood teacher pedagogical and assessment leadership practices are discussed. Following this, leadership is further defined and discussed. Next, the empirical and theoretical literature on the influence of gender, technology, and school culture on pedagogical leadership skills in classroom assessment practices is discussed. The chapter concludes with a summary of the review of the related literature.

2.1.1 Overview of early childhood education from the Ghanaian perspective

Historically, it was believed that parents and families, and not the state, were responsible for providing ECE to their children in Ghana and across Africa (The White Paper, 1995; White Paper, 2007). For this reason, it may be difficult to track down concrete documentation and proof of the changes that have taken place over the course of time in ECE. However, certain aspects of the ECE initiatives that have been implemented in Ghana may be dated back as far as the 1950s. At that time, the provision of care to young children prior to their enrolment in their first year of school was the primary focus of attention. A traditional education and welfare system that is very well structured may be found in Ghana and across Africa in general. Through meaningful socialisation processes, society ensured that every child was raised in accordance with its social and valued knowledge, abilities, and attitudes (Cungua et al., 2003; Frimpong-Manso, 2014; Scheidecker et al., 2022; Wolf, 2018, 2019).

As a result of the importance the various communities attached to the education of their children, they contributed all the necessary resources to ensure that the children were well equipped with the necessary knowledge and skills (Scheidecker et al., 2022) to enable them to contribute meaningfully to the social, economic, and technological development of their societies. However, due to pervasive, rapid societal changes, conventional ideas and ideals became obsolete. The resources that used to be available in the community are no longer accessible to a significant number of young people. It is possible that the majority of parents do not have the information, skills, or attitudes necessary to properly raise their children in the majority of situations (Morison, 2001).

Section 2 (1) of the Education Act of 1961, the primary law on the right to education in Ghana, stipulates that any child of school going age, as decided by the Minister of Education, ought to attend a course of instruction at a school, as prescribed and recognised by the Minister (Ghana Education Service, GES, 2004). Children have the right to life and to grow to their full potential from the standpoint of human rights. According to UNESCO (2000), everyone has a responsibility to promote and protect the right to education. All children should be valued, and every effort should be made to ensure they receive a formal education. Hence, cutting children off from ECE means removing them from the finest education they can receive. Basic education in Ghana did not include preschool. Although legislation existed to support ECE, most childcare and preschool programmes were privately managed before the 2007 educational reforms.

Ghana has often lived up to its motto of being the star and gateway to Africa when it concerns the promotion of children's welfare, especially with its pioneering role as the first country in Africa and in the world to have ratified the Convention on the Rights of Children and Universal Compulsory Education (Wolf, 2018). As a consequence, increasing numbers of children in Ghana now attend private or public schools. More than half of the children enrolled in preschools, day cares, and other ECE programmes during early 2000 attended programmes run by non-governmental organisations such the community centres, churches, and mosques (Garcia et al., 2008).

Over the years, the government had no control or mandate for the coordination, management, and support of the centres since such responsibilities had been assumed solely by the communities and the private sector, which had provided ECE programmes.

It comes as no surprise that problems with quality and availability, especially for children in rural areas, have persisted up to the current day (Morrison, 2001). Businesses and non-governmental organisations in Ghana are largely responsible for the proliferation of pre-schools around the country. As a result, most impoverished and rural areas did not have access to quality education since schools were located only in high-population centres (Ayebah, 2009). According to the President's Education Review Committee, "the philosophy underlying the educational system in Ghana should be the creation of well balanced (intellectually, spiritually, emotionally, and physically) individuals with the requisite knowledge, skills, values, and aptitudes for self-actualization and for the socioeconomic and political transformation of the nation" (White Paper, 2007, p.2). Significant changes were made to the obligatory education system, of which basic education is a part (GES, 2004). As a result of suggestions made by the President's Committee on the Review of Education Reforms regarding the significance of early childhood development, pre-school and kindergarten were officially recognised as part of Ghana's formal educational system in 2003. Despite the fact that the Ghanaian government demonstrated its dedication to (UBE) and Education For All Objective 1 by updating the National Policy on Education in 2004 to include ECE under the increased scope of Universal Basic Education (UBE), the private sector remains the primary driver of ECE programme provision for the 4–5 year age cohort.

2.2 THEORETICAL REVIEW

Tewell (2015), maintains that a theoretical review is a methodical and logical explanation of a phenomenon or construct in a study, while De Vos et al., (2011), indicate that theory reviewed in studies determines how research questions should be answered as well as how empirical procedures should be applied. The theory used in a study is underpinned by research questions, hypotheses, or by the purpose of the study. Mackey and Jacobson (2011), introduce and describe theory as a concept or construct that justifies the need and existence for a particular research problem. In view of this, the theoretical review of related literature for the present study is underpinned by the social constructivist theory of Vygotsky in conjunction with that of distributed leadership (Spillane, 2000; Shepard, 2000).

2.2.1 Social constructivist theory

The main theoretical view which underpins this study is based on socio-cultural and constructivist theory (Black & William, 2009; Gipps, 1999; Shepard, 2000; Vygotsky, 1978, 1997; Willis, 1993, 2009), along with the distributive and assessment leadership framework (Chappuis et al., 2005; Duke, 2004; Harris & Spillane, 2008; Spillane, 2005; Spillane & Diamond, 2007; Stiggins & Duke, 2008). Many believe that constructivist theory has had the most influential impact of all on the early childhood curriculum and related practices (Demirbaga, 2018). According to Shepard (2019), socio-cultural theory is an encompassing grand theory that integrates motivation and cognitive development, while enabling the design of equitable learning environments. Hence, the researcher selected to situate the present study within this theoretical framework.

The theory was chosen due to its interactive nature as pedagogical assessment leadership thrives well on effective engagements among the teacher leaders. This is because proponents of social constructivism are of the belief that one can truly understand the development of others through social interaction and thereby leading to, the creation of new knowledge (Vygotsky, 1978). This also happens to be the hallmarks of effective leaders. According to Shepard (2019), socio-cultural theory is an encompassing grand theory that integrates motivation and cognitive development, while enabling the design of equitable learning environments. Hence, the researcher decided to situate the present study within this theoretical framework, knowing that knowledge is constructed through human social interaction and that meaningful learning occurs when individuals engage in social practices leading to acquisition of skills (Shepard, 2019).

2.2.2 Socio-cultural theory

In this study, a socio-cultural lens was employed to investigate how teacher leadership might encourage teachers' meaningful engagement in improvement initiatives as well as with factors of school culture which can either support or impede the execution of teacher leadership. These viewpoints have much in common, especially in emphasising people's collective behaviours (Scott & Palincsar, 2013).

Socio-cultural theory evolved from the ground-breaking work of Russian psychologist Lev Vygotsky. He argued that social influences, such as parents, teachers, and peers, were crucial in shaping an individual's capacity for higher-level cognitive processes. According to Vygotsky, interaction with other people is the foundation of learning. Thereafter, information is processed on an individual basis (Jaramillo, 1996).

According to Vygotsky, a child's brain has some basic biological limitations from the start. However, every civilisation provides what he calls resources for intellectual adaptation, which help children adjust their skills to fit in with the local culture. It is possible, for instance, that one culture values note-taking while another more highly values other study aids, such as reminders or even rote memorisation (Ferryhough, 1997). The theory of social culture is a branch of psychology that studies how people develop in relation to their cultural milieu. People and their cultures are viewed as mutually constitutive within this framework. Social-cultural theory indicates that people's learning is fundamentally a communal engagement (Demirbaga, 2018).

2.2.3 The social constructivist approach

Constructivism is predicated on the idea that every student forms their own unique understanding of the world based on the new experiences they have. Furthermore, because social interactions play such an important role in the formation of new knowledge, constructivism emphasises group efforts to solve problems (Jaworski, 1995).

The socio-cultural perspective demonstrates how important it is to give teachers opportunities to share their practices with one another as part of the real work of teaching, rather than merely reconstructing or talking about the act of teaching before or after it happens (Margolis & Doring, 2012; Spillane et al., 1999). Lave and Chaiklin (1993), assert that learning occurs when people work together on a variety of real tasks. These tasks allow the learner to adopt socially shared experiences and learn useful knowledge and strategies that can be used in practice.

The cognitive constructivism highlights the importance of social interactions in the learning process. Social constructivism was developed by Lev Vygotsky, a Soviet psychologist. While Vygotsky identified as a cognitivist, he disagreed with the idea that cognitive development can be separated from social contexts, an idea put forth by

cognitivists such as Piaget and Perry. Instead, he argued that all cognitive functions have their roots in (and are thus best explained as products of) social interactions, and that learning is not merely the process by which students assimilate and accommodate new information; rather, it is the process by which students are integrated into a knowledge community (Sardareh & Saad, 2012). Put simply, social constructivism is the study of how individuals acquire and employ knowledge in socially mediated settings; it is a sociological theory of knowledge. In accordance with this notion, knowledge is something that is created by and with the help of the learner (Demirbaga, 2018; Shepard, 2019; Vygotsky, 1997; William & Black, 2000).

Three learning assumptions form the basis of constructivism. First, one's experiences with the world around one is the seeds from which one's knowledge grows (Wood & Bennett, 1998). Knowledge is formed as learners make meaning of their experiences. What learners come to comprehend is a result of their learning history, their interests, and the activity in which they are involved; therefore, the substance of what they are learning is not independent from how it is gained. Second, the uncomfortable awkwardness of holding two, might be contradictory concepts at once (known as cognitive dissonance) may be used as a learning stimulus. It acts as a motivator for the mind to learn new ideas or change current beliefs to minimise dissonance (conflict). The organisation and meaning of what is learned are primarily determined by cognitive dissonance. Third, the social climate has a significant impact on information creation. Other people in the community can try to put the learner's understanding to the test by offering alternative viewpoints that cause the learner to doubt his or her own experience. By means of socially designed learning opportunities, constructivism promotes cognitive processing techniques, self-regulation, and problem-solving (Kim, 2001).

2.2.4 The distributed leadership framework

Distributed leadership is a framework that can be used to examine how leadership functions and how responsibilities are shared and executed across numerous contexts. This framework views leadership as a dynamic organisational characteristic rather than as a static or individual characteristic (Spillane, 2005), and is founded on socio-cultural theory, which emphasises the influence of social context on human thought, learning, and practice. According to Spillane et al., (1999), school leadership is best understood as a distributed practice that spans the social and situational contexts of the school.

Distributed leadership is more concerned with leadership as a concept than with individual leadership positions or responsibilities. It is synonymous with collaborative, expanded, and mutual leadership practices that foster the potential for change and improvement (Spillane, 2005). Distributed leadership entails leveraging leadership skills around the school to expand prospects for transformation and to strengthen the potential for improvement. The focus is on interdependent engagement and practice rather than individual and autonomous behaviour associated with formal leadership or responsibility positions.

In summary, it is “expertise-based leadership” rather than “role-based leadership” or “years of experience-based leadership” (Harris & Spillane, 2008, p.11). Genuine distributed leadership necessitates a high degree of confidence, openness, and shared regard. To be most successful, dispersed leadership must be meticulously designed and coordinated. It will not occur spontaneously, and, even if it does, there is no guarantee that it will have a beneficial effect. Allowing a thousand flowers to bloom is not a demonstration of dispersed leadership.

The implication for those in traditional leadership positions is that they have a critical role in fostering an environment conducive to dispersed leadership. They must pave the way for others to lead (Spillane & Diamond, 2007). Having discussed the underpinning theories in this study, it is worth discussing teachers’ pedagogical leadership skills in assessment practices.

2.3 THEORETICAL POSITION

This study of early childhood teacher’s pedagogical leadership in Ghana has been conducted with the learning and leadership theories discussed above underpinning it. It is designed to ascertain how assessment literacy, gender, school culture, and technology influence teachers’ pedagogical leadership skills and classroom assessment practices. The following theories were used to form the theoretical framework for this study.

The main theoretical view which underpins this study (Figure 2.1) is based on socio-cultural and constructivist theory (Black & William, 2000; Demirbaga, 2018; Gipps, 1999; Shepard, 2000; Vygotsky, 1978, 1997), along with the distributive and assessment leadership framework (Chappuis et al., 2005; Duke, 2004; Harris & Spillane, 2008; Spillane, 2005; Spillane & Diamond, 2007; Stiggins & Duke, 2008). Many in the field of

early childhood education believe constructivist theory has had the greatest impact on the current state of the art in terms of both curriculum and teaching methods. The researcher has grounded the study in socio-cultural theory because, as Shepard (2019), argues, it is an all-encompassing grand theory that unifies motivation and cognitive development and makes possible the building of fair learning settings. Each of the three theories selected as the theoretical base of this study has an important ingredient that makes the study unique and effective in addressing problems relating to teachers' pedagogical and assessment leadership skills in classroom assessment practices.

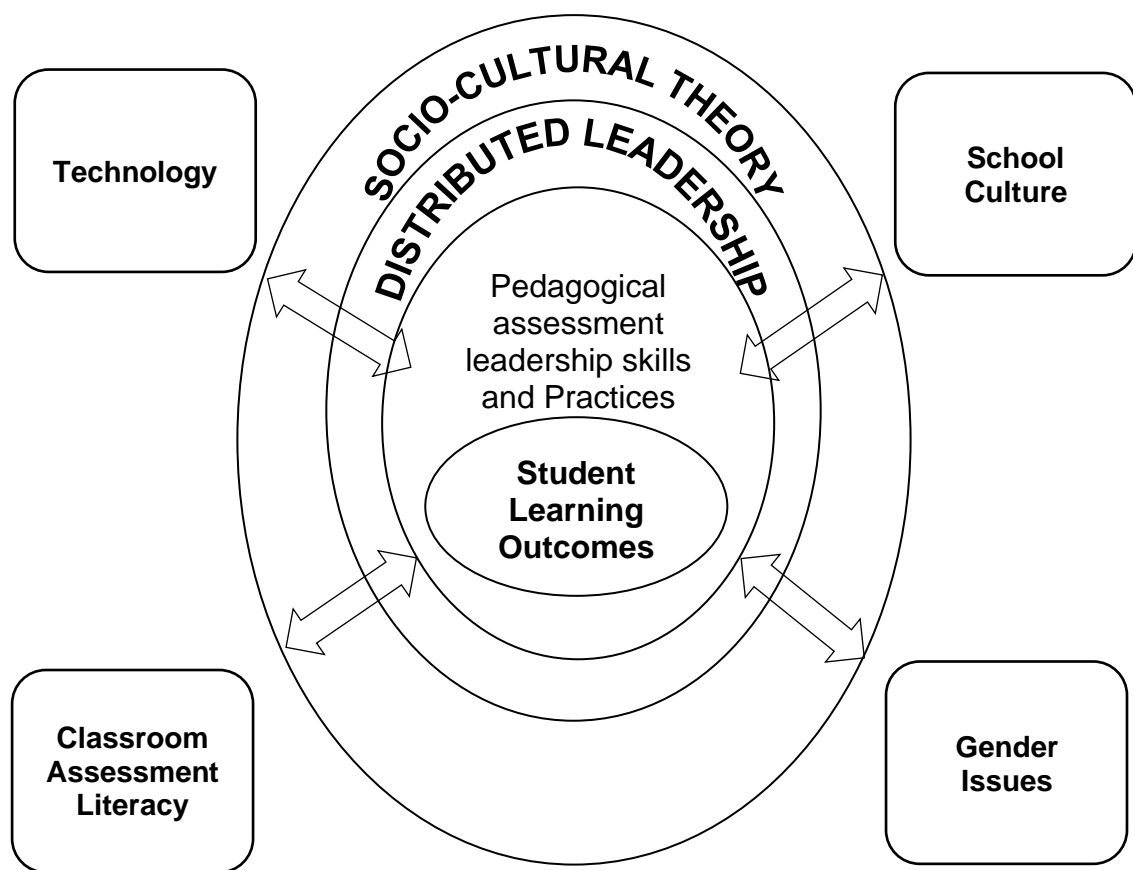


Figure 2.1: Theoretical framework (Researcher's own construct, 2022)

Social constructivists are adamant that formative assessments of students' learning are essential for the learner because they view assessment for learning as a collaborative effort between students and teachers which maximises the learner's zone of proximal development (Sardareh & Saad, 2012). Hence, it makes possible classroom settings that are optimal for education. Developmental interactions between individuals and their surrounding cultures are a central tenet of this perspective. Learning, according to socio-

cultural theory, is primarily a social affair for humans (Daneshfar & Moharami, 2018). The sociocultural approach examines not only the impact of teachers and classmates on students' education, but also the cultural norms and values that shape classroom dynamics. The situation in which a child grows up can have a significant impact on his or her cognitive development, and that context can shift over time. According to Shepard et al., (2016), ambitious teaching methods and the promotion of equality are more likely to be supported by socio-cognitive and socio-cultural learning theories than by earlier theories.

All learning, according to Shepard et al., (2018), is inherently social since it requires engagement with a community's lexicon, toolkit, customs, and more. They also argue that the social aspects of learning are best addressed by a limited number of theories and that the best way to achieve this is to concentrate on socio-cultural theory in its many forms, such as social-constructivist and cultural-historical activity theory, and socio-cognitive approaches. Socio-cultural methods allow for the creation of fairness in educational environments by focusing on students' identities and their potential contributions to the communities they join (Shepard et al., 2018).

Socio-cultural theory as the most effective learning theory enables the co-design of curriculum, instruction, and evaluation to facilitate long-term deep learning. This is so because African culture plays a significant role in the life of the children who need to be transitioned from the family home environment and nurtured into the school's culture. Any sudden change between home and school environment would probably significantly affect their feelings and emotions, an important condition required in classroom assessment and in the teacher's leadership. Moreover, leadership in Ghana and in Africa has deep roots in the social-cultural dimensions. For example, how a teacher views his or her social standing might influence self-esteem and leadership skills (Appiah, 2022).

Moreover, Ghana had shifted the curriculum from the teacher-centred through the child-centred to the learning-centred approach. The recommended assessment process is thus tilted towards the social constructivist approach, which requires portfolios, observation, documentation, and many other informal processes. Judgment or evaluation, according to Tiwari and Tang (2003), requires a socio-cultural or contextual perspective. As a result, greater effort is required to design methods of assessment that are consistent with a socio-cultural view of learning. Therefore, in order to apply social

constructivist theory to the design of instructional and assessment systems, one must be familiar with both broad ideas on the growth and progress of the human learner and with specific models of learning used in the target field. Hence, the researcher's decision to base this work on the social constructivist approach, which values the teacher's social-cultural dimension and the learning process, and likewise, the assessment practices.

According to Shepard et al., (2018), cognitive theories have the drawback of focusing exclusively on what occurs in the mind of the learner. As with behaviourist views, cognitive theories view social interactions as contexts for learning, rather than as contributing to the formation of what persons may do and become. Additionally, they overlook the broader historical and cultural settings in which these encounters shape the types of knowledge deemed worthy of study or assessment. The focus of distributed leadership has been on student achievement and progress towards development in teaching (Chen, 2007). However, situational leadership and contemporary leadership theories best consider the concept of distributive leadership by collaborating or mutually allocating and distributing leadership responsibilities (Spillane & Diamond, 2007). Distributed leadership, therefore, refers to a collective and interactive approach to leading, in terms of which the leadership role extends to numerous leaders who are willing to work together to achieve a school's mission (Spillane, 2005).

In order to operate effectively in a distributed leadership role, one ought to recognise that teachers are the individuals primarily responsible for enacting programmes or policies while turning the vision of a school into reality. Thus, distributed leadership, often also referred to as shared leadership, extends beyond the allocation of power. Indeed, distributed leadership requires leaders with achievable visions.

According to Gronn (2002), distributed leadership rests on a mutually beneficial connection between team members. This is why we cannot say that dispersed leadership occurs when one person hands responsibility to a group. Instead, it emerges when team members share and build upon their knowledge, perspectives, and passions in pursuit of a single objective. Distributed leadership also promotes democracy in the educational setting by distributing power and decision-making authority within the organisation. In a democratic school culture that prioritises mutual respect, educators are given the authority to make crucial choices pertaining to school governance.

The researcher hence selected distributed leadership theory for its democratic nature, which empowers individual teachers to assume the leadership role – the focus of this study – in a pedagogic mode, rather than a positional or traditional administrative one.

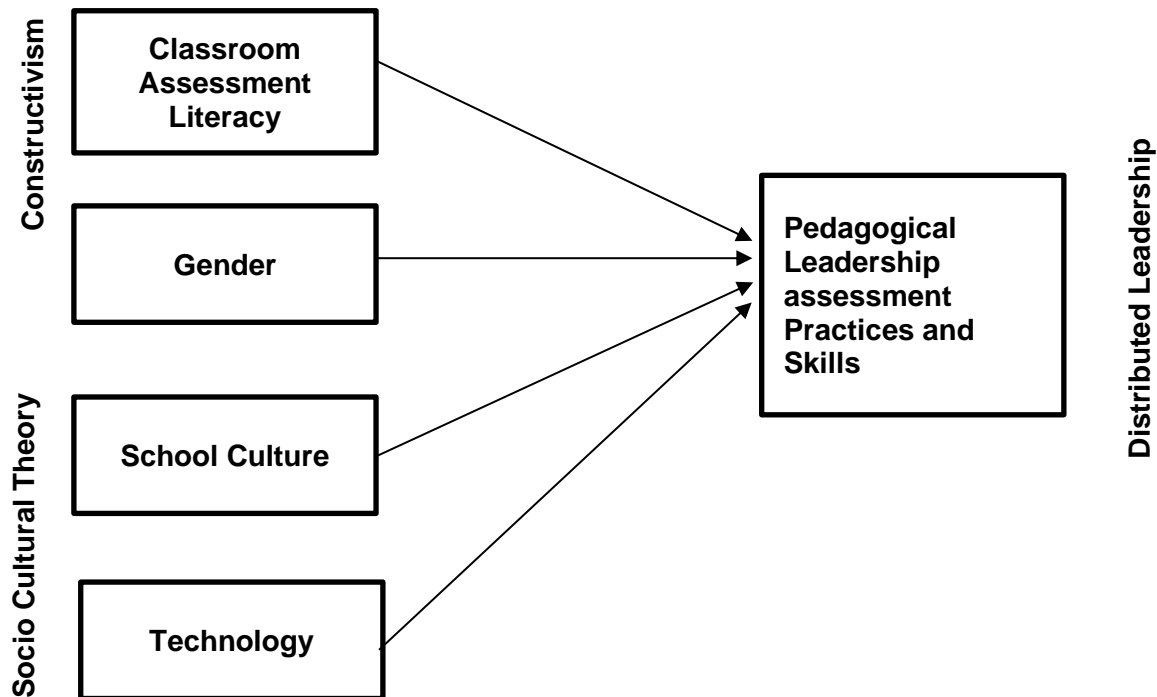


Figure 2.2: Conceptual framework for the quantitative component (Researchers’ own construct, 2022).

Based on socio-cultural theory, constructivism, assessment, and distributed leadership, this study assembles a conceptual framework. The study uses socio-cultural theory to examine teachers’ pedagogical leadership skills in assessment practices. It also examines the impact of a distributed leadership framework on teachers’ pedagogical and assessment leadership skills. In addition, it tests the influence of classroom assessment literacy, gender, school culture, and technology on teachers’ pedagogical and assessment leadership skills. An illustration of the conceptual framework is presented in Figure 2.2.

2.4 LEADERSHIP IN EDUCATION

According to Sergiovanni (1992, p.36), as cited in Frost and Network (2020), in the second half of the 20th century, formal leadership in educational settings was considered

to involve two elements: ascertaining what needs to be done to make the organisation function well and how to get people to do this. As a result, Sergiovanni coined the phrase “expect and inspect,” which highlights only one element of leadership behaviour: the ability to maintain confidence by using good human relations. This, however, is a management rather than leadership style, and has been dubbed “managerial leadership” (Leithwood et al., 1999, p.14, as cited in Bush, 2018). In contrast, as defined by Covey (1992), as cited in Melde (2019), leadership should involve making decisions rather than delivering decisions that have already been made.

Management is efficient in climbing the ladder of success; leadership determines whether the ladder is leaning against the right wall. In this context, leadership is described as the capacity to inspire, influence, and empower individuals to contribute to the organisation’s objectives (Waite, 2016). Jovanovica and Ciricb (2016), state that leadership is a process that generally involves influencing others, individuals or groups, not just for their own sake, but for a common and mutual goal (Leithwood, 2012). A common theme of this interpretation is that leadership entails the ability or capacity to persuade others to achieve a common goal (Goksoy, 2015).

In applying this to education, and consistent with proof of the benefits of collective approaches, Ghasabeh et al., (2015), conclude that an excellent organisation would require many leaders. Good leaders, understand the value of leadership density, described as the extent with which leadership positions are distributed, and widely exercised (Leithwood, 2012; Leithwood et al., 2020). However, the emerging concept of educational leadership attempt to emphasise behaviours that facilitate student learning (in addition to administrative activity). Many of these methods seem to be more concerned with student outcomes than with student experiences.

Instructional leadership and learner-centred leadership are two such examples, the latter an extension of the former (Connolly et al., 2019). Instructional leaders expand their position beyond managerial responsibilities to influence the quality of classroom teacher efficiency.

Leadership in education originates from United States, which has undergone a number of modifications as being hierarchical, which leadership emanates from one source to a distributed form, whose leadership originates from multiple sources, and such leaders

are often described as results-oriented, solid, and builders who can improve schools (Hallinger, 2018). Throughout the 1990s, as governments and school systems pushed for increased student achievement, instructional leadership was further established in school effectiveness and improvement programmes. By this period, instructional leadership was seen as collaborative, rather than an individual in authority in practice and was often renamed learning-centred or learner-centred leadership as it was adopted internationally (Baporikar, 2017). In other words, there was potentially an encouragement for formal leaders' behaviour in educational settings to be transformational (Anderson, 2017).

However, learning-centred school leaders continued to concentrate their energies on the academic press and building data-driven professional societies that hold all individuals responsible for student learning and instructional improvement (Dutta & Sahney, 2016). In practice, leadership has appeared to devolve into staffing the teaching programme, providing instructional resources, tracking school activity, and shielding staff from distractions from their work (Ward et al., 2015). As a result, there is a need to re-conceptualise pedagogical leadership, which has often been promoted as a suitable educational method.

Furthermore, Male and Palaiologou (2015), note that pedagogical leadership entails more than promoting teaching and learning; it assumes that behaviour should be circumstance- and context-specific. Thus, some define leadership as praxis, arguing that there is no single correct way of acting or practising; instead, acts should be tailored to the circumstances. As a result, pedagogy in the twenty-first century should provide learners with the capacity to question established expertise and build the skills necessary to cope with an unknown future. In this climate, pedagogical leadership is an ethical approach that respects principles and avoids projects that favour only the participant; instead, it looks after the community's ecology (Alameen et al., 2015).

2.4.1 Teacher leadership

Given that the success or failure of any school is inextricably linked to its leader's capacity, school leadership has emerged as the top priority for school improvement (Cheung et al., 2018). The increased relevance of school leadership has resulted in a shift in how leadership is conceptualised (Kentucky, 2015).

For example, the concept of participatory leadership has posed a challenge to formal and positional notions of leadership. School leadership has evolved into a participatory process, resulting in the emergence of a new concept of teacher leadership (Berry, 2019). Teacher leadership is a relatively recent addition to the educational lexicon and discourse in developing country contexts (Harris & Jones, 2019). Although there is no general definition of teacher leadership, most research studies employ an umbrella concept (Kentucky, 2015).



Figure 2.3: The Kentucky teacher leadership framework.

Teacher leadership refers to the sharing of responsibilities and tasks among teachers in a school setting. It involves organising learning and understanding the connections between knowledge and practice (Adams et al., 2018). According to Cherkowski (2018), the term distributed leadership is interchangeable with teacher leadership because both refer to the leadership of groups or networks of interdependent individuals rather than to formal and positional leaders. Allen (2018), also equated distributed leadership with teacher empowerment, which results in opportunity, growth, and development.

In summary, leadership is not the exclusive domain of any one person or individual, but somewhat fluid, diffused, based on competence, and shared (Kentucky, 2015).

Teachers possess a range of capabilities and expertise, and, when given the opportunity,

they can assume effective leadership roles in schools by leveraging their strengths and expertise (Harris & Jones, 2019).

2.4.2 Early childhood teachers' pedagogical leadership

Pedagogical leadership fosters an environment conducive to teaching and learning (Heikka et al., 2018). It requires instructional leadership, which involves assisting classroom teachers in their critical task of curriculum implementation. However, pedagogical leadership is a more general concept which refers to various positions and responsibilities in learning organisations (Fonsén & Ukkonen-Mikkola, 2019). By defining organisational standards of continuous quality improvement, pedagogical leadership, for example, influences teaching and learning. In addition, pedagogical leaders influence children's learning by encouraging family involvement, maintaining adherence to the organisation's curricular philosophy, evaluating the efficacy of the learning curriculum with data, and adhering to expectations set to improve learning environments (Boe & Hognestad, 2017). According to Alameen et al., (2015), early childhood programme leaders affect classroom behaviour by cultivating an organisational environment in which teachers and other staff members maximise learning opportunities for children and continually aspire to develop their practice.

In ECE, it is notable that the standard of educational organisations is significantly influenced by the leadership and management of those organisations (Li, 2015). Therefore, it has been proposed that leadership in ECE requires a mature understanding of children and families (Heikka et al., 2018). Distributed leadership, which is the concept of having leadership roles and responsibilities distributed across the entire organisation, is often connected to pedagogical leadership, which deals with building an environment where teachers, parents, children, and the community participate with their own delegated responsibilities (Fonsén & Ukkonen-Mikkola, 2019).

As a result, there is no consensus about what constitutes pedagogical leadership in ECE. It seems to be a relatively new term with limited theoretical development in writing as it relates to pedagogical leadership in early childhood education. However, there is a growing consensus that it is the duty of the formal leader in the educational setting to promote teaching, learning, and community involvement processes to ensure that children's needs and desires are met (Sergiovanni, 1992, as cited in Saadeh, 2018).

According to Male & Palaiologou (2015), pedagogical leadership entails ensuring that activities are suitable for children.

It has been suggested that pedagogical leadership fosters teaching innovation and imagination (Fonsen & Ukkonen-Mikkola, 2019). Pedagogical leadership, therefore, is concerned with staff professional growth, the identification of learning opportunities for students and teachers, and the creation of a learning group, as it relates to how information is created and shared among the staff and with decision-making that occurs among them (Bøe & Hognestad, 2017; Heikka et al., 2016).

Furthermore, since the pedagogical leader sets out to promote the child's total personality development. It also provides a holistic approach to learning in an integrated manner (Boe & Hognestad, 2017). Pedagogical leadership allows teachers to make decisions in their classrooms, as advocated in teacher leadership (Sinha & Hanuscin, 2017), and builds teachers' capacity through invitations to engage in organisational decision-making which also includes the wider community (Heikka et al., 2018). It encourages teachers to lead when linking school and home learning (Bøe & Hognestad, 2017, p.44), and to pursue "productive and synergistic relationships" between school and community in order to enhance learning through awareness of the value of learners' backgrounds and culture (Male & Palaiologou, 2015).

2.4.3 The pedagogical leadership framework

Abel et al., (2017), using their pedagogical leadership framework, clarify and differentiate leadership in ECE into three broad domains (Leithwood, 2012, as cited in Brandon et al., 2018): leadership essentials (which are foundational for influencing and encouraging individuals to work toward a shared vision); administrative leadership (which involves establishing procedures to ensure that programme activities are undertaken consistently in order to fulfil the requirements of children, families, and staff); and pedagogical leadership (which involves supporting the art and science of teaching, as well as developing systems for assessing children's progress and learning). By extension, pedagogical leaders evaluate data as the basis for decision-making (in order to guide and differentiate instructions to optimise learning environments). Pedagogical leadership includes instructional leadership and family engagement (Wang & Xia, 2020).

However, the concept of leadership in the pre-school field is contentious and has led to heightened scholarly and public debate about ECE leadership around the globe (Li, 2015). Many of the prior discussions have focused almost exclusively on pedagogical leadership (Alameen et al., 2015; Fonsen & Ukkonen-Mikkola, 2019). Given this, in recent times, several researchers have focused more attention on the concept of pedagogical leadership as involving a teacher taking charge to ensure that teaching practices are apt for all the children in the early childhood setting (Besnard & Letarte, 2017; Heikka et al., 2016; Hujala et al., 2016).

2.4.4 Teacher pedagogical skills

Pedagogy is commonly associated with teaching. It is usually concerned with how learning occurs, and the exact philosophy and practice undergirding such an understanding (Andrews, 2009). It also encompasses the provision of learning environments that encourage play, exploration, and instructive learning in the early years (Palaiologou, 2016). Pedagogical knowledge is the knowledge that is useful in the classroom. It entails understanding how to teach the subject, as a prerequisite for teacher effectiveness (Heikka et al., 2016). Pedagogical knowledge and competence are concerned with instructional procedures and tactics that facilitate learning. They refer to the interactive process that occurs between the pre-school instructor, the learners, and the learning environment supplied by the instructor in order to improve the stimulation and learning of the children (Kahila et al., 2020).

The significance of demonstrating pedagogical skills cannot be overemphasised. They assist teachers in considering the best possible methods, techniques, materials, and resources for the learning environment; it assists teachers to understand how to use various forms of play; different strategies for grouping learners; and various types of media and materials (Palaiologou, 2016). Teachers become facilitators, coaches, role models, evaluators, managers, and advocates due to their pedagogical knowledge and skills. Such knowledge and skills also enable teachers to use appropriate grading schemes (Wang & Xia, 2020). Effective pedagogy aids teachers in developing a curriculum that builds on students' current knowledge and understanding while aiding their development to partake in more advanced and in-depth abilities, information, concepts, and performances (Fonsén & Ukkonen-Mikkola, 2019). Thus, effective teaching necessitates pedagogical skills for the teaching to progress smoothly and to

produce the highest possible output in terms of intended teaching outcomes.

2.4.5 Assessment leadership

According to the literature, assessment leadership is a form of instructional leadership widely acknowledged as essential for modernising educational assessment and pedagogy (Eubank-Morris, 2017; Ball, 2017). One common definition of assessment leadership is any effort made by a member of the school community to support teachers in the learning community in their efforts to adopt and implement formative assessment techniques (Cizek et al., 2016). Strong assessment leadership is necessary for good instructional leadership, as argued by Stiggins and Duke (2008). To be an effective educational leader, one must appreciate the value of objective evaluations in advancing the quality of education. The well-prepared principal can guarantee high-quality, useful assessments (Stiggins & Duke, 2008).

Leadership in assessment involves several skills and behaviours that promote assessment as a tool for education. Stiggins (2001), states that assessment leaders should be able to show that they themselves are proficient in assessment in order to be effective. Leaders in assessment also know how to help educators better utilise assessment data and incorporate assessment into learning techniques. Finally, those in charge of assessments understand the connection between testing and education. According to Stiggins (2001), in order for schools to enhance their teaching and learning processes, they need “clear and adequate accomplishment objectives” and “an assessment literate staff” (pp. 18-19). The assessment leader is responsible for implementing systems to back up assessment for learning practices.

2.4.6 The impact of assessment leadership

In a study conducted by Marzano et al., (2005), principals’ support of assessment practices were examined in relationship to improving educational outcomes for schools. In their study, sub-domain study of assessment leadership revealed a positive association ($r = 0.20$) between a principal’s engagement with the curriculum, instruction, and assessment and student outcomes. They found a favourable correlation ($r = 0.25$) between a principal’s expertise in these areas and student outcomes. Lastly, they also found a positive correlation ($r = 0.27$) between a principal’s level of accomplishment

monitoring and students' actual success. These associations demonstrate that there is a link between many facets of assessment leadership and students' success (Marzano et al., 2005).

Other studies have investigated the role of leadership in situations in which assessment-based reforms had been implemented. Connell (1996), examined what happened in schools that had their names removed from the state's school improvement list and found that those schools had similar methods to those that had been successful in assessment leadership. All of the schools' efforts were concentrated on raising students' scholastic performance. Curriculum alignment, improved in-class instruction, progress tracking, a welcoming environment for children and their families, collaboration with community members, the introduction of an arts programme, and staff changes were all implemented to address assessment leadership issues. According to Duke (2004), without assessment leadership, which emphasises teaching and learning and integrates data to review student performance, school gains are improbable.

2.4.7 Challenges to assessment leadership

Effective assessment leadership can be hampered by numerous factors within schools. One misconception may be the idea that all principals or teachers have been sufficiently prepared to assume the role of assessing students (Stiggins & Duke, 2008). Despite this challenge, it is the responsibility of assessment leaders to educate themselves about the effective principles and practices underlying classroom assessment. Additionally, *"principals must remove all barriers to the development of teachers' assessment literacy. These include personal, institutional, and community barriers"* (Stiggins, 2001, p. 24). Cizek (1995), mapped out the actions that principals should take to lead an assessment system in a given school. The first recommendation is that they be equipped with assessment literacy skills. Rather than relying exclusively on technical experts to obtain this knowledge, they should ask others in the assessment for help to obtain a better understanding of the roles of various forms and techniques in classroom assessment. Principals, as the people in charge of assessments, should educate themselves on the topic. If, according to Stiggins (2001), administrators do not have this knowledge base, they cannot assist in making successful assessment a top priority in their schools or give teachers the resources they need to create and effectively implement assessments. In spite of principals' increased participation in assessment leadership practices (Clifford &

Mason, 2013; Noonan & Renihan, 2006, 2008; Prytula et al., 2013; Renihan & Noonan, 2012), they confront significant obstacles to successful implementation (Stiggins & Duke, 2008; Volante & Cherubini, 2011).

First and foremost, teachers said they did not feel ready (Clifford & Mason, 2013; Ulmer, 2002). Specifically, Ulmer (2002), found that expertise and training in operationalising school-improvement plans, as well as the availability of suitable assessment resources and conveniently available data storage, were the most significant hurdles to successfully accelerating student results. Teachers' efforts to implement and sustain efficient procedures for assessing and using student data are hampered by challenges such as these.

Attempts have been made by certain school districts to overcome these obstacles by enhancing student data-system accessibility and efficacy (Means et al., 2009). However, despite improved infrastructure, principals and teachers continue to highlight a number of obstacles, such as concerns over data security, misconceptions about data utility, a lack of interest in data, a lack of the necessary knowledge and skills to undertake data analysis tasks, and a deficiency in training, resources, and leadership support (Gallagher et al., 2008; Means et al., 2009; Volante & Cherubini, 2011; Young & Kim, 2010). In the face of these difficulties, educators have turned away from more recent, verified assessment systems and back to more traditional methods of collecting assessment data including intuition, experience, and anecdotal evidence (Ingram et al., 2004).

At the heart of implementation problems is the fact that principals and teachers do not even have many opportunities to learn about assessment as part of their training programmes or as part of their ongoing professional development (Popham, 2010; Stiggins, 2001; Wayman et al., 2006). Even though university-based preparation programmes cover various aspects of teaching and leadership, not many of them teach specifically assessment literacy and assessment-specific teaching and leadership practices (Bernhardt, 2004; Deneen & Brown, 2016; Stiggins, 2002; Wayman et al., 2006). A variety of patterns emerge from surveys of the relative assessment literacy of teachers and administrators (Hameister, 2013; Matthews, 2007; Perry, 2013), as well as of educators who are pre-service, that is, student teachers, compared to those who are in-service, that is, practising teachers (Alkharusi et al., 2011; Beziat & Coleman, 2015; Campbell et al., 2002; Mertler, 2005). Differences in views, knowledge, and abilities

among administrators and teachers in elementary schools – and, notably, in secondary schools – may be the result of a lack of training in effective student assessment and data usage practices (Brookhart, 2001; Deneen & Brown, 2016; Henry, 2011).

Regarding assessment leadership, principals often show more proficiency in areas like selecting an assessment approach or device and conducting ethical assessment procedures than in areas such as analysing and applying data to guide instruction (Impara & Plake, 1995). Despite their preference for formative over summative data, they are more at ease making use of summative data (Henry, 2011). The difficulty that districts and schools have in adopting the student assessment systems required to attain optimal learning outcomes for all children is exacerbated by the lack of resources available for the ongoing professional development for principals and teachers (Deneen & Brown, 2016).

2.4.8 Previous studies of assessment leadership

Thus far, the majority of assessment leadership studies have relied on survey research to collect data on educators' and administrators' assessment literacy levels and on their perspectives on and usage of various assessment-related practices, policies, and technologies (Brookhart, 2001; Deluca et al., 2016). Assessment literacy levels have been found to be similar among elementary and secondary school principals but vary among teachers and principals (Hameister, 2013; Matthews, 2007; Perry, 2013), and in the uses of assessment data for instructional decisions (Henry, 2011). It has been shown (Campbell et al., 2002), that pre-service teachers have consistently reported higher levels of assessment literacy than in-service teachers (Davidheiser, 2013; Mertler, 2005). Variations in educator preparation programmes and opportunities for continued professional development over time have contributed to the observed differences in research findings, such as those presented below.

Principals scored lower on the same assessment literacy inventory than both pre-service and in-service teachers (Perry, 2013). Principals showed more confidence in utilising summative data to guide choices at the school and district levels, despite a general preference for using formative data (Henry, 2011). Furthermore, principals showed some gaps in competencies needed to lead shifts in assessment practices, particularly with regard to the interpretation and use of data to inform instructional decisions (Impara &

Plake, 1995). This was especially clear when comparing principals' assessment literacy as it relates to ethical practices and selecting assessment tools and devices. Reliability analyses of assessment literacy survey questions given to pre-service teachers have recently been conducted, with results consistent with those of earlier research (Alkharusi et al., 2011; Beziat & Coleman, 2015). There is no statistical evidence for assessment leadership beyond conceptual and qualitative literature evaluations, and there has been only limited empirical study on assessment literacy surveys.

2.4.9 The assessment literacy of teachers

Assessment literacy is the capacity to collect, evaluate, and integrate data for the goal of assessing and altering instructional methods in order to fulfil student-learning requirements (Earl & Fullan, 2003; Noonan & Renihan, 2010, 2013; Popham, 2010; Stiggins & Duke, 2008). Fullan (2001), states that abilities such as the analysis of student data, the creation of data-driven improvement strategies, and the conveying of the value of data are essential.

Assessing student work, developing reliable and accurate formative tests, matching them with curricular requirements, reviewing and scoring student work, and utilising assessments to influence teaching are all crucial components of assessment literacy (Popham, 2010; Webb, 2002).

Literacy in assessment refers to a person's familiarity with and skill in using quality assessments, as well as their familiarity with and ability to apply standards for the use of quality assessments. Those who are well-versed in assessment literacy are better able to mitigate risks to the reliability and validity of assessments, allowing for more accurate conclusions to be reached regarding student performance and growth. Literacy in assessment is knowing how to communicate and evaluate assessment results effectively, as well as knowing which assessment methods to utilise based on learning outcomes (Stiggins, 1991, 1995).

Assessment literacy encompasses the capacity to draw appropriate conclusions about student learning based on assessment-related information but does not necessitate an in-depth comprehension of psychometric concepts (Popham, 2006). A person with a strong understanding of assessment will ask themselves two key questions: "What is this

test telling pupils about the outcomes we value?” and “What do you anticipate the results of this evaluation to be for the students?” (Stiggins, 1991, p. 535). Educators who are proficient in using and interpreting tests are needed, but progress toward this goal is hampered by a number of challenges. The following sections discuss some of the challenges teachers experience while attempting to improve their assessment literacy.

2.4.10 Obstacles to Assessment Literacy

Teachers’ anxiety and unease about evaluation and assessment is a significant barrier to their professional growth (Stiggins, 1995, 2001). There is a significant gap between what is being taught in the classroom and what is being assessed in standardised tests, and many educators are unaware of this. Teachers who struggle with assessment may be less likely to seek out opportunities to expand their understanding of assessment techniques (Stiggins, 1995; Guskey, 2009, 2015).

Educators require a broad grasp of assessment, yet formal training in the field typically stops with familiarity with standardised tests (Stiggins, 1991). Time constraints pose another obstacle to providing effective professional assessment development. Time is needed for both the initial investment in professional development, to learn about assessment, and the subsequent investment to put that knowledge into practice in the classroom (Stiggins, 1995). Quality assessment in the classroom takes time to implement, even if there is a dedicated block of time for teachers to learn assessment methods (Stiggins, 1995). Teachers have to devote a considerable amount of time to assessing students’ progress. A significant portion of a teacher’s day is likely to be spent on assessment tasks, although many educators are not adequately prepared to provide these evaluations (Stiggins, 2014). Again, proper training in assessment facilitates teachers’ ability to seamlessly and efficiently integrate assessment into classroom instruction in order to maximise its effectiveness in spite of time constraints. The principal is partially responsible for ensuring teachers are assessment literate.

Challenges to teachers’ assessment literacy may also originate beyond the classroom. Administrators and educators alike must contend with the widespread belief that they do not need to improve their assessment literacy to do their jobs effectively (Stiggins, 1995). The importance of providing teachers with assessment skills training may not be immediately apparent.

Furthermore, stakeholders may believe that grades and test scores on report cards adequately reflect students' actual levels of knowledge. Parents may not fully appreciate the significance of evaluation and its repercussions because of their lack of experience with it (Stiggins, 2001). Standardised assessment information typically limits what external stakeholders understand and deliberate on in relation to assessment.

Standardised test results are commonly utilised as a barometer of student progress, yet there is more to assessment literacy than merely grasping the significance of these assessments. A “societal blind hole” has been formed by the general perception that standardised test scores are the only really acceptable proof of student performance;” this has been attributed to the use of standardised testing (Stiggins, 2014, p. 68).

Furthermore, if schools simply use results from standardised tests to determine teacher effectiveness or student success, they are ignoring other factors that may contribute to those outcomes. Principals should advocate for the “balanced creation and use of assessments” (Stiggins, 2014, p. 69). There has to be a balance between state-wide testing and in-class evaluations. Use of both is essential for educational advancement, since each guides crucial policy choices (Stiggins, 2001, p. 15). The sub-section that follows details criteria for achieving adequate levels of assessment literacy, which can be used to address some of the problems connected with assessment testing.

2.4.11 Assessment practices

A review of the literature on assessment leadership suggests five key leadership practices: (a) establishing a vision for data use, (b) setting clear and appropriate learning targets aligned with content standards, (c) using assessment data to evaluate and adjust instructional programmes matched to student needs, (d) developing assessment competencies among teachers through collaborative learning experiences, and (e) engaging in ongoing self-reflection in relation to assessments (Halverson et al., 2007; Loeb et al., 2008; Militello et al., 2010; Noonan & Renihan, 2006, 2010; O'Donnell & White, 2005; Popham, 2009).

In addition, 10 critical competences of principals serving as assessment leaders are articulated by Stiggins and Duke (2008), to highlight the unique knowledge and abilities principals need to possess and apply while engaging in these practices. These skills include being able to examine data for pedagogical objectives, recognising the

characteristics of high-quality assessment frameworks, and comprehending the variety of classroom assessments and their impact on students' learning.

Chappuis et al., (2004), developed the following conceptual framework for assessment leadership:

1. The leader knows the quality standards for student tests and how to check that they are being used in their school/district tests.
2. The leader understands the principles of assessment for learning and works with staff to incorporate them into classroom instruction.
3. The leader knows how important it is to have clear academic achievement goals that are aligned at the classroom level, and how these goals relate to making accurate assessments.
4. The leader knows how to assess a teacher's skills in the classroom and can do so. The leader also helps teachers learn to assess correctly and use the results in a useful way.
5. The leader can plan, present, or access activities for professional development that help people use good assessment methods.
6. The leader accurately looks at the results of student tests, uses the results to improve the curriculum and teaching, and helps teachers do the same.
7. The leader can come up with and put into place good policies about assessments and how to do them.
8. The leader sets up the right conditions for the right use and reporting of information about how well students are doing. The leader can also talk to all members of the school community about how student assessment results can be used to improve curriculum and instruction.
9. The leader knows what makes an assessment system fair and effective.
10. The leader understands the problems that come with using student evaluations in a way that is not fair or ethical, and he or she protects students and staff from this.

2.5 EMPIRICAL STUDIES

According to Reeves (2004, 2016), in order for principals to effectively apply assessment leadership, they need to be actively involved in activities like assessing student work

themselves, observing and evaluating teachers' assessments in the classroom, and participating in collaborative scoring sessions with teachers. The research on assessment leadership has highlighted five strategies that assessment leaders should apply to improve student learning, in addition to the knowledge creation and the other abilities that are important for successful assessment leadership practices. The first step for effective assessment is for school administration to help teachers zone in on the most effective assessment tool to ensure long-lasting academic standards (Reeves, 2007). Standards that appear to be valuable across grades provide leverage across different subject areas for candidates, which is often considered as power standards (Ainsworth, 2003; Reeves, 2004b). Marzano and Kendall's (1998), suggestion that more time be spent on fewer, but more potent standards are bolstered when school leadership involves personnel in the process of concentrating and prioritising academic standards. According to their research, there is a significant discrepancy between the amount of time pupils have in class and the amount of time needed to effectively fulfil all academic criteria.

Second, principals should encourage teachers to replace less frequent, longer evaluations with more frequent, shorter assessments that target the most important topics (Popham, 2008; Reeves, 2007). In their research, Popham (2008), and Reeves (2007), claim that classroom assessments that adequately sample domains and have enough items to assure dependability do not assist student learning because they require too much time to create, administer, and assess and do not produce the type of fast, accurate, and useful diagnostic information that truly benefits students. The Norfolk Public Schools in Virginia are an exemplary high-performing school division because all instructors use 10-item biweekly exams to provide students with immediate, actionable feedback on their learning on the day the tests are given (Reeves, 2004b). The findings from that study show that there was a direct connection between these regular but quick evaluations and significant, long-lasting changes that more equally assess student accomplishments.

Third, literacy, as a core academic endeavour across disciplines and subject areas is the focus of the third learning improvement action identified in the literature for school-based assessment leaders to pursue (Reeves, 2004a, 2004b). The amount of time spent in the classroom on literacy teaching was found by Reeves (2004a), to have a direct correlation with a student's level of success in standardised examinations. He found that 55% of

students in classrooms where reading was given for 90 minutes a day, 72% of students in classrooms where reading was given for 120 minutes a day, and 80% of students in classrooms where reading was given for 180 minutes a day scored at the proficient or higher level in state reading comprehension tests. It is important to highlight that the schools in the final group, which had the best-achieving students overall, began the research with the children who performed the worst. The school administrators made significant adjustments to the way in which the school teaches in order to increase student learning.

Longitudinal research on the reading levels of students provided more evidence for the idea that an emphasis should be placed on literacy. In the study conducted by Capella and Weinstein (2001), it was discovered that students in eighth grade who were not reading at grade level had an 85% chance of continuing to read below grade level throughout high school. This finding is an illustration of how important it is to place a focus on literacy. According to the findings of this study, majority of the classroom teachers for grades six, seven, and eight spent just one-third to half as much time concentrating on reading in the classrooms just as grades three, four, and five did.

Fourth, leaders in assessment are urged to make time for teachers to cooperate on particular, assessment-related activities in order to improve learning. Specifically, in the research, this cooperation involved providing instructors with time to develop shared assessments (Ainsworth & Viegut, 2006; Reeves, 2002), analyse assessment findings to inform instruction (White, 2005a, 2005b), and evaluate student work (Reeves, 2004a).

The findings of these studies simply indicated that, while collaborative learning is challenging and time-consuming, it has the potential to significantly improve students' knowledge and skills. Over the course of six 4-hour meetings (24 hours of cooperation), 50 teachers increased their level of agreement from 19% to 92% when they evaluated anonymous student writing samples using the same scoring rubric (Reeves, 2006b). By giving teachers more time to work together on shared assessments, the gap between high- and low-achieving children can be narrowed.

Even though all of the schools in the study had taken part in professional development sessions centred on classroom assessment, and even though all of the schools claimed to engage in regular reviews of student data, Oberman and Symonds (2005), found that

the only schools that were successful in implementing new assessment practices in a way that improved student achievement results were those in which the principals made a significant amount of time available for collaboration.

According to their study, 35% of schools that were “closing the gap” evaluated student data “a few times a week,” whereas less than 5% of schools that were “not reducing the gap” studied accomplishment data with the same degree of regularity. Nearly half of the schools that were not gap-closing reported that they only evaluated student data “a few times a year,” in contrast to the 20% of schools that were gap-closing that fell into this group. The researchers came to the conclusion that the decision made by leadership to provide time for professional cooperation that was focused on evaluation, rather than the training or motivation of the teachers, was the factor that made the difference.

The research suggests that the last step for school assessment leaders is to foster an evidence-based culture of teaching and learning that discourages reliance on conventional wisdom when determining how best to instruct students. Mature professionalism, according to Wiggins and McTighe (2007), is characterised by educators who look at facts and make judgments about how to enhance teaching and learning independently of their own good intentions. Just as Pfeffer and Sutton (2006), discovered doctors who used medical practices from their residencies 30 years beforehand as if they were the most up-to-date research, Reeves (2007), argued that many teachers and administrators made professional decisions based on what they learned as students and new teachers.

Evidence-based decision-making was found to improve both teachers’ outlooks and their pupils’ academic outcomes. Compared to schools in which teachers and administrators attributed student achievement to factors outside school control, those in which they regularly examined evidence of the impact of teaching on student achievement and saw their professional practice as the main reason for gains in student achievement saw such gains that were three times greater (Reeves, 2006b).

Similarly, Marzano et al., (2005), found that just three leadership practices – out of a total of twenty-one – were linked to first- and second-order changes in student accomplishment. Beliefs in the efficacy of educators and leaders, regular implementation of evidence-based pedagogical practices, and ongoing assessment were the three

practices identified.

The school's culture and students' academic performance appear to benefit from a dedication to evidence-based decision-making. According to Reeves (2006b), teachers are affected less by formal education and more by the professional practices and action research of their peers.

He came to the conclusion that in-service training had a greater impact on teachers' decisions to alter their methods than did any other factor.

Reeves (2006b), discovered that more than 40% of the impact on one's professional practice came from one's peers, co-workers, and leadership. When taken together with the work of Elmore (2007), and that of Hopkins et al., (2002), who argued for more decentralised leadership, these results point to a growing trend away from traditional leadership hierarchies and towards the efficacy of decentralised networks of leaders. Evidence of student learning and the impact on professional practice are two primary metrics used to assess the success of professional development programmes; both metrics are increasingly used to evaluate programmes (Guskey, 2000; Sparks & Hirsch, 1997; Reeves, 2008).

Elmore (2000), and Fullan (2007), make the point that teachers must learn things in the setting in which they operate in order for teacher-leadership to have an impact on efforts aimed at boosting student learning. While this is a sound notion in theory, Reeves (2007, p. 4) cautions that the standard method of professional development, which depends on outside experts and "stern follow-up memoranda from administration," does not necessarily align with this principle.

According to Perkins (2003, p. 11), "vision and policy from the top as well as formal training can assist support progressive transformation". This is aligned with the belief that networks of cooperating teachers are vital to any change in practice that leads to enhanced learning (Perkin, 2003). Their participation might be crucial in kickstarting the process. However, they are not responsible for effecting the change themselves. Student accomplishment was shown to be three times greater in schools where instructors investigated the evidence of the effects of teaching effectiveness on student performance compared to schools where teachers ascribed student achievement to variables outside their control (Reeve, 2006b).

Leading assessment is, in a nutshell, a demanding and complex endeavour. Developing educators' abilities to create new forms of evaluation calls for leaders who can think beyond the box. Positive organisational transformation and improved professional cultures are more likely to be achieved by leaders who draw on the interaction of values, theoretical and procedural knowledge, professional abilities, and personal attributes to build their leadership vision. Positive student results, improved teaching methods, strengthened home–school and community-based alliances, expanded assessment literacy, productive cultures, and refined methods of monitoring and reporting are a few additional advantages.

2.5.1 The influence of assessment literacy on pedagogical leadership

Assessment literacy refers to the degree to which key individuals and groups have knowledge, appreciation, and abilities in terms of assessment techniques, alternatives, and applications. The ability to organise, evaluate, and integrate data to assess and change instructional methods to meet student learning requirements is the foundation for assessment leadership and for effective student assessments and data utilisation. It necessitates the capability to review student data, develop data-driven action plans, and debate data utilisation (Pastore & Andrade, 2019). Essential assessment-literacy skills include the following: understanding the purpose and reliability of evaluations, addressing personal beliefs and biases in evaluations, developing effective formational assessments, aligning assessments with curriculum standards, assessing student work, and using evaluations to inform education (Hildén & Fröjdendahl, 2018).

Teachers' classroom practices are influenced by their assessment literacy, and changes in classroom assessment represent a significant paradigm shift in how we think about learning, schools, and teaching (Berry et al., 2019). This has prompted teachers to use a more comprehensive, student-centred approach to classroom assessment, known as assessment for learning or assessment to improve learning (Adamson, 2020). The importance of learning as the primary goal of teacher pedagogical leadership is increasing. In general, the focus has shifted away from teaching supervision and towards learning supervision as the nexus of teacher leadership activity (Kruse et al., 2020). Several researchers have investigated the implications of related curriculum and assessment leadership for the teacher's pedagogical leadership role (Harris & Jones, 2019; Muradkasimova, 2021; Ng et al., 2018; Pastore & Andrade, 2019).

2.5.2 The influence of gender on pedagogical leadership

There are numerous distinctions between teachers, particularly between male and female educators. The question is whether gender differences in teaching styles and results make a difference. There are questions about boys' academic achievement relative to girls on local, national, and international levels (Brandes et al., 2015). Governments are also urged to hire more "brave" men – Ottaviano and Persico (2019), support the idea that increasing male presence in early childhood education boosts boys' academic achievements as more attention is paid to boys' needs and desires (Zhang, 2017).

Meanwhile, according to Warin (2019), female teachers are more likely to use fair play and to concentrate on social development, while male teachers prefer to integrate more physical play into their teaching. Furthermore, self-report studies conducted by (Rentzou, 2017), found that male teachers are more likely to participate in physical activity, to enable children to explore themselves freely, and to use humour. Many male teachers stated that they became teachers out of an altruistic desire to support others.

It is usually believed that children stand to benefit from a more significant male teacher presence in ECE, and in early childhood in general, in a context in which, internationally, the vast majority of pre-school teachers are female. They are naturally better able than men to provide quality care to young children (Besnard & Letarte, 2017). In line with this, Warin (2019), observes that men and women from the general public perceived male early childhood teachers to be less competent than female teachers. Other authors have theorised those differences in educational leadership style are purely individual and independent of sex (Rentzou, 2017). On the contrary, research analysing children's drawings of their male teachers indicates that men in ECE do not offer anything more than others (Alshanjiti, 2018).

Additionally, based on the experience of 11-year-old children who attended 413 different classes taught by 113 male and 300 female teachers, there is no evidence that male teachers increase boys' learning outcomes (Carrington et al., 2008). Additionally, Fagot et al. (1985, as cited in Zhang, 2017), conclude that the learning results of young children are more closely related to school environments than to the gender of teachers. Meanwhile, Bullough (2015), states that it is important to have both a male and a female

teacher interacting with young children because children learn the distinctions between male and female teachers based on the unique characteristics they bring to the classroom.

The few studies that have been conducted in this area indicate that male and female ECE teachers interact differently with children, especially when it comes to playing, which is a cornerstone of many educational programmes (Besnard & Letarte, 2017; Sak et al., 2015). While various opinions have been expressed on the topic, research has yet to reveal whether male and female ECE teachers vary in their interactions with children and in their educational leadership practices or whether there is a connection between these practices and children's assessment practices (Anderson, 2019).

2.5.3 The influence of technology on teachers' pedagogical leadership in classroom assessment practices

The implementation of technology can be one way to address the complexities of classroom assessment in the twenty-first century. Assessment and classroom-learning research contribute to the refinement of technological supports and of theoretical models of assessment, teaching, and learning processes (Aldon et al., 2017). To create the technology-based assessments, test developers must understand the viewpoints of policy-makers concerned with content standards, educators concerned with assessment of learning and assessment for learning, and evaluation experts concerned with the collected data (Olsher et al., 2016).

The use of technology in classroom evaluation enables teachers to make real-time data-driven decisions to inform instructional improvements (Aldon et al., 2017). Therefore, it is critical to prioritise student-centred evaluation and tractable instructional assessments (Elmahdi et al., 2018). Collaboration in the production of tests would strengthen the process of implementing computer-based evaluations in the classroom.

Additionally, curriculum developers can advance expertise in early childhood classroom assessment by developing assessments that comply with the five dimensions of innovation for computerised testing (Spector et al., 2016). First, the field of child-friendly interface aspects such as item layout, response action, media inclusion, interaction, and scoring algorithms is ripe for investigation. Computer use among young children is still in

its infancy, and observational studies are only now emerging (Alkhaldeh et al., 2017). Second, technology can improve children's classroom experiences, thereby preparing them to be engaged and educated people in a dynamic global economy (Hooker, 2017).

Finally, developing innovative computer-based assessments for children requires an in-depth understanding of developmental design principles, subject-matter expertise, implementation science, and evaluation, as well as an understanding of what children and teachers demand (Zabatiero et al., 2018).

2.5.4 The influence of school culture on teachers' pedagogical and assessment leadership skills

Schools that promote teacher pedagogical leadership place a high value on collaboration among colleagues, a collaborative climate at school, teaching through the creation of learning communities, and sharing instructional experiences (Cansoy & Parlar, 2017). In environments that value teacher leadership, policies that promote collaboration among colleagues, support from school officials, and a friendly work environment are significant (Karada & Öztekin, 2018).

The elements that improve teacher pedagogical leadership include the support of the principal, teacher autonomy, providing teachers with time and resources (Yusof et al., 2016), a common vision (Anderson, 2017), sharing leadership (Demir, 2015), school structure and processes (Harris & Kemp-Graham, 2017), team leadership (Harris & Kemp-Graham, 2017), school-society relationships (Toom, 2018), the existence of learning communities (Mitchell & Sickney, 2019), participation in decision-making and developing a standard curriculum (Wenner & Campbell, 2017), paying attention to trust, respect, and ethics at school (Ohlson et al., 2016), well-defined tasks (Inandi & Giliç, 2016), and a culture of constant development at school (Toom, 2018).

The results of some studies on the influence of school culture on teacher pedagogical leadership show that, directly or indirectly, these two variables are related. Veeriah et al. (2017), observe that teachers' levels of pedagogical leadership behaviour varied according to their students' satisfaction with the classroom climate. Raelin (2018), found a relationship between teacher leadership and group activity and trust. In a study on school culture and teacher pedagogical leadership, Azeem and Mataruna (2019),

reported a significant relationship between collaboration, collegiality, and effectiveness. Cansoy and Parlar (2017), found significant negative correlations between constraining school culture, which refers to school administrator practices that prevent teachers from doing their jobs, and teacher pedagogical leadership. Ozturk and Maral (2015), discovered a correlation between organisational culture and teacher leadership, while Yusof et al. (2016), identified a high correlation between teacher pedagogical leadership and school culture.

As implied by the preceding review, creating a relationship between school culture and teacher leadership is important for determining which elements of school culture are associated with certain teacher leadership behaviours. Teachers who exhibit high levels of pedagogical leadership behaviours can make a greater contribution to school development. Leading educators can play a more active role in promoting educational quality (Hamzah et al., 2016).

Table 2.1 below provides a brief literature map of previous studies of pedagogical and assessment leadership. It indicates the various research methodologies used in these studies, information on the sample sites, and the justification for using mixed methods in the current study. It further confirms that most of these studies of the concept of pedagogical and assessment leadership in the early childhood setting are often conducted outside of Africa.

Author	Tool Analysed	Methodology	Findings
Heikka et al., (2018)	Interviews	Qualitative	The findings indicate that teacher leadership is viewed as an ECE pedagogical role. The directors of the centres were regarded as being removed from daily practice, and leadership for pedagogy was delegated to instructors.
Li (2015)	Questionnaire	Quantitative	The study investigates how teacher leaders view their job within contemporary school leadership paradigms. The senior management team's kindergarten/pre-school instructors were requested to answer a questionnaire about many aspects of

Heikka et al., (2021)	Interviews Questionnaire	Mixed-methods	<p>leadership. However, factor analysis was unable to recreate the distinct patterns observed in Western countries that broadly discriminate between transactional and transformational leadership styles. A mixture of styles was more frequently noted.</p> <p>The findings indicate that the ECE centres studied had implemented leadership approaches consistent with distributed pedagogical leadership and that the implementation of distributed forms of leadership has a positive correlation with the ability of ECE teachers to facilitate reflection and learning in their teams.</p>
Wang and Ho (2020)		Concept paper	<p>The findings indicate that “formal or informal role” and “role or practice” are critical characteristics of teacher leadership in a policy-driven environment in China. It is worth investigating how teacher leadership is conceptualised and implemented in the process of quality improvement as well as the contextual elements that influence this process. Thus, an agenda for future research might be established, contributing to theories about the growth of teacher leadership in the global debate.</p>
Fonsén and Ukkonen-Mikkola (2019)	Interviews Questionnaire	Mixed-methods	<p>The identified characteristics of professional development were examined. Through the lens of pedagogical leadership, four dimensions were identified: improved knowledge, improved understanding of the quality of previously implemented pedagogy, developing skills, and the capacity to articulate the case for ECE pedagogy.</p>

Oke (2019)	Questionnaire	Quantitative	This study assesses how teacher effectiveness affects instructional leadership in the implementation of ECE in Nigeria's Federal Capital Territory (FCT), Abuja. The study's methodology is survey-based. The findings indicate that instructors must possess 23 leadership abilities to effectively implement ECE in the FCT. Teachers were aware of 13 leadership qualities but lacked resources for seven of the necessary leadership skills.
Appiah (2022)	Interview/ observation/ document analysis	Qualitative	In the qualitative study, involving 19 head teachers and classroom teachers in two districts of Central Region, he defines pedagogical leadership as the "capacity of teachers and school heads to use diverse and suitable methods of teaching to support the learning needs of children, as well as partnering and engaging with multiple stakeholders to sustain teaching and learning to ensure attainment of educational goals."

Table 2.1: Previous studies of pedagogical and assessment leadership

2.6 GENERAL CONCLUSION

Appiah (2022), can be credited for his seemingly pioneering study which led to the conceptualisation of pedagogical leadership from the perspectives of early childhood teachers in Ghana. In his qualitative study, involving 19 head teachers and classroom teachers in two districts of Central Region, he defines pedagogical leadership as the "capacity of teachers and school heads to use diverse and suitable methods of teaching to support the learning needs of children, as well as partnering and engaging with multiple stakeholders to sustain teaching and learning to ensure attainment of educational goals" (p.250). These two conceptualisations are distinct but are close to numerous, diverse conceptualisations of pedagogical leadership or assessment leadership from Australia, Sweden, Norway, Canada, South Africa, and Saudi Arabia (see Alameen et al., 2015; Abel et al., 2017; Chappuis et al., 2005, 2006; Cizek, 1995, 2000, 2004; Hujala et al., 2016; Lingam & Lingam, 2016).

The uniqueness of this study lies in its ability to extend Appiah's (2022), conceptualisation by integrating assessment leadership and pedagogical leadership as separate constructs into a newly coined one referred to as pedagogical assessment leadership. Numerous authorities continue to view assessment and pedagogical leadership as two distinct concepts; however, they are mutually inclusive as pedagogical leaders require knowledge of assessment leadership, as indicated by Duke (2004, 2007). Very few authorities view assessment leadership as a skill or role distinct from educational or pedagogical leadership. Indeed, assessment is often seen as part of pedagogical leaders' roles as there are numerous similarities. It will therefore not be out of place to combine the two roles or constructs to clearly emphasise that leadership, curriculum, instruction, and assessment relate both directly and indirectly to teachers and to students' learning outcomes, which are the core responsibilities of early childhood educators.

2.7 SUMMARY

In this chapter, the review of the related literature has been grouped into three phases. These are a theoretical review, a conceptual framework, and an empirical review of the study. The review was undertaken to establish the need to study teacher leadership skills and how technology, gender, and school culture influence teachers' pedagogical leadership in classroom assessment practices and the challenges related to these. The review demonstrates that the study of teacher leadership is of immense value the world over, including Ghana. The researcher concluded the review by expanding on the need to integrate assessment and pedagogical leadership in the early childhood setting and with a summary of the literature review.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

Research methods are the scientific ways of collecting and analysing data in order to arrive at conclusions, evaluate research goals, and answer research questions (Patten & Newhart, 2017). For Plonsky (2017), research methodology is the method used to answer a research question following the collecting and analysing of data. Hence, methodology concerns how researchers map out the process of defining, explaining, and predicting phenomena (Morgan, 2014; Neuman, 2011). This chapter presents the population, sampling methods, means of collecting data, and ways of viewing the data used in this study. The chapter provides detailed descriptions of the instruments, the reliability of the research process, and the study's methodological plan.

3.2 PHILOSOPHICAL STANCE OF THE STUDY

The philosophical position and research methodology of this study are informed by pragmatic assumptions about how knowledge is acquired. According to Creswell (2014), and Lyncoln et al., (2018), a researcher's guiding philosophy is a set of assumptions about how data should be collected, analysed, and used. The philosophical stance is crucial, especially in doctoral-level research, because it determines the necessary research paradigm (Kivunja, 2016). A researcher's paradigm describes the underlying ideology with which he or she approaches a study topic (Cartwright & Montuschi, 2014; Lyncoln et al., 2018). According to Creswell (2014), and Creswell and Guettermon (2019), the researcher's underlying philosophical position is the research paradigm. Positivist research, constructivist research, and pragmatist research are all examples of diverse research paradigms (Jarvie & Zamora-Bonilla, 2011). The ontology, epistemology, and methodology of each paradigm are the basis for the presentation that follows. Realities and knowledge are interpreted and constructed differently depending on which paradigm is used (Patten & Newhart, 2017).

Each paradigm has its own philosophical viewpoint on the nature of reality, that is, ontology); knowledge of reality, that is, epistemology; and ideal practices for studying reality, that is, methodology (Tashakkori & Teddlie, 2008; 2011).

The positivist paradigm is a component of the logical-mathematical school of thinking and is related to the objectivist epistemological stance. After all, positivism holds that the truth has been established, and, hence, studies in this area must be conducted coldly and scientifically (Cartwright & Montuschi, 2014; Patten & Newhart, 2017). This study's declared goal, therefore, could not be attained using the positivist paradigm alone. In research, the ontological, epistemological, and methodological tenets of positivism serve as a starting point for resolving all future philosophical conflicts (Creswell & Clark, 2017).

The pragmatic school of thinking is connected to the constructivist paradigm, and the latter is embedded within the subjectivist ontology. Researchers that take the constructivist view hold that knowledge may be constructed by the participants themselves. Knowledge cannot be discovered by scientific means according to constructivist researchers, who also refute the epistemology of the objectivists (Creswell, 2014). Constructivism, in contrast to the positivist paradigm's emphasis on objectivity, posits that people's behaviour may change if they are aware, they are being observed. Constructivists argue that to fully comprehend social activity, scholars need to delve into its underlying perspectives of the case being studied.

The researcher opted for the pragmatist paradigm instead, as it promotes mixed-methods research and ensures that the contextual realities of the persons being examined are taken into consideration (Davies & Fisher, 2018), in ways that allow researchers to compare and contrast findings (Cartwright & Montuschi, 2014). With regard to the pragmatic philosophical approach, Jarvie and Zamora-Bonilla (2011), imply that there is a possibility of there being a single social reality, but that this everyday social reality is experienced differently by various people. As a result, pragmatism adopts a moderate stance between the two extremes, combining the best features of positivism and interpretivism (Cartwright & Montuschi, 2014).

Pragmatism, in contrast to positivism's assumption of a fixed reality and interpretivism's assumption of a purely subjective construction, supports intersubjectivity, whereby a single reality may be accepted while bearing in mind that it may look different depending on the context (Cartwright & Montuschi, 2014).

This helped the researcher to quantify the quantitative results in order to enhance potential generalisation of the findings. It also ensures that the qualitative findings were contextualised to the sample in the study. This was achieved through triangulation of the research methods to provide credibility to the study as a whole. The following section highlights the approach used by the researcher to achieve the aim of the study.

3.3 RESEARCH APPROACH

According to Patten and Newhart (2017), a research approach is the procedure used to gather information for the study. According to Plonsky (2017), a research approach is the strategy for systematically addressing research questions or hypotheses across the scope of the study. As opposed to this, Creswell and Creswell (2018), define the research approach as the steps used to acquire and analyse data. Research methods may be broken down into three primary categories: qualitative, quantitative, and mixed methods (Creswell & Creswell, 2018; Creswell & Poth, 2018).

Positivists and realists are exemplified by those who use a quantitative approach (Snellson, 2016). Similarly, Saunders and Tosey (2015), argue that the positivist research paradigm, which is founded on the idea that there is only one reality in which subjective values have no role, is the foundation of the quantitative method. As it guarantees the quickest means of distributing the questionnaires and reliably facilitates a critical examination of numerical data for larger groups of individuals (Choy, 2014). Before collecting actual data, a pilot study is undertaken to confirm the precision of the quantitative instrument (Creswell & Clark, 2017). However, the limitations of quantitative analysis suggest that human insight and conviction may be absent, and inadequate funding for large-scale studies may dilute results. This is because quantitative research necessitates a sizable sample and cannot provide in-depth or probing insights as the qualitative approach does (Choy, 2014).

Qualitative research, on the other hand, relies on a smaller sample size to collect information from individuals through interviews and in-depth observations (Creswell &

Creswell, 2018; Erickson, 2018; Plonsky, 2017). Contrary to what quantitative researchers assert, they share the subjectivist view that “*the process of our observation of reality evolves and modifies it, and so it’s never definite*” (Kusi, 2012, p.78). One disadvantage is that interviews take considerable time and do not yield reliable, measurable data. Several methods have been developed, such as triangulation, thick description, and inquiry audit, to verify the credibility, transferability, dependability, and conformity of outcomes in qualitative research (Shenton, 2004; Silverman, 2015).

It is feasible to construct a mixed-methods approach to data collection, however, by combining quantitative and qualitative techniques (Mbila, 2017). The pragmatic foundation of the mixed-methods approach guides the employment of both qualitative and quantitative techniques for data collection and analysis (Creswell & Creswell, 2018). The mixed-methods strategy is a relatively new, third school of thought that has its own philosophical underpinnings and terminology (Creswell & Clark, 2017). How an issue is tackled depends on a number of factors, including the research paradigm utilised, the questions being asked, and the feasibility of conducting a thorough investigation within the confines of the study (Plonsky, 2017).

3.3.1 Justification for the mixed-methods approach

To evaluate the complexity of social reality, the researcher adopted a mixed-methods strategy (Davies & Fisher, 2018; Jarvie & Zamora-Bonilla, 2011; Lunt, 2012). In order to accomplish the goals of the study, it was necessary to combine quantitative and qualitative research methods (Creswell & Creswell, 2018). The researcher considered the issue under study and the context within which the research was conducted: the issue of pedagogical and assessment leadership practices and skills in the context of ECEs in Ghana.

The qualitative phase allowed the researcher to undertake an in-depth assessment of teachers’ pedagogical assessment leadership skills and practices in ECEs in Ghana. The mixed-methods approach was also useful because it revealed how pre-school instructors lead other educators in their assessment methods by drawing on their own set of sociocultural norms, beliefs, and practices. Furthermore, the mixed-methods approach allowed the gathering of extensive quantitative data from participants in order to enhance the generalisability of the research results whilst contextualising the findings from the qualitative dataset. Again, triangulation of the research data also ensured the credibility

of this study. In effect, the weakness of the quantitative approach was compensated for by the qualitative approach and vice versa, which allowed an in-depth assessment of teacher's pedagogical and assessment skills and practices in ECEs in Ghana.

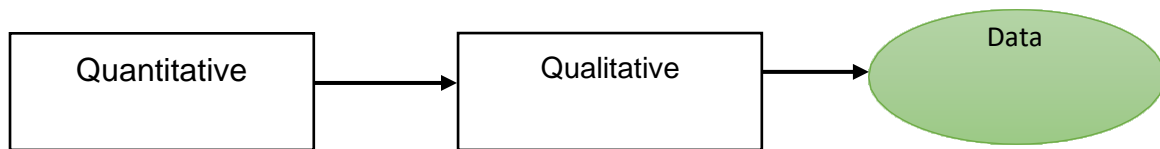
3.4 RESEARCH DESIGN

According to Dawson (2019, p.786), a research design is “a detailed plan for collecting and analysing data in accordance with the selected study strategy.” As defined by Creswell (2014 p.49), research design is the “guiding plan or approach.” There are two primary formats for mixed-methods research: the three-part sequential and concurrent mixed-methods designs (Dawson, 2019).

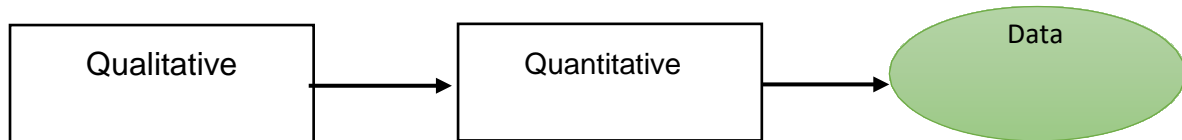
The sequential mixed-methods are two-stage process that captures distinct data at each stage of the procedure (Creswell & Guettermon, 2019; Tashakkori & Teddlie, 2010). Depending on whatever data were gathered initially, the sequential mixed-methods design may be broken down into three dimensions. In the sequential format, the method by means of which the researcher first collects and analyses quantitative data before moving on to qualitative data is the procedure that is being described. Both sequential transformation and sequential exploration entail the acquisition of data based on the researcher's theoretical review; however, sequential exploration involves the collection and analysis of qualitative data first, followed by quantitative data (Creswell & Clark, 2017; Creswell & Creswell, 2018; Saunders & Townsend, 2018).

In a concurrent mixed-methods design, qualitative and quantitative data are gathered and analysed at the same time, in a single stage (Teddlie & Tashakkori, 2011). Similarly, there are three components to the concurrent mixed-methods design. First, there is simultaneous triangulation (where quantitative and qualitative data are collected and analysed simultaneously). Figure 3.1 is a nested concurrent design (where quantitative and qualitative data are collected simultaneously, but the priority is given to one of the two during analysis). Finally, concurrent transformation (whereby quantitative and qualitative data are gathered concurrently, but in accordance with the study's theoretical perspective or research goals) is a viable option (Creswell & Clark, 2017; Creswell & Creswell, 2018).

A. Sequential Explanatory Design



B. Sequential Exploratory Design



C. Concurrent Triangulation Design

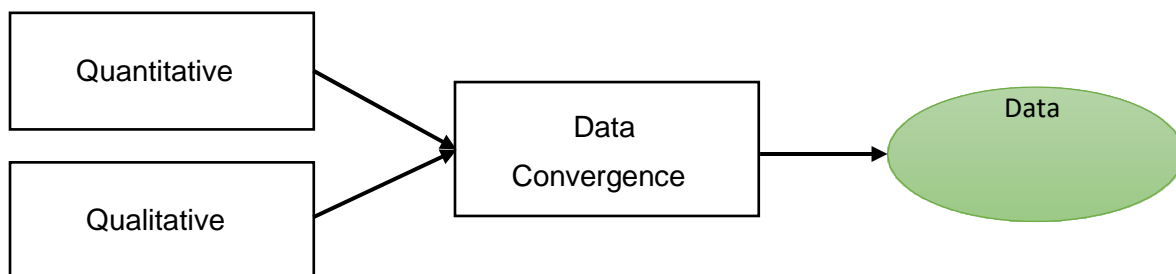


Figure 3.1: Summary of mixed methods design

3.4.1 Justification of concurrent triangulation research design

The researcher used a concurrent triangulation mixed-methods approach to help collect qualitative and quantitative data concurrently, sidestepping the debate over which method was more reliable (Creswell & Creswell, 2018). Teachers' pedagogical assessment practices and abilities in the Ghanaian setting were investigated by collecting, analysing, and integrating both qualitative and quantitative data at the same time. An online survey monkey was used to gather the quantitative data. The purpose of descriptive survey research is to learn about the current condition of a phenomenon (Creswell, 2014). According to Gay (1992), and Gay et al., (2012), a survey involves the process of gathering data that may be assessed and interpreted to document the present state of the phenomena being studied. This strategy worked well because it provided a thorough explanation of the phenomena in this context and because it was economical

in its use of a sizable sample that yielded valuable information (Kothari, 2004).

Surveys are used to ascertain how things are, to report on how things are, and to explain how things are (Gay, 1992). According to Fraenkel and Wallen (2000), the objective of the descriptive survey is to collect responses from a sizable sample to a predetermined list of questions that has been meticulously crafted and provided to the respondents. In undertaking this study, the researcher relied on a comprehensive descriptive survey. He did this because he was curious about the opinions of a large number of educators working in ECE settings in Ghana in relation to their practices in pedagogical and assessment leadership. As the researcher sought to gather data and draw conclusions based on the findings it was felt that the descriptive survey was the ideal form for the quantitative procedure.

In addition, a case study was conducted and interview data was collected during the qualitative phase. A case study is a form of in-depth examination of a specific phenomenon or set of people, conducted over a short period of time and at a particular location (Yin, 2011, 2014). According to Punch (2005), and Seidman (2019), the purpose of a case study was to learn as much as possible about the subject and its context in order to fully grasp its significance.

The researcher spent sufficient time collecting data on the phenomenon under study to accomplish the concurrent triangulation that mixed-methods design allow. Case studies were utilised by the researcher to ascertain how early childhood educators evaluate their own leadership in the classroom assessment practices. The numerical description offered by the quantitative results may be extrapolated to the entire population. On the other hand, the qualitative results were crucial in providing first-hand contextualised information on how early childhood educators see their pedagogical and assessment leadership practices in the classroom.

3.5 POPULATION

The term study population refers to the total number of people who share enough characteristics with the sample to warrant inclusion in the study (Creswell, 2014). Registered early childhood educators in the study's region served as the population selection criterion for this study.

The targeted population comprised registered ECEs early childhood teachers in the Kumasi metropolis who were members also registered members of the National Early Childhood Graduate Teachers Association of Ghana (NECGTAG) Telegram platform. Specifically, the target population included all early childhood teachers in the metropolis, which had 1,021 public and private early childhood schools during the 2019/20 academic year. Data from the Kumasi Metropolitan Directorate of the Ghana Education Service indicated that there were 210 public and 811 private early childhood schools with 820 and 1222 teachers, respectively, giving a total of 2,042 teachers.

3.6 SAMPLE SIZE AND SAMPLING PROCEDURE

This section explains how the researcher established the appropriate sample size for the study and how volunteers were selected to participate in the investigation. Due to the use of a contemporaneous triangulation mixed-methods design, the quantitative and qualitative stages of the research each had their own sample sizes in addition to distinct sampling procedures.

3.6.1 Sample size

According to Patten and Newhart's (2017), definition, a sample is the fraction of the population that is relevant to the research being undertaken. According to Creswell (2014), a sample is a subset or section of the population whose findings may be extended to the population as a whole or in a contextualised manner in qualitative studies. Creswell's (2014), definition of a sample is used here. Due to the rigorous nature of the study, it was essential to ensure that the characteristics of the population that guide sample selection adequately reflect the entire population. This was accomplished by ensuring that the characteristics of the population guide sample selection. Creswell and Creswell (2018), Nardi (2018), and Plonsky (2017), are in agreement that if the population of interest is small and easily accessible, all characteristics should be included in the study. This is especially important if the study in part comprises a survey. As the research was conducted using a concurrent triangulation mixed-methods design, distinct sample sizes were utilised for the quantitative and qualitative stages of the investigation. The samples were used for the study are broken down into their respective distributions in Tables 3.1 and 3.2.

Table 3.1: Distribution of the quantitative sample

Particulars	Kumasi Metropolitan Assembly	Schools selected in each municipal (a)	Teachers selected		Total selection		Overall Totals	
			Each School (b)	Municipal (c = a*b)	Teachers (c*d)	Schools (a*d)	Estimated Sample of teachers	Actual sample of teachers
Municipalities (d)	10							
Public		17	2	34	340	170	340	346
Private		18	2	36	360	180	360	354
Total		35	4	70	700	350	700	700

Source: Field data, Kotor Asare (2022)

Table 3.1 illustrates the distribution of the quantitative sample for the study. Quantitative data were collected from 10 municipalities covering 350 ECEs and 700 early childhood teachers, which breaks down as 346 public and 354 private school teachers, and 169 male and 531 females' respondents within the Kumasi Metropolis in Ghana. The quantitative data was thus collected from a wide sample to allow for easy generalisation of the findings. The data shown in Table 3.1 represents the quantitative sample for the investigation as a whole.

Table 3.2: Distribution of the qualitative sample

Variables	Interview
ECEs (public & private):	10
Public teachers	5
Private teachers	5
Gender:	
Male	4
Female	6

Source: Field data, Asare (2022)

Table 3.2 shows the qualitative sample for the study. Ten early childhood teachers, four males and six females, were selected from the Kumasi Metropolis for the interview

phase. The sample size for the study thus comprised a total of 710 participants, 700 for the quantitative phase and 10 for the qualitative phase. The sub-sections below discuss how the participants were drawn for the sample.

3.6.2 Sampling procedure

Sampling, according to Gravetter and Forzano (2018), is the process of identifying a portion of a population that is representative of the whole, regarding a quantitative study. The goal of sampling in qualitative research, however, is to recruit participants that provide rich and deep data so as to understand the phenomenon being studied and not the volume of numbers involved per se (Hennink et al., 2019). The two primary approaches used in research are known as probability sampling and non-probability sampling. Probability sampling refers to a selection method in which each participant has an equal chance of being selected (Plonsky, 2017). It encompasses four types of sampling: simple random, systematic, cluster, and stratified (Patten & Newhart, 2017). The process of selecting participants from a population using a non-probability sampling method entails selecting people from the population in which individuals do not have equal odds of being selected (Gravetter & Forzano, 2018).

For the purpose of this study, the researcher chose to use the multistage sampling approach. This technique was adopted as the participants for the quantitative and qualitative phases were selected based on separate sets of selection criteria.

For instance, the procedures of convenience, purposive, quota, and snowball sampling are included in the non-probability sampling technique (Patten & Newhart, 2017). The quantitative sample approach, which served as a guiding light for the research, is presented in the next sub-section.

3.6.2.1 Quantitative phase

It is vital for the researcher to demonstrate to readers the process used to determine the size of the quantitative sample. The process for taking samples during the quantitative phase is outlined in Table 3.3

Table 3.3: Quantitative sampling procedure

Variables		Gender	Sampling Procedure	Number Selected
Municipalities	10	Male 169	Purposive	Total 700
ECEs:				
Public	346	Female 531	Proportionate	
Private	354		Stratified Simple random	

Source: Field data, Asare (2022)

3.6.3 Sample and Sampling Technique

The traditional Kumasi Metropolitan Assembly was purposively selected due to its dense population of early childhood teachers and its cosmopolitan nature. Once the sample size had been determined, a multistage cluster sampling technique was also used to select 700 participants from 2042 professionally trained early childhood teachers on the NECGTAG Telegram Platform in the metropolis. They worked in the 10 municipalities that form the traditional Kumasi Metropolitan Assembly. The schools were considered as the unit for the administering of the questionnaire, which also constituted the sampling frame. The clusters were defined as the 10 municipalities in which the schools are located. The cluster size was defined as the number of teachers in the cluster. The sampling frame was stratified into 10 municipalities. The stratification ensured that data could be safely disaggregated from the traditional Kumasi Metropolitan Assembly into the specific municipalities.

Respondents were chosen using stratified random sampling to select teachers from the early childhood schools. This is because the representative sample should closely reflect the characteristics of the population (Weiss, 2016). According to Memon (2020), and Kline (2016), the minimum sample required for effective Structural Equation Model performance ought to be 160 and 200 respondents respectively. Again, going by Yamane's (1967), sample size determination formula, for a population of 2042, the estimated sample ought to have been 570 respondents, which breaks down into 269 and 301 public and private teachers respectively (Appendix J highlights the actual

calculation). However, a higher number of respondents were selected to avoid difficulties in the data analysis (Arif et al., 2016; Bagozzi & Yi, 2012, Creswell & Poth, 2018; Hair et al., 2010, 2011, 2018; Hensler et al., 2014, 2018).

Multistage sampling was adopted to select a sample from the population. All the 10 municipalities in the city were purposively selected. From each municipality, 35 schools with two teachers each were selected, making a total of $(35 \times 2 = 70)$ teachers. Again, from each municipality, 18 private and 17 public schools were selected. Two teachers were selected from the various private and public schools in all 10 municipalities ($2 \times 18 \times 10 = 360$; $2 \times 17 \times 10 = 340$), making a total of 700 teachers within the 10 municipalities. However, in some instances, not all the selected schools were having two professionally trained early childhood teachers with the minimum of diploma certificate, which was the basic academic yardstick for the selection of the respondents in the current study. This led to the slight variations in the actual numbers of teachers selected from the private and public schools. For example, instead of the estimated 360 private and 340 public school teachers, it changed to 354 and 346 teachers, respectively. Table 3.1 gives a summary of the entire sampling procedure.

For each stratum, sampling was undertaken in two stages. In the first stage, schools were separated into public and private; likewise, the number of respondents of each gender was selected using probability proportional to size (PPS) (Joshi & Rajarshi, 2018). This means that larger public or private schools, and whichever gender was better represented among the teachers, had a higher probability of having their members selected. In the second stage, a fixed number of 70 teachers were selected from each municipality using a systematic sampling technique.

The number of teachers selected from each municipality was fixed to ensure that the PPS was compensated for in the second sampling stage (Joshi & Rajashi, 2018).

For the final step, the researcher employed a simple random selection procedure to select teachers who worked with pre-schoolers. Researchers are able to eliminate bias in the sample by using simple random sampling, which also helps to lower the likelihood of the occurrence of statistical outliers within the sample (Hensler et al., 2014, 2018), (Appendix J for sampling formula used and the corresponding calculations performed). Seven hundred participating teachers were selected for the quantitative phase of the study.

3.6.3.1 Qualitative phase

Table 3.4 illustrates the results of the sampling procedure adopted for the qualitative data-collection phase. This section describes participants' selection for this phase. Due to the concurrent triangulation nature of the mixed-methods research design, the procedure adopted to arrive at participants' selection for the study needs to be disclosed.

Table 3.4: Qualitative sampling procedure

Variables	Interview	Procedure
ECEs		Purposive
Public	5	
Private	5	
Teacher		Convenient
Public	5	
Private	5	
Gender		Convenient
Male	4	
Female	6	

Source: Field data, Asare (2022)

The selection of interviewees for the qualitative-data collecting stage was based on convenience sampling. This form of sampling involves respondents, in this case, the early childhood teachers, being selected for research based on their availability and their desire to participate (Gravetter & Forzano, 2018).

The purposive sampling technique was used to select early childhood educators from densely populated areas of the 10 municipalities in the city of Kumasi. Purposive sampling, according to McMillan and Schumacher (2010), is founded on the idea that the researcher has an interest in learning more about a particular sample and the phenomena being studied. Selecting research subjects based on their intended functions is what is meant by purposeful sampling (Gravetter & Forzano, 2018). The methods of data gathering are described in the next section.

3.7 DATA GATHERING INSTRUMENTS

The methods used to collect quantitative and qualitative data during the concurrent triangulation mixed-methods approach needed to be specified. Following careful analysis of the research topics, a questionnaire was deemed suitable for the quantitative phase, and a semi-structured interview technique for the qualitative phase.

3.7.1 Quantitative phase: Questionnaire

Teachers' Pedagogical and Assessment Leadership Skills and Practices in Classroom Assessment Survey (TPALSPCAS)

According to Pattern and Newhart (2017), a questionnaire, which comprises of a series of questions, can be employed as a tool to collect information from study participants. Questionnaires are commonly used by academics because their results can be easily quantified, either manually or with the use of statistical tools. As Nardi (2018), points out, questionnaires provide researchers with a rich source of potential questions to ask research participants. One questionnaire was used throughout the study. Early childhood educators were the respondents to the surveys.

The Early Childhood Teacher Leadership scale (Wang & Ho, 2020), Early Teachers Pedagogical Leadership Survey (Ball, 2017), the Assessment Leadership Survey (Eubank-Morris, 2017), Principals Technology Leadership Assessment (Duncan, 2021), as well as Self-perceived Classroom Assessment Skills (Zhang & Burry-Stock, 2003), were adapted to gather the quantitative data during the pilot phase and later the actual data collection for the study, having written for permission and also through the fair use doctrine or principle. The participants sampled for the current study needed to concurrently subject themselves to qualitative and quantitative data collection procedures.

First, the quantitative portion of the study involved using TPALSPCAS survey to gather information on the pedagogical and assessment leadership practice and skills of the participants. This questionnaire was tested after thoroughly reviewing the pedagogical leadership and assessment literature (Eubank-Morris, 2017; Wang, 2018; Wang & Ho, 2020; Zhang & Burry-Stock, 2003).

Portions of the TPALSPCAS were initially developed and administered to teachers in the USA and Canada to assess their skills and the use of assessment practices across various teaching levels and content areas, to ascertain whether self-perceived assessment skills were a function of teaching experience. Zhang and Burry-Stock (2003), developed a 67-item two-factor scale employing “Use” and “Skill.” The Use sub-scale measures teachers’ usage of assessment practices on a 5-point Likert scale: 1 (not at all used) to 5 (used very often). The Skill sub-scale assesses teachers’ self-perceived classroom assessment skills on a 5-point scale (1 = not at all skilled, to 5 = very skilled).

The modified questionnaire was first employed in a pilot study to examine its validity and reliability before being administered to the respondents for final data collection (see Appendix F). It has five sections, with the demographic information of the respondents as Section A, which deals with seven items (e.g., age, gender, level of education, years of teaching experience) and school characteristics (e.g., school type and location, rural or urban). Section B has six items and seeks to gauge the teachers’ pedagogical assessment leadership skills (PALS), rated from 1 = never to 5 = very often.

Section C contains eight items which elicit information on the teachers’ classroom assessment literacy practice (TCALP), rated from 1 = never to 5 = very often. Section D contains 10 items that measure the teachers’ self-perceived technology use in the classroom (TECH) and its influence on their pedagogical assessment leadership skills, rated from 1 = never to 5 = very often.

Section E deals with eight items that measure how School Culture (SC) influences the teachers’ pedagogical assessment leadership skills. The early childhood teachers who were the participants in this study rated the various concepts on a 5-point Likert scale, from 1 = never to 5 = very often.

In sum, whilst relying on Sousa et al., (2017) outline for scale adaptation, relevant portions to the study were picked up from the validated scales. Much as the scales were written in English Language, there was the need to translate certain key concepts and terminologies into the Ghanaian context. New questions were developed and inserted into the existing ones, in line with the purpose of the study. The modified questions were then tested through peer review process from language and subject area experts. Further and thorough modifications were carried out by removing some non-fitting items before

the pilot.

A pilot test carried out in some early childhood centres in the Bono Region of Ghana examined the scales' validity and reliability. The researcher himself administered the questionnaire through an online Survey Monkey platform. Osuala (1982) and Hayashi et al., (2019) note that the researcher can brief respondents to understand precisely what the items mean in order to obtain the proper responses. In such research, it is ethical to assure respondents of their confidentiality and anonymity; the questionnaire was accompanied by a cover letter to that effect and to request the respondents' maximum co-cooperation.

Either closed- and open-ended questionnaires or both are used in research. In this case, participants were asked to respond to a questionnaire with closed-ended questions. The study utilised only closed-ended questions since they are easier to administer and code more quickly and accurately. Open-ended questions often demand writing of lengthy sentences and paragraphs, which both researchers and volunteers would have to spend time, when coding (Saldana, 2013). All participants were required to pick one answer from a predetermined list of options for each topic in the closed-ended questionnaire. The amount of time the participants spent on the questionnaire was conserved since the researcher did not need to provide lengthy explanations for the closed-ended questions (Kusi, 2012).

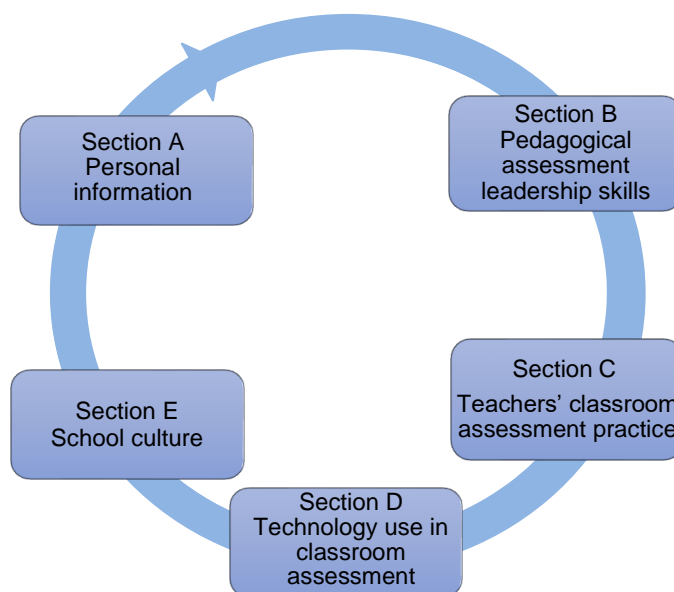


Figure: 3.2: Summary of the questionnaire

3.7.2 Qualitative phase: Semi-structured interviews

According to Ritchie et al., (2013), an interview is an interaction that occurs between two or more people; one person (the interviewer) poses questions to another individual (the interviewee or interviewees) in order to obtain information from them. Interviews might be performed using a variety of media, such as a face-to-face interaction, the telephone, or the internet (Silverman, 2015). Interviews can also be categorised as unstructured, structured, or semi-structured, depending on the level of organisation they employ (Creswell & Creswell, 2018). For the collection of the non-numerical data, semi-structured interview can be undertaken. Using a structured interview, one would create an interview guide and adhere to it rigorously when speaking with various participants in the study. This would ensure that topics are not included in the guide are not raised in the interviews (Silverman, 2015).

In semi-structured interviews, a guide is utilised, though there is the freedom to ask in-depth questions to elicit information that was not covered (Dawson, 2019). There is no set format for an unstructured interview; rather, the flow is determined by the nature of the interaction between the interviewee and the interviewer (Braun & Clarke, 2014, 2019).

Semi-structured interviews were conducted to learn more about the ways in which early childhood educators in Ghana frame issues involving their pedagogical and evaluation leadership abilities and practices, as well as the difficulties they face in this setting.

Maiklad (2001, p.96), believes interviewing to be “the most often used methodology in qualitative analysis.” It is usually seen as one of the most effective research methods to gauge teachers’ beliefs and perceptions. In this study, the aim of using interviews was to permit the educators to return to and describe the procedures they had been conducting themselves in their classrooms.,

Moreover, a semi-interview style allows the researcher to use his or her time as an interviewer judiciously. Before the start of the interviews, the researcher handed each interviewee a detailed description and outline of the study, and all the respondents signed the ethics consent form.

The researcher further explained to the early childhood teachers that their participation was optional and that they could withdraw before the interview began or in the course

thereof. These interviews were all conducted independently by the researcher. Questions in the interview protocol were used to elicit more detailed information on the early childhood teachers' views on pedagogical assessment leadership and the factors influencing their pedagogical assessment practices in the classroom, including the challenges involving the use of technology.

The interviews included additional questions when clarification was required. In this sense, the interview was an apt way to collect data regarding teachers' assessment practices during their pedagogical practices with pre-schoolers. In brief, interviewing the teachers assisted the researcher in eliciting descriptive data from the interviewees' language, as prescribed by Freeboby (2003), in order to properly investigate and appreciate the teachers' views on their assessment practices. The interviews were recorded digitally using an MP3 electronic device. The data collected were transcribed using the clean transcript technique prescribed by Elliot (2010); in this case, unwanted words or sounds and animation were excluded. Thereafter, each transcript was given to the appropriate interviewee for him or her to double-check the exact meaning of the words used in the interview.

3.8 ETHICAL CONSIDERATIONS

Ethics plays an essential role in guaranteeing the safety of research participants throughout the many stages of a study (Plonsky, 2017). In accordance with Patten and Newhart (2017, p.68), research ethics helps ensure the safety of participants, foster a trustworthy relationship with them, maintain the credibility of the research itself, forestall unethical behaviour, and increase public trust. It is imperative that academic researchers adhere to professional ethical standards at all times. Ethical considerations in research centre on topics such as informed consent, subject autonomy, privacy, and secrecy (Nardi, 2018). Before any data was collected, the researcher and the respondents held a discussion on the following ethical considerations and their relationship to the study: permission, anonymity, informed consent, confidentiality, and harm to respondents.

3.8.1 Permission

Gaining permission to visit the study sites is a basic standard procedure in data collection in research (Chikutuma, 2013). Before collecting data, researchers need to gain

permission from the people being studied (Majoko, 2013). The appendices to this study contain copies of all the letters requesting ethical clearance (Appendices A to E). The following steps were taken to obtain permission to collect data:

- 3.8.1.1 Before undertaking this study, ethical clearance was first sought and obtained from the Institutional Review Board of the University of South Africa.
- 3.8.1.2 Permission was requested and obtained from the Ministry of Education and Metropolitan Education Units in Ghana before approaching the 350 ECE centres in the Kumasi Metropolis.
- 3.8.1.3 Permission was sought and obtained from the head teachers whose schools were selected for the study.
- 3.8.1.4 The participants' consent was sought and obtained before they responded to the questionnaire or interview protocol.
- 3.8.1.5 Finally, Covid-19 protocols were discussed with the school authorities before data collection began. All Covid-19 protocols were strictly adhered to before, during, and even after data collection.

3.8.2 Informed consent

It was prudent to obtain participant clearance prior to data collection after obtaining approval from the Ghana Education Service, Metropolitan Directorate of Education, and headteachers of the several ECE centre. Magwa and Magwa (2015), describe informed consent as ethical consent which gives participants the option to participated in a study after learning its aim. In this study, the researcher ensured that participants understood the study's purpose and were offered the option to participate voluntarily.

3.8.3 Confidentiality

The responses and identities of the participants were kept private, and their responses were not shared with other participants since the data were to be used purely for academic purposes, as outlined by Creswell and Creswell (2018).

3.8.4 Anonymity

To keep the participants' identities secret, the researcher followed the outline of the protocol given in educational materials. Dougherty (2021), indicates that it is the researcher's job to ensure that the identity of the participants and the content of their

answers are kept secret. The fact that the participants were anonymous protected their rights and private information. During the quantitative phase, data from the participants were coded to protect the identity of individual participants.

3.8.5 Harm to participants

According to Patton (2002; 2015), research subjects should be shielded from any potential dangers. To this end, the researcher took care to ensure that the research questions posed did not cause any emotional, social, or bodily distress. The researcher ensured that the ECE teachers interviewed followed the Covid-19 social distancing policy, wore a mask, and washed their hands often. The following section details the steps taken to obtain the necessary information.

3.9 METHODS OF DATA COLLECTION

This section describes the methodology utilised for data gathering in the study. The concurrent triangulation mixed-methods design requires different data gathering techniques, and this was complied with by using questionnaire and semi-structure interview protocol. (Creswell & Creswell, 2018). The quality of the data collected in the field determines the accuracy of the information used for the analysis. To ensure accuracy, the researcher chose not to rely on any study assistants, instead all the data were collected by himself. The researcher strictly adhered to all protocols, including ethical duties, sampling method, and Covid-19 hygiene protocols. The data collection procedure consisted of two steps.

3.9.1 Quantitative phase

During the quantitative phase, the researcher electronically administered the TPALSPCAS questionnaire to all 700 respondents in the 350 ECE centres involved in the study on a Telegram application platform using a Survey Monkey form. The researcher created a Telegram account and migrated all the participants onto it. The respondents had the opportunity to obtain clarification and any other support they needed whilst responding to the questionnaires as the researcher remained active on the platform throughout, thereby ensuring a 100% response rate for questionnaire submission. In spite of the high collection rate, poor internet connectivity in certain locations and among the study sample, somehow delayed the data gathering process. The fieldwork for the quantitative phase lasted for two weeks,

from the 20 to the 3rd of June, 2022.

3.9.2 Qualitative phase

The researcher ensured that the participants' interest and attention were aroused and sustained by using humour before and during the interview sessions. This was intended to make the respondents open up during the interviews. The research scheduled a day with the participants during the qualitative phase to conduct the interviews. Adhering to the Covid-19 protocol, he scheduled an appointment with the participants at their convenience to conduct the interviews. Open and frank communication influenced the effectiveness and efficiency of the procedure for data collection. Participants were willing to assist the researcher because of his rapport with them, especially during the interview phase.

After establishing rapport with the participants, the researcher relied upon a semi-structured interview schedule to collect the data. The interviews were conducted to gain insight into the early childhood teachers' views on their understanding of pedagogical and assessment leadership, the central concepts in the study. They were further probed to ascertain their opinions on assessment in the early childhood setting, what constitutes an assessment leader, how gender influences their pedagogical and assessment leadership practices, and the related challenges they face in classroom assessment practices.

During the face-to-face interviews and some of the online ones, notes and audio recordings were made. After each interview session, the researcher expressing his gratitude to the participants for their support and involvement. The interviewees were assured that the transcripts would be returned to them for confirmation and clarification before the final analysis would be performed. Those who expressed their desire to read the final report have been assured of receiving a copy of the thesis. Each interview session lasted for a minimum of 15 to 20 minutes for all 10 interviewees. The fieldwork lasted 10 days, from the 18th to the 28th of May 2022.

3.10 PILOT TESTING OF INSTRUMENTS

The instrument for data collection needed to be pilot-tested using five purposively

selected ECE centres in the Sunyani Municipality in the Bano Region of Ghana. The piloting of the instrument was required to check its consistency, accuracy, and applicability. The sample for the pilot testing of the instrument was 50 respondents, all practising early-grade student teachers on a post-diploma programme of study. Five of these interviewees were selected for the qualitative interviews.

The study used a test–retest format to ensure reliability. Using this method, questionnaires were distributed to participants, and then redistributed to the same participants 10 days later to compare their responses. The average correlation between items was calculated using Cronbach’s alpha to establish internal consistency. As indicated by Henseler et al., (2015), and Hu and Bentler (1999), if an instrument’s alpha value is less than 0.7, this suggests that the instrument is unreliable and that none of its items meet acceptable levels of internal consistency. Examining Table 3.5, one may observe how the pilot test results for the questionnaire were distributed in line with the specific sub-scales of the questionnaire

Table 3.5: Distribution of scale of pilot testing results

Scale	Composite Reliability (CR)	Cronbach’s Alpha
Section B	0.947	0.946
Section C	0.931	0.930
Section D	0.966	0.966
Section E	0.851	0.881

Source: Field survey, Asare (2022)

Cronbach’s Alpha and composite reliability (CR) were used to measure the measurement model’s internal consistency or reliability (see Table 3.8). The results showed that all the latent variables’ Cronbach's Alpha and CR values were higher than the required level of 0.7 (Creswell, 2014).

The interview sessions lasted for 20-25 minutes. The researcher followed Castillo-Montoya’s (2016), prescription regarding the preparation of the interview protocol. The protocol was, therefore, developed in line with the main research question. Before the interview was conducted, the researcher introduced to the participants the nature of the

research, its purpose, and the strategies used to ensure anonymity and confidentiality. Respondents were further interviewed at their convenience. The following procedures were followed to pilot test the semi-structured interview protocol:

- Restructuring and rewording of the interview questions to make them less wordy.
- Sharpening of interview skills. For instance, listening to the interview tapes, the researcher noticed that he was speaking quickly and that some of the respondents kept asking him to repeat himself.
- The researcher reviewed the interview questions before the commencement of actual data collection for the main study.

3.11 TRUSTWORTHINESS, RELIABILITY, AND VALIDITY OF THE STUDY

The trustworthiness, reliability, and validity of the study are addressed in this section. The criteria for determining the trustworthiness of issues, as well as the requirements for reliability and validity, which are key requirements for maintaining the value of truth in research investigations, are discussed below. In addition, the criteria for measuring the quantitative and qualitative aspects, as well as for the integration of data, are outlined.

3.11.1 Criteria for ensuring trustworthiness in the qualitative phase

The need to address concerns of trustworthiness in research, especially in mixed-methods studies, has been argued to be of crucial importance (Montuschi, 2014). The main criticism of qualitative research has been that it is biased and value-laden (Montuschi, 2014). There are essential methods that can guarantee the reliability of studies, such as reliability, confirmability, credibility, and transferability, which were adhered to in the current study (Silverman, 2015).

3.11.1.1 Transferability

In the qualitative phase, the researcher began with the equivalent of the external validity in the quantitative phase: ensuring that the findings could be applied to other situations (Silverman, 2015). Quantitative findings are easily generalisable using the concurrent triangulation mixed-methods methodology; however, qualitative findings are more challenging. The issue being researched, for instance, may have parallels in other nations. This research was conducted in an ECE environment in Ghana, Africa, and its aim was not to have its findings generalised but rather to demonstrate to readers the

notions of pedagogical evaluation leadership skills and practices in this context. Readers may extrapolate the results to their own jurisdictions, though only if they observe a connection between their own situations and that presented in the study.

3.11.1.2 Credibility

The internal validity of qualitative research is typically correlated with its credibility, which is defined as the extent to which the results are trustworthy and credible (Teddlie & Tashakkori, 2011). To verify the reliability of the study, the researcher modified certain methods (Silverman, 2015).

- To avoid misunderstandings, the instruments were created in a language that both the researcher and the people being studied could understand.
- The researcher ensured that nothing changed during the interview so that information could flow freely.
- The researcher could fix mistakes and other problems because his supervisors checked on him often.
- Two experts in the subject area moderated the research instruments as regards administration and data analysis. They also checked and corrected possible mistakes in the procedure for reporting the findings and the research process in general.

3.11.1.3 Dependability

Following the interview sessions, the first step that was taken to ensure reliability was to collect feedback from the respondents – they could indicate their level of acceptance or dissatisfaction with the process. In the second step of the process, the researcher had the work evaluated by two impartial raters who were not connected to the research in any way. When the researcher reviewed the notes from these independent raters, he discovered that they were approximately 80% in agreement with the questions, themes, and findings. As a consequence, the researcher assumed that the work was consistent and that comparable findings were achieved when the instrument was pre-tested on five public and private ECE centres in Sunyani Municipality. This was because the researcher thought that the results were similar to what was obtained, since the researcher teaches in both cities and therefore was familiar with the demographic attributes of the early childhood teachers.

3.11.1.4 Confirmability

The confirmability of research results is an indicator of their objectivity (Teddlie & Tashakkori, 2011). Internal validity is typically linked to the concept of credibility, which relates to how likely it is that the results actually represent reality (Creswell, 2014). The objective nature of quantitative data mirrors the verifiability of qualitative data. The evaluation methods, such as continuous examination of the research process and reviewing the researcher's prior knowledge, are crucial to the success of the principle. The researcher maintains objectivity and verifies that his or her interpretations of the facts are reported without alteration.

3.11.2 Criteria for ensuring reliability and validity in the quantitative phase

When assessing how instruments were utilised to obtain data, reliability and validity are essential components to consider (Creswell, 2014; Tavakol & Dennick, 2011). When it comes to research on assessing distinct ideas, the phrases validity and reliability may appear to have the same meaning, but in reality, they have very different connotations (Bryman, 2012).

3.11.2.1 Reliability

According to Silverman (2015), dependability is defined as the extent to which a study generates the same results when it is repeated by researchers or when it is used in a new setting. Kusi (2012), states that dependability is determined by the capacity of study findings to be replicated. For this research project, a test–retest reliability technique was implemented in the pilot testing phase. To determine whether or not there was any variation in the results, the researcher gathered two separate sets of data from the same respondents within ten days of each other. Test–retest criteria resulted in stable instrument scores when applied to measurements obtained from the same subjects at different times (Creswell & Creswell, 2018; Teddlie & Tashakkori, 2011).

3.11.2.2 Validity

According to Tashakkori and Teddlie (2010), validity is defined as the extent to which a concept, or the values of the questionnaire, accurately or honestly measure what they are intended to measure. Researchers that work with cohorts, such as Creswell and Creswell (2018), Creswell (2014), and Kusi (2012), maintain that validity refers to the

extent to which test findings correctly reflect the social phenomena under investigated. For the purpose of this study, validity was determined by administering pre-test instruments to research professionals so that they could evaluate the questions. After receiving comments from them, the questions were modified so that they were more pertinent to the subject matter of the study (Creswell & Creswell, 2018; Welman & Kruger, 2001).

3.11.3 Criteria for ensuring the trustworthiness of the mixed-methods phase

There are three approaches that may be taken to ensure that mixed-methods research is trustworthy. These approaches are known as triangulation of data or triangulation of respondent data, reflexivity, and analytical sufficiency (Creswell & Creswell, 2018; Patten & Newhart, 2017). The concurrent triangulation mixed-methods design was selected along with the pragmatist research paradigm to serve as the driving force behind the study. The reliability of the research method was ensured by including several sources or participants in the study at various points during the data-gathering procedure. These included the responders (primary educators and secondary school principals), as well as the techniques (questionnaire, interview, and observation). Data triangulation was utilised so that conclusions drawn from the methodology that was utilised could be checked for accuracy (Creswell & Creswell, 2018; Smith, 2005, 2011, 2013).

It is difficult to attain impartiality and objectivity in qualitative research due to the researcher's own biases and subjectivity. The term reflexivity is used to describe the researcher's awareness of his or her own role in generating the phenomenon under study (Creswell & Creswell, 2018; Patten & Newhart, 2017). As someone who used to educate young children in the Kumasi Metropolitan Area, the researcher can relate to the struggles that the city's educators currently face. As a result, it would be misleading to claim that the research was conducted cleansed of the researcher's own personal beliefs and prejudices. However, by using an institutional map and selection criteria to select various early childhood centres and individual instructors, this study is able to provide a comprehensive and holistic picture of the state of ECE in Ghana. Moreover, the researcher met with 10 participants in person for open-ended interviews that used a semi-structured interview guide. Because of this, the researcher was able to conduct the interviews in a manner to minimise biased. The researcher also employed triangulation (data collected from many sources, such as government documents, yearly reports,

academic publications, and books) to corroborate the conclusions from the interviews and to minimise or eliminate any potential bias.

3.12 DATA PROCESSING AND ANALYSIS

The term data analysis refers to the process of refining results in order to increase knowledge, to generate an impact on policy and practice and enlarge the scope of theory and literature (Creswell & Creswell, 2018). In the instance of the concurrent triangulation mixed-methods design, a variety of different analytic approaches were utilised in the analysis of both the quantitative and the qualitative data; the results of these analyses are combined during the discussion.

3.12.1 Quantitative phase

The Statistical Package for the Social Sciences (SPSS) version 28 and IBM AMOS version 28 were utilised in order to conduct the analysis on the quantitative data. The demographic profile component of the questionnaire was analysed using frequency and percentages, and the results were laid out in tables. Before the correlation and exploratory factor analysis (EFA) could be undertaken, a preliminary analysis was carried out to assess the viability and predictability of the study data. In addition, confirmatory factor analysis (CFA), structural equation modelling, and reliability and validity checks were undertaken. Finally, structural equation modelling (SEM) had to be done in order to assess the four hypotheses that were developed to direct the investigation.

The following basic quantitative data analysis plan was employed:

Step 1: The research questions and hypotheses were clearly defined

Step 2: Data sets were thoroughly prepared and cleaned

Step 3: The right analysis methods of using SPSS, IBM AMOS, EFA, SEM was utilised

Step 4: Running the right analysis, whilst checking the correct output followed

Step 5: Correct and accurate reporting the results and findings was duly followed

Step 6: Finally, the analysis and interpretation of the results and findings were evaluated through peer review process

3.12.2 Qualitative phase

The researcher applied a qualitative data tool called Qiqqa data-mining software to analyse the main qualitative data. The field interviews were recorded and originally

transcribed manually. They were later fed into the data management and analysis software. The researcher undertook thematic analysis of the collected data by basing this work on the goals of the study and by ensuring that the primary concepts that are the basis for the investigation were kept in mind. After encoding the interviewees' comments into subcodes in order to address the constructs, the researcher methodically developed the common themes that emerged from the responses provided by the respondents. The opinions held by the majority of participants consistently throughout the interviews were the basis for the important themes that were established. In order to construct the topics, the researcher made use of the analytic coding method. The researcher who has fresh ideas may investigate and construct new categories with the use of this coding scheme and can also seek comparisons with the themes that emerged initially for inclusion and exclusion reasons (Adu, 2019; Braun & Clarke, 2014, 2019; Richards & Morse, 2012).

Analytic coding made possible not only the conceptual construction and relating of categories to the data (i.e., deductively), but it also allowed the researcher to challenge the data with the new concepts that were forming. This was a very helpful aspect of the process (inductive). In order to accomplish this goal, the researcher utilised both pre-set and open coding methods. The analysis was led by both inductive and deductive reasoning, depending on the particular research issue that was being analysed. For instance, a deductive strategy was utilised to investigate the manner in which early childhood educators in Ghana conceptualise pedagogical and evaluation leadership abilities and practice. This research was undertaken in Ghana. In this particular instance, it was requested of the respondents that they specify whether or not they were assessment literate. The concepts that surfaced from the initial stage of the analysis process were eventually categorised as "knowledge of assessment" and "definition of assessment." The analysis, on the other hand, was directed by an inductive method through an iterative coding process, as well as by re-coding whenever new pertinent ideas or themes arose. This occurred as a result of the purpose of the research, which centred on researching new constructions as well as exploring previously examined constructs from a fresh angle.

In order to get started with the analytic coding, the researcher began with a to-do list of pre-set codes (themes) that were developed from his past understanding of the topic. For instance, in order to investigate the ways in which teachers' gender affects their

pedagogical assessment and leadership activities, he formulated separate pre-codes for males and females. In addition to the codes (themes) that were predetermined, he searched for emerging themes that were distinct from the predetermined codes. For instance, three sub-themes that emerged were more task-oriented and strict; similarly, the fear of being labelled all-knowing appeared while addressing the question of how gender influences behaviour.

Equally addressing the question relating to the challenges respondents faced when playing their roles as pedagogical leaders, the researcher had a start list that included ideas such as a lack of appropriate technological training, a lack of skilled assessors, a lack of resources in classroom assessment, the cost of technological devices, and frequent changes in assessment policies.

In addition, “parent and teacher opposition” emerged as a theme during the analysis of the data. These newly discovered threads were included into the predetermined themes since they formed the backbone of riveting narratives and constituted an integral element of the overarching plot of the evaluation. Because the data contributed to the process of answering the research questions, the coding themes had to be integrated, reorganised, collapsed, enlarged, and examined (Gibbs, 2007; Saldana, 2013). In every situation, the researcher made sure to follow the general rule of thumb for coding, which is to match the codes to the data, as opposed to attempting to forcing the data to meet the codes (Gibbs, 2007; Saldana, 2013). In the end, having reached the data saturation point, the themes discovered brought forth essential ideas about and practical views on pedagogy and assessment leadership abilities and practices in Ghana since they matched these themes in the data. These ideas and perspectives may be found in this quote “codes push you from the data to the concept and from the idea and vice versa,” (Richards & Morse, 2012, p.154)

Answering how the teachers understand the constructs of pedagogical and assessment leadership, the researcher compared the overall codes for pedagogical and assessment leadership, by identifying the similarities and differences resulting from the responses received. The similarities were improving the entire school and teacher development. Concretising the claim of overall school development, the researcher then proceeded to compare the differences in the constructs. For example, whilst pedagogical leaders seek to improve the entire school and the teaching development agenda, the assessment

leader promotes effective and efficient classroom and general school assessment practices. Similarly, the sub-themes and major themes were compared and analysed to identify the differences and similarities until data saturation point was reached (Adu, 2019a, Lee, 2021).

To confirm the critical role of an early childhood teacher, the researcher asked respondents to indicate the significant roles they played. The responses given were then tabulated. The codes were “duties and responsibilities.” In this study, the data clearly show the significant themes of leader, caregiver or educator, and facilitator as the primary roles and responsibilities of early childhood, as perceived by the early childhood teachers selected as the respondents. Such analyses led to the themes and sub-themes presented in Table 4.9. These emerging findings from the qualitative data informed the discussions in the empirical chapters (5 and 6) from which the conclusions were drawn.

3.13 SUMMARY OF CHAPTER 3

This chapter has discussed the philosophy, paradigm, methodology, and design employed in this study. Additional information regarding ethical considerations and the practices used has also been discussed, along with data collection and analyses procedures.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF THE DATA

4.1 INTRODUCTION

The results of the quantitative and qualitative data analyses of the study are presented in this chapter. Due to the mixed-methods, concurrent triangulation nature of the study, it seems fitting to present the quantitative and qualitative data together. There are three main categories for the data analysis. The results of the quantitative data analysis is provided in sections 4.2 and 4.3 and qualitative information is provided in the second section, in 4.4 and 4.5. This chapter concludes with a discussion of how quantitative and qualitative data might be compared and contrasted. The research problems and their solutions are also presented. The following is the study's driving research question:

- How do Ghanaian early childhood teachers conceptualise pedagogical leadership, assessment leadership, and pedagogical assessment leadership?

4.1.1 Secondary research questions

The specific research sub-questions for this study are:

- How do early childhood teachers understand pedagogical leadership and assessment leadership? (Qualitative)
- How do early childhood teachers conceptualise pedagogical assessment leadership? (Qualitative)
- To what degree are early childhood teachers skilful in their classroom assessment literacy and pedagogical assessment leadership practices? (Quantitative)
- What challenges do early childhood teachers face as self-perceived pedagogical assessment leaders? (Qualitative)

4.1.2 Research hypotheses

Based on the purpose of the study, the following hypotheses were formulated to guide the study:

- Ho1: There is no statistically significant positive relationship between teachers' classroom assessment literacy practices and their pedagogical assessment leadership practices.
- Ha1: There is a statistically significant positive relationship between teachers' classroom assessment literacy practices and their pedagogical assessment leadership practices.
- Ho2: There is no statistically significant positive influence of the technology teachers use in classroom assessment on their pedagogical assessment leadership practice.
- Ha2: There is a statistically significant positive influence of the technology teachers use in classroom assessment on their pedagogical assessment leadership practice.
- Ho3: There is no statistically significant positive influence of teachers' school culture on their pedagogical assessment leadership practices.
- Ha3: There is a statistically significant positive influence of teachers' school culture on their pedagogical assessment leadership practices.
- Ho4: There is no statistically significant influence between male and female teachers' on their pedagogical assessment leadership practices.
- Ha4: There is a statistically significant influence between male and female teachers' on their pedagogical assessment leadership practices.

4.2 ANALYSIS OF QUANTITATIVE DATA

4.2.1 Introduction

The primary purpose of the study is to explore and explain Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership and the factors influencing their practices and skills in classroom assessment, as well as the challenges associated these. This section of the study presents the results of the quantitative analysis performed using SPSS and IBM AMOS versions 28. This section has been grouped into four main parts: respondents' demographic profile, descriptive statistics, EFA, CFA, Measurement Model Assessment, and SEM.

4.2.2 Respondents' demographic profiles

Respondents are key to any research, and understanding the respondents and their characteristics is essential for any successful and relevant research project. The demographic attributes used to describe the respondents comprise gender, age group, education, institution, number of years of teaching in the early childhood setting, school classification by the ministry of education, and their school location (see Table 4.1). Regarding the respondents' gender, 75.9% were female, and the remaining 24.1% were male.

On the age groups of the respondents, the findings reveal that 88% of the respondents were between the ages of 31 and 50 years. The most well-represented age group among the respondents (45.6%) was 31–40 years. It was also found that a significant 69.7% of the respondents had a Bachelor of Education in Early Childhood Care and Development degree as their highest level of education at the time of data collection, followed by a Diploma in Early Childhood Care and Development (12.4%), and a Master's degree in Early Childhood Care and Development (10.9%). A total of 54.3% of the study participants indicated that they had been teaching at the ECE level for 6–10 years, while the remaining 45.7% had been teaching at the ECE level for not more than five years.

Furthermore, regarding the respondent's schools, a little over half of the respondents (50.6%) teach in basic private schools, while the remaining 49.4% teach in basic public schools in Ghana. The results also reveal that there is not much difference between the respondents' schools as regards MOE school classification. It was discovered that the MOE classifies 51.9% and 48.1% of the respondents' being in high and low performing schools, respectively. Regarding the location of the schools, most, representing 78.4%, are located in rural areas, whilst the remaining 21.6% are in urban centres.

Table 4.1: Respondents' Profile

Categories	Frequen cy	Percent
Gender	700	100
Male	169	24.1
Female	531	75.9
Age Group	700	100
20 years and below	7	1.0
21–30 years	66	9.4
31–40 years	319	45.6
41–50 years	301	43.0
51–60 years	7	1.00
Education	700	100
Diploma in Basic Education	42	6.0
Diploma in Early Childhood Care & Development	87	12.4
B.Ed in Early Childhood Care & Development	488	69.7
Master's Degree	76	10.9
Others	7	1.0
Institution	700	100
Private	354	50.6
Public	346	49.4
Years of Teaching at Kindergarten	700	100
0–5 year	320	45.7
6–10 years	380	54.3
School Classification by MOE	700	100
High	363	51.9
Low	337	48.1
School Location	700	100
Urban Centre	151	21.6
Rural Centre	549	78.4

Data collected: Kotor 2022

4.2.3 Continuous descriptive statistics

This section presents the preliminary analysis performed to check the viability and predictability of the research data before the correlation, EFA, reliability and validity, CFA, and SEM. The preliminary analysis includes an assessment of normality using skewness, kurtosis, and the mean and standard deviation of the usable research data. The fundamental assumption underlying covariance-based SEM analysis is that the data should be normally distributed (Hair et al., 2017).

The skewness value was generated to check the symmetry of the distribution, while kurtosis helped assess the “peakedness” of the distribution. The results reveal that the skewness and kurtosis for all items and constructs are within the range of ± 2 , indicating a normal univariate distribution (Gravetter & Wallnau 2014; Trochim & Donnelly 2006). An acceptable value for psychometric purposes, such as ± 2 (Gravetter & Wallnau, 2014), indicates good normality of the data. According to George and Mallery (2010), values for asymmetry and kurtosis of between -2 and $+2$ are considered acceptable to prove normal univariate distribution.

Table 4.2: Normality Assessment

Items	N	Min.	Max.	Mean	Std. Dev.	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
Observed Variables									
PALS1	700	2	5	2.90	0.715	0.809	0.092	1.187	0.185
PALS2	700	1	5	2.87	0.627	0.104	0.092	1.048	0.185
PALS3	700	2	5	2.87	0.800	1.039	0.092	1.139	0.185
PALS4	700	2	5	2.86	0.732	0.986	0.092	1.579	0.185
PALS5	700	2	5	2.87	0.771	1.024	0.092	1.329	0.185
PALS6	700	1	5	2.82	0.656	0.426	0.092	1.468	0.185
TCALP1	700	1	5	3.13	0.608	1.001	0.092	1.034	0.185
TCALP2	700	1	5	3.06	0.560	0.704	0.092	1.781	0.185
TCALP3	700	1	5	3.07	0.568	0.666	0.092	1.396	0.185
TCALP4	700	1	5	3.00	0.630	0.484	0.092	1.168	0.185
TCALP5	700	1	5	3.10	0.620	0.941	0.092	1.819	0.185
TCALP6	700	1	5	3.04	0.561	0.695	0.092	0.883	0.185
TCALP7	700	1	5	2.98	0.561	-0.349	0.092	0.822	0.185
TCALP8	700	1	5	3.10	0.554	0.753	0.092	1.814	0.185
TECH1	700	1	5	2.95	0.671	-1.142	0.092	1.672	0.185
TECH2	700	1	5	2.98	0.620	-1.001	0.092	1.422	0.185

TECH3	700	1	5	2.98	0.620	-0.748	0.092	0.629	0.185
TECH4	700	1	5	2.97	0.612	-0.776	0.092	0.875	0.185
TECH5	700	1	5	2.99	0.652	-0.423	0.092	1.358	0.185
TECH6	700	1	4	2.99	0.533	-1.204	0.092	0.905	0.185
TECH7	700	1	4	2.93	0.662	-1.375	0.092	1.062	0.185
TECH8	700	1	5	2.97	0.634	-0.919	0.092	0.792	0.185
TECH9	700	1	5	3.04	0.611	-0.548	0.092	1.024	0.185
TECH10	700	1	5	3.04	0.643	-0.714	0.092	1.542	0.185
SC1	700	1	5	3.48	1.059	-0.783	0.092	0.307	0.185
SC2	700	2	5	3.91	0.886	-0.549	0.092	-0.358	0.185
SC3	700	1	5	3.85	0.971	-0.763	0.092	0.414	0.185
SC4	700	1	5	3.90	0.968	-0.795	0.092	0.108	0.185
SC5	700	1	5	3.67	1.001	-0.516	0.092	-0.156	0.185
SC6	700	1	5	3.13	1.176	-0.402	0.092	-0.723	0.185
SC7	700	1	5	3.16	1.100	-0.497	0.092	-0.556	0.185
SC8	700	1	5	3.57	1.127	-0.504	0.092	-0.672	0.185
Latent Variables									
PALS	700	12.00	30.00	17.1871	3.8306	0.881	0.092	1.143	9.185
TCALP	700	8.00	37.00	24.4714	3.8246	0.427	0.092	5.687	0.185
TECH	700	10.00	43.00	29.8400	5.4937	-1.137	0.092	4.817	0.185
SC	700	13.00	40.00	28.6757	6.1467	-0.640	0.092	-0.146	0.185

Data collected: Asare: 2022

4.2.4 Exploratory Factor Analysis

Based on the recommendations by Gaskin and Lim (2016), Liao et al., (2007), and Mothe et al., (2015), the EFA was run several times with different combinations of all the items and different extraction methods. The initial EFA results revealed that items PAL7 (0.482), TCALP9 (0.455), TCALP10 (0.476), TCALP11 (0.487), and TCALP12 (0.399) factor loadings were lower than 0.5 (Hair et al., 2010) and also loaded on more than one factor; as a result, they were deleted from the final EFA. The maximum likelihood extraction method with promax with the Kaiser normalisation rotation method for all 32 usable items was used to run the final EFA to extract four factors underlying the items (see Table 5.3). The results from the final EFA presented in Table 4.3 show that four factors were extracted with 0.77 Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity (approx. Chi-Square = 27334.806, degree of freedom = 946, $p < 0.001$). This shows that the KMO value is more than the minimum threshold of 0.60 (Pallant et al., 2016; Tabachnick & Fidell, 2013), and indicates that the

factors are helpful and that the sample is adequate to run the factor analysis.

The significant value of Bartlett's Test ($p < .01$) also denotes that the correlational matrix is not an identity matrix and that the data is good enough for further analysis (Pallant et al., 2016). The communalities of all items, which show the extent to which each item correlates with all other items, are above the acceptable 0.50 (see Table 5.3). The Patten Matrix shows that four latent factors were extracted with eigenvalues > 1 (see Table 5.3), which indicates that each of the factors is good enough to form a separate factor (Arif et al., 2016). Factor 1 represents Technology use in Classroom (TECH, 10 items), factor 2 represents Teacher Classroom Assessment Literacy Practice (TCALP, eight items), factor 3 represents Pedagogical Assessment Leadership Skills (PALS, six items), and factor 4 represents School Culture (SC, eight items). Furthermore, the EFA results reveal that the four factors cumulatively explained around 72.013% of the total variance (see Table 4.3).

Table 4.3: Exploratory Factor Analysis

FACTORS	TECH	TCALP	PALS	SC	Extraction
Eigenvalues	10.230	5.561	4.400	2.854	-
Variance explained (%)	31.968	17.378	13.750	8.917	-
Cumulative (%)	31.968	49.346	63.096	72.013	-
PALS1			0.909		0.810
PALS2			0.915		0.821
PALS3			0.908		0.819
PALS4			0.915		0.792
PALS5			0.864		0.858
PALS6			0.777		0.774
TCALP1		0.870			0.853
TCALP2		0.572			0.611
TCALP3		0.739			0.742
TCALP4		0.738			0.559
TCALP5		0.700			0.721
TCALP6		0.984			0.833
TCALP7		0.840			0.735
TCALP8		0.896			0.749
TECH1	0.882				0.714
TECH2	0.912				0.824
TECH3	0.894				0.770
TECH4	0.885				0.772

TECH5	0.823		0.822
TECH6	0.867		0.854
TECH7	0.905		0.760
TECH8	0.871		0.794
TECH9	0.819		0.830
TECH10	0.853		0.825
SC1		0.774	0.598
SC2		0.695	0.585
SC3		0.728	0.532
SC4		0.745	0.556
SC5		0.741	0.551
SC6		0.685	0.569
SC7		0.745	0.559
SC8		0.806	0.652
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.777
Bartlett's Test of Sphericity			27334.806
		Approx. Chi-Square	
		Df	496
		Sig.	0.000

4.2.5 Factor Analysis

Confirmatory factor analysis was conducted using IBM AMOS version 28 to assess the overall measurement model. Confirmatory factor analysis was undertaken to ascertain how the various observed variables explain their respective latent constructs and identify how best the model fits the data. The final CFA results in Table 4.4 and Figure 4.1 include the observed variables, latent variables, factor loadings, standard errors, critical ratios, p-values and standardised factor loadings. The results show that all the standardised factor loadings exceeded the recommended threshold of 0.5 (Hair et al., 2010; Jadhav & Khanna, 2016). The results show a good model fit for the data with the following model fit results: Chi-square minimum/degree of freedom (CMIN/df) = 2.351, CFI = 0.924, comparative fit index (GFI)= 0.904, standardised root mean square residual (SRMR) = 0.046, Tucker-Lewis index (TLI) = 0.921, root mean square error of approximation (RMSEA) = 0.056 and adjusted goodness of fit index (AGFI) = 0.915 (Bagozzi & Yi, 2012; Bentler & Bonett, 1980; Hair et al., 2010; Hair et al., 2018; Hu & Bentler, 1999; Maruish, 2004; Schreiber et al., 2006).

Table 4.4: Observed variables, latent variables, and factor loadings from CFA

Observed Variable		Latent Variable	Estimate	S.E.	C.R.	P-value	Standardised Factor Loading
TECH1	<---	TECH	1.000				0.724
TECH2	<---	TECH	1.105	0.047	23.343	***	0.865
TECH3	<---	TECH	1.011	0.048	21.247	***	0.792
TECH4	<---	TECH	1.031	0.047	22.008	***	0.818
TECH5	<---	TECH	1.225	0.050	24.737	***	0.913
TECH6	<---	TECH	1.022	0.040	25.236	***	0.930
TECH7	<---	TECH	1.120	0.051	22.092	***	0.821
TECH8	<---	TECH	1.177	0.048	24.374	***	0.900
TECH9	<---	TECH	1.146	0.046	24.664	***	0.910
TECH10	<---	TECH	1.207	0.049	24.701	***	0.912
PALS1	<---	PALS	1.000				0.858
PALS2	<---	PALS	0.868	0.029	29.685	***	0.850
PALS3	<---	PALS	1.169	0.036	32.873	***	0.897
PALS4	<---	PALS	1.024	0.034	30.280	***	0.859
PALS5	<---	PALS	1.155	0.033	34.571	***	0.920
PALS6	<---	PALS	0.860	0.032	26.972	***	0.805
TCALP1	<---	PALS	1.000				0.934
TCALP2	<---	PALS	0.710	0.029	24.555	***	0.719
TCALP3	<---	PALS	0.793	0.027	29.529	***	0.792
TCALP4	<---	PALS	0.745	0.034	21.933	***	0.672
TCALP5	<---	PALS	0.933	0.027	35.038	***	0.854
TCALP6	<---	PALS	0.800	0.026	30.975	***	0.810
TCALP7	<---	PALS	0.672	0.030	22.372	***	0.681
TCALP8	<---	PALS	0.824	0.024	34.139	***	0.845
SC1	<---	SC	1.000				0.730
SC2	<---	SC	0.738	0.046	16.188	***	0.644
SC3	<---	SC	0.848	0.050	16.993	***	0.676
SC4	<---	SC	0.879	0.050	17.682	***	0.703
SC5	<---	SC	0.899	0.051	17.473	***	0.694
SC6	<---	SC	0.972	0.061	16.056	***	0.639
SC7	<---	SC	0.996	0.057	17.622	***	0.700
SC8	<---	SC	1.138	0.058	19.634	***	0.781

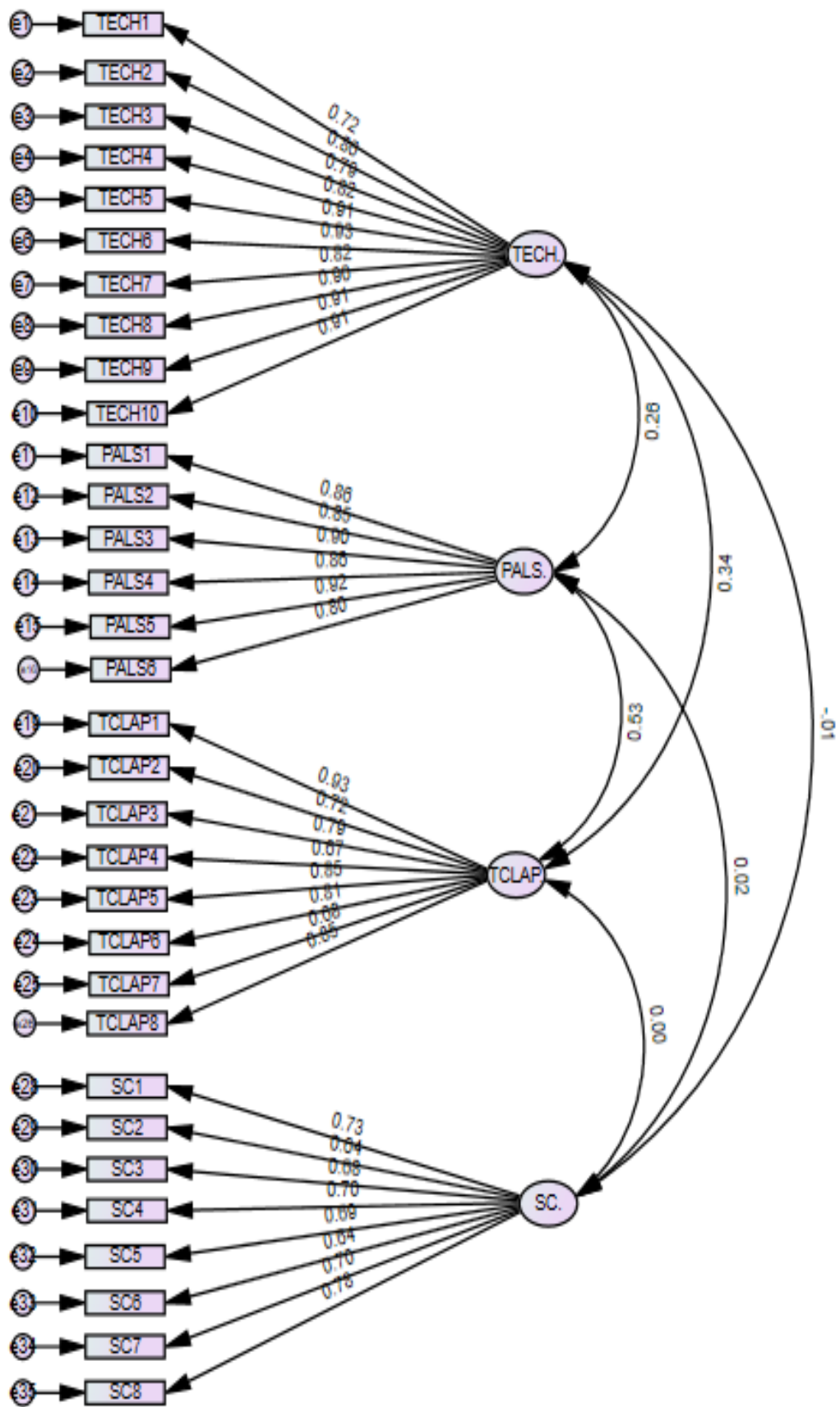


Figure 4.1: Confirmatory factor analysis

4.2.6 Measurement model assessment

The final CFA model reliability and validity were assessed to evaluate the predictive capability of the measurement model. In evaluating this capability, the internal consistency (Cronbach's Alpha and composite reliability), the convergent validity (indicator reliability, average variance extracted, AVE) and the discriminant validity (square root of AVE) were assessed (see Tables 4.5, 4.6 & 4.7).

4.2.7 Internal Consistency (Reliability)

Cronbach's Alpha and composite reliability (CR) were used to measure the measurement model's internal consistency or reliability (see Table 4.5). The results show that all the CR and Cronbach's Alpha values of the latent variables are higher than the accepted threshold of 0.7 (Henseler et al., 2015; Hu & Bentler, 1999). This shows that the measures of the constructs are reliable.

Table 4.5: Internal consistency

Latent Variables	Internal Consistency (Reliability)	
	Composite Reliability	Cronbach's Alpha (α)
Pedagogical Assessment Leadership Skills	0.947	0.946
Teacher Classroom Assessment Literacy Practice	0.931	0.930
Technology use in Classroom	0.966	0.966
School Culture	0.851	0.881

4.2.8 Convergent validity

Convergent validity was measured using indicator loadings and AVE. The results show that all 32 items were heavily loaded onto their respective factors, with factor loadings exceeding the minimum requirement of 0.5 (Hair et al., 2010; Jadhav & Khanna, 2016). The AVE values of each factor are also more significant than the recommended threshold of 0.5, which confirms an adequate convergent validity of the measurement model (Hair et al., 2010; Malhotra & Dash, 2011)

Table 4.6: Convergent validity

Latent Variable	Indicators	Convergent Validity	
		Loading	EVA
Technology use in Classroom	TECH1	0.724	0.741
	TECH2	0.865	
	TECH3	0.792	
	TECH4	0.818	
	TECH5	0.913	
	TECH6	0.930	
	TECH7	0.821	
	TECH8	0.900	
	TECH9	0.910	
	TECH10	0.912	
Pedagogical Assessment Leadership Skills	PALS1	0.858	0.749
	PALS2	0.850	
	PALS3	0.897	
	PALS4	0.859	
	PALS5	0.920	
	PALS6	0.805	
Teacher Classroom Assessment Literacy Practice	TCALP1	0.934	0.629
	TCALP2	0.719	
	TCALP3	0.792	
	TCALP4	0.672	
	TCALP5	0.854	
	TCALP6	0.810	
	TCALP7	0.681	
	TCALP8	0.845	
School Culture	SC1	0.730	0.548
	SC2	0.644	
	SC3	0.676	
	SC4	0.703	
	SC5	0.694	
	SC6	0.639	
	SC7	0.700	
	SC8	0.781	

Notes: AVE = Average Variance Extracted = $(\sum \text{squared standardised loading}) / (\sum \text{squared})$.

Source: Author's construct (2022)

4.2.9 Discriminant validity

The mechanism used to measure the discriminant validity of the measuring model is the square root of AVEs (see Table 4.7). The results show that the square root of all the AVEs is more significant than their corresponding inter-construct correlations, confirming that there are no warnings of discriminant validity (Hair et al., 2010).

Table 4.7: Correlation and discriminant validity

VARIABLES	PALS	TCALP	TECH	SC
PALS	0.865			
TCAL	0.482**	0.793		
TECH	0.233**	0.306**	0.861	
SC	0.020	-0.008	-0.014	0.740

Significance of correlations: * $p < 0.050$, ** $p < 0.010$, & *** $p < 0.001$.

4.2.10 Structural model and hypotheses testing

The first step towards testing the predicted hypotheses of this study is to assess the goodness-of-fit of the structural model. The structural modelling was performed using AMOS software version 27 to test the theoretical relationships among the latent variables or the constructs and identify how the latent constructs, directly and indirectly, influence each other in the model. The good of fit (GOF) results show an excellent structural model fit for the data with the following model fit results: CMIN/df = 2.253, CFI = 0.925, GFI = 0.914, SRMR = 0.056, TLI = 0.922, RMSEA = 0.054 and AGFI = 0.913 (Bagozzi & Yi, 2012; Bentler & Bonett, 1980; Hair et al., 2010; Hair et al., 2018; Hu & Bentler, 1999; Maruish, 2004; Schreiber et al., 2006).

4.2.11 Hypotheses testing

The SEM results of the direct relationships between the constructs are presented in Figure 4.2 and Table 4.8. The SEM results reveal that teachers' classroom assessment literacy practices had the most significant positive effect on pedagogical assessment leadership ($\beta = 0.510$, p -value = 0.000) and support hypothesis H1. This finding signifies

a significant positive influence between teachers' classroom assessment literacy practice and pedagogical assessment leadership. Similarly, the SEM results showed a significant positive influence between the technology teachers use in classroom assessment on their pedagogical assessment leadership practices ($\beta = 0.089$, $p\text{-value} = 0.010$). The finding implies that the earlier childhood teachers adopt technologies in their classroom assessment, the more their pedagogical assessment leadership skills improve. Thus, H2 is supported.

The results indicated that male early childhood care and development teachers have higher pedagogical assessment leadership than their female counterparts. Likewise, the results confirm an influence between male teachers' pedagogical assessment leadership and female teachers' pedagogical assessment leadership though it is not significant ($\beta = 0.035$, $p\text{-value} = 0.306$). Thus, hypothesis H4 is supported.

Table 4.8: Direct effects

DV		IV	Unstandardised Estimate	Standardised Estimate	S.E.	C.R.	P-value	Interpretation
PALS	<--	TECH	0.109	0.089	0.043	2.572	0.010	Supported
PALS	<--	TCALP	0.540	0.510	0.039	13.786	***	Supported
PALS	<--	SC	0.018	0.023	0.028	0.653	0.514	Not Supported
PALS	<--	Gender	0.049	0.035	0.048	1.023	0.306	Supported

Significance of correlations: * $p < 0.050$, ** $p < 0.010$, & *** $p < 0.001$

The results also showed that school culture has an insignificant positive influence on teachers' pedagogical assessment leadership ($\beta = 0.023$, $p\text{-value} = 0.514$); hence, Ha3 is not supported. The results suggested that the culture of schools in which early childhood teachers teach does not influence their level of pedagogical assessment leadership practices.

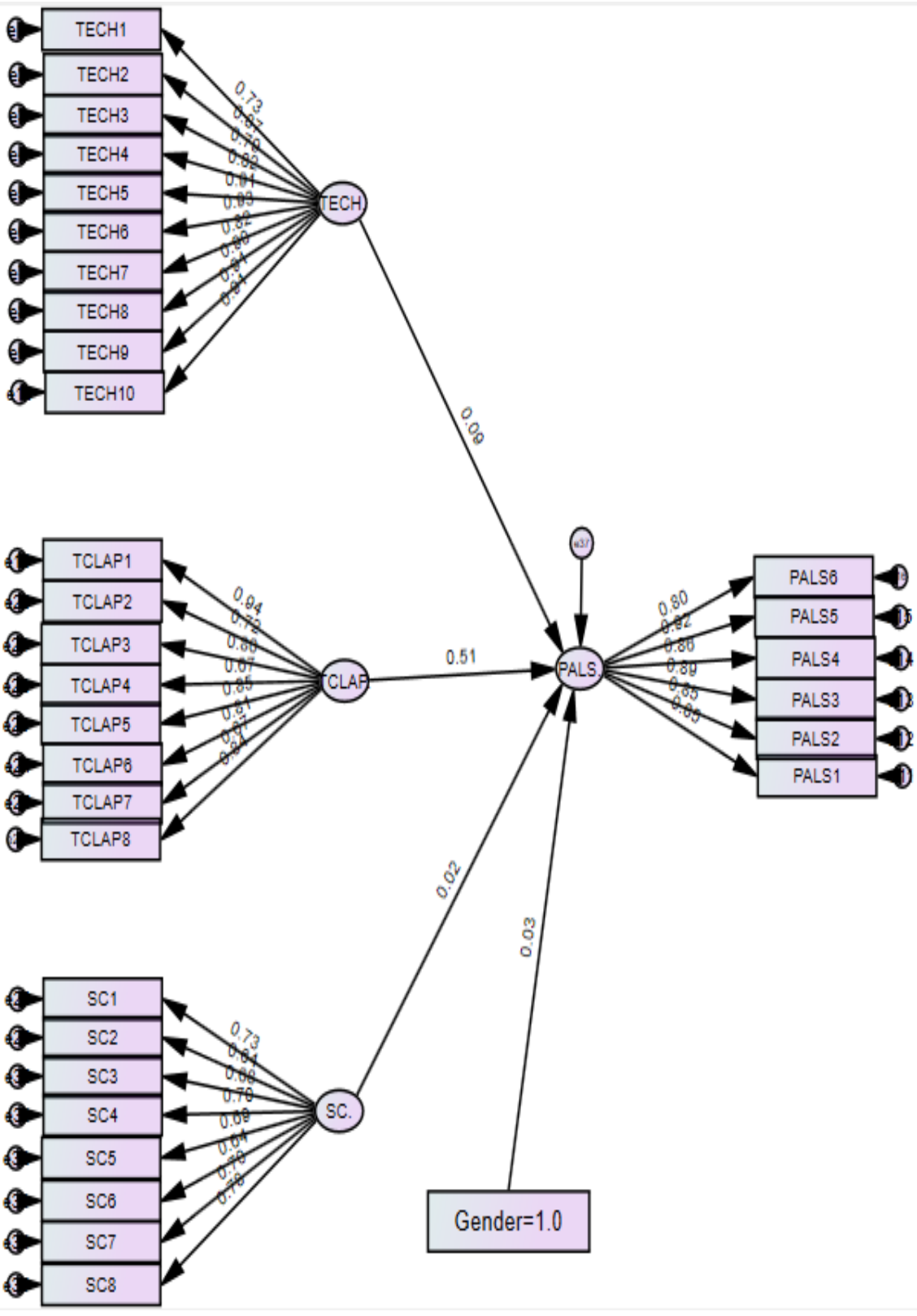


Figure 4.2: The regression path coefficients

4.3 SUMMARY OF QUANTITATIVE DATASET

The previous section presented the results of the descriptive analysis, which provide an overview of the sample's background and the research data's validity and reliability. The result of the normality test presented in that section indicates that the assumption of multivariate normality was satisfied. The section also presented detailed results of the descriptive statistics, both EFA and CFA, and the measurement model assessment, which satisfied the criteria of one-dimensionality, reliability, convergent validity and discriminant validity.

The results showed that teachers' classroom assessment literacy practices and the technology teachers use in classroom observations and documentations have a significant influence on their pedagogical assessment leadership practice, though school culture does not. Furthermore, the section presented the relationship between the latent variables. Again, there is an influence between male teachers' pedagogical assessment leadership and female teachers' pedagogical assessment leadership. The next section discusses the research findings of past studies based on the research questions.

4.4. ANALYSIS OF QUALITATIVE DATA

In this section, the qualitative findings of the study are presented. During the qualitative phase, the data were gathered through semi-structured interviews. Qualitative data tool by name Qiqqa data-mining software was utilised to analyse the main qualitative data thematically by imploring the step-by-step procedure outlined by Adu, (2019), and Braun and Clarke (2006, 2014). The recorded version of the interview was transcribed manually, with the use of Microsoft excel, having read and re-read through the transcripts to have firm grip, so as not to miss the important issues from the data source (Yin, 2013). The research questions basically guided and informed the initial and final coding process using the participants own words. These final codes such as mentoring, scaffolding, assessment, implementation, leadership, male, female, assessment knowledge and leader were subsequently fed into the Qiqqa data-mining software. The software was then manipulated several times, whilst categorising in order to generate the initial sub-themes, which were eventually merged to generate the final themes based on the research questions, having reached the data saturation point. Experts in the field of qualitative research were consulted to do peer review of the emerging themes to confirm

their credibility and dependability or otherwise. Their suggestions for improvement were taken on board, which led to the inclusion and exclusion on certain themes (Adu, 2019).

4.4.1 Socio-demographic profile of participants

This section presents the socio-demographic profile of the participants in the study. Of the 10 early childhood teachers interviewed, four were male and six females (see Appendix K).

The analyses conducted above led to the generation of the themes and sub-themes presented in Table 4.9. These emerging findings in the qualitative data informed the discussions in Chapter 5 and the conclusions that were drawn subsequently. The following section presents the interviewees' comments on the patterns of their conceptualisation of pedagogical assessment leadership and the related challenges they face in the classrooms.

Themes, codes, and sub-themes of early childhood teachers' perceptions of pedagogical and assessment leadership skills and practices

Table 4.9: On the emerging themes and sub-themes

a. *What are the roles and responsibilities of a classroom teacher in the ECE setting?*

Themes	Sub-themes	Codes
Leader	<i>Learn to learn through reflective practice</i>	<ul style="list-style-type: none"> • mentoring • modelling • coaching
Caregiver and educator	Act as a surrogate parent	<ul style="list-style-type: none"> • Protection • Nursing
Facilitator	Promoting students' learning	<ul style="list-style-type: none"> • Classroom assessment • Monitoring instruction • Monitoring

b. *It is often said that every teacher is a leader. How do you agree with this statement?*

Themes	Sub-themes	Codes
Teacher as a role model	<i>Teachers influence and scaffold students and colleague teachers</i>	<ul style="list-style-type: none"> • Promotion of teaching and child development • Teachers influence students and the teacher community

c. *In your opinion, who is an educational leader?*

Themes	Sub-themes	Codes
Overseeing pedagogical practices	<i>Supports classroom practices of teachers</i>	<ul style="list-style-type: none"> • Anyone who scaffolds • Someone who supports curriculum implementation
Builds leadership capacity	<i>Provides appropriate staff development</i>	<ul style="list-style-type: none"> • Someone who supports staff development • Conduct staff appraisal • Provide appropriate staff development

d. *What might be a teacher leader's prime roles and duties in the ECE setting?*

Themes	Sub-themes	Codes
Leading	<i>Influencing other colleagues</i>	<ul style="list-style-type: none"> • Collaborating • Promoting
Curriculum leader	Influencing overall school development drive	<ul style="list-style-type: none"> • Collaborating • Supervising
Facilitator of leading	Scaffolding Motivating	<ul style="list-style-type: none"> • Promoting • Supervising
Assessor	Supervising Monitoring	<ul style="list-style-type: none"> • Coaching • Scaffolding
Agent of change	Coaching Scaffolding	<ul style="list-style-type: none"> • Motivating • Supervising • Motivating

- e. As a teacher and leader in the ECE setting, you might be familiar with concepts such as curriculum, assessment, leadership, and pedagogy. In a simple sentence, how would you explain the concepts of pedagogy and leadership?

Themes	Sub-themes	Codes
Science, art, and craft of the teaching and learning process The teaching and learning process	<i>Implementation of curriculum</i> <i>Disposition and behaviour of teacher-child interaction</i> Inclusive and conscious view of the teaching and learning process	<ul style="list-style-type: none"> • Pedagogy • Pedagogy
Fostering positive and negative influences and direction Capacity to bring about the desired change	The intentional process to influence and scaffold others Intentional action to promote the transition to something worthwhile	<ul style="list-style-type: none"> • Leadership • Leadership

- f. How would you explain pedagogical leadership?

Themes	Sub-themes	Codes
Actions are taken to influence, support and improve pedagogical activity Using leadership practices to promote effective teaching and learning process The practice of bringing leadership closer to the learners	<i>Using leadership practices to scaffold</i> <i>Influencing teaching colleagues</i> <i>Influencing students learning</i>	<ul style="list-style-type: none"> • Pedagogical leadership • Pedagogical leadership • Pedagogical leadership

g. *What is assessment in an ECE setting?*

Themes	Sub-themes	Codes
<p>Process of using data to plan educational activities</p> <p>Somewhat knowledgeable in assessment</p>	<p>Information gathered to assess children's learning</p> <p>Data gathered to refine pedagogical approach to help learners</p> <p><i>A bit knowledgeable</i></p>	<ul style="list-style-type: none"> • Definition of assessment • Assessment knowledge

h. *Who is an assessment leader?*

Themes	Sub-themes	Codes
<p>One whose actions influence literacies and school assessment practices</p>	<p>One who leads the school assessment process and practices</p>	<ul style="list-style-type: none"> • Assessment leader

i. *How would you describe pedagogical assessment leadership?*

Themes	Sub-themes	Codes
<p>Leading and teaching while improving learning in the classroom and beyond</p> <p>Leading and teaching, whilst improving learning and assessing in the classroom and beyond</p>	<p>Culture of sharing</p> <p>Stimulating condition</p> <p>Leading and scaffolding</p> <p>Building relationships</p> <p><i>Leadership in assessment</i></p> <p><i>Goal setting</i></p> <p><i>Innovation and empowerment in assessment</i></p>	<ul style="list-style-type: none"> • Pedagogical leadership • Assessment leadership

	<i>inform teaching and learning</i>	
--	-------------------------------------	--

j. Gender influence on pedagogical assessment role

Themes	Sub-themes	Codes
<p>More task-oriented and strict</p> <p>Rely on lobbying skills to solicit the support of colleagues</p>	<p><i>Use masculine strength to enforce compliance and obedience</i></p> <p><i>Often emphasis on assessment as a process</i></p> <p><i>Use more desirable teaching approaches</i></p> <p><i>Focus more on the pedagogical aspect</i></p>	<ul style="list-style-type: none"> • Male • Female

k. Challenges involving the use of technology in classroom assessment

Themes	Sub-themes	Codes
<p>Lack of capacity</p> <p>Lack of resources</p> <p>Resistance to change</p> <p>Policies changes</p> <p>Fear of being perceived as all-knowing</p>	<p><i>Workload and poor Incentive</i></p> <p><i>Lack of technological training</i></p> <p><i>Cost of technology</i></p> <p><i>Lack of skills assessor</i></p> <p><i>Lack of assessment of technological resources</i></p> <p><i>Lack trained assessors</i></p> <p><i>Parent resistance</i></p> <p><i>Educators' resistance</i></p> <p><i>Frequent change in the mode of assessment</i></p> <p><i>Wrong labelling as to knowing</i></p> <p><i>Negative attitude and perception</i></p>	<ul style="list-style-type: none"> • Technological challenges • Challenges in assessment • Assessment challenges • Challenges • Challenges

4.4.2 Leader, caregiver, educator, and facilitator

The above themes emanated from the teachers' responses when they were asked to indicate their prime roles and responsibilities as early childhood teachers. The numerous responses indicate that they not only see themselves as teachers but also have many other roles and responsibilities. Of the many responses, the emerging themes include teachers viewing their roles and responsibilities as leaders, caregivers/educators, and facilitators. Most interviewees viewed their significant roles as leaders and learned through reflections and interactions with others. Mentoring, modelling the way, and coaching also emerged as the sub-themes.

For example, Teacher A is quoted as saying:

To me, the primary role of a teacher is to act as a leader, to scaffold classroom instruction and assessments that promote student learning, whilst I also learn to learn through my daily reflective practices.

Likewise, Teacher B also hinted that:

I see myself as an educator and caregiver since working at the ECE [centre] goes beyond the mere teaching and learning process in the classroom. Our job includes leading, mentoring, nursing, coaching, promoting, modelling, assessing, monitoring, scaffolding, collaborating, learning, and being surrogate parents to the children in our care.

In much the same way:

My roles are numerous, but notably, they include teaching, mentoring, learning, guiding, scaffolding, leading, and assessing children's learning outcomes to achieve overall human development (Teacher E).

Most teachers also viewed their responsibilities as including being caregivers and educators as their daily job goes beyond the daily teaching routine. Such teachers instead identify their additional roles as being surrogate parents, who offer the children the needed protection in a safe environment, whilst offering nursing services, including the dispensing of medication to children with prescriptions at the proper dosage and time intervals. For instance:

Hmmmmmm, I have a lot of roles and responsibilities as a teacher-caregiver. My role is to be a good role model to the children that I lead and mentor. I, therefore, play the role

of a substitute parent, leader, and learner of curriculum and assessment by coaching, scaffolding, mentoring, leading, playing, and assessing my student's overall growth, development, and learning process (Teacher D).

Similarly, others understood their roles as facilitators as the central theme developed during the analysis. As facilitators, they promote students learning through classroom assessment, mentoring, and monitoring classroom instructions. For example:

I am a facilitator and scaffold the link between parents, the community, and the children in my classroom by providing sound leadership traits for the children to learn for life (Teacher G).

4.4.3 The teacher as a role model

In answering how they agree with the belief that every teacher plays the role of a leader, the teacher as a role model emerged as the central theme, whilst influencing and scaffolding students and colleague teachers were the sub-themes. They, therefore, promote teaching and overall child development while influencing others positively as surrogate parents. For example:

Well, a leader influences and scaffolds people to follow him or her, making teachers become leaders and role models, who lead the way for students and teachers alike (Teacher A).

Similarly, one stated:

Oh yeah, I could not agree more than this, as the teacher plays a vital leading role in teaching, communicating, managing, scaffolding, planning, and assessing children's growth, maturation, development, and learning process and product. A good teacher, therefore, leads by example by modelling the right path for the children to learn and imitate.

Teacher A also concluded that:

It is a must for teachers to possess and exhibit leadership traits and qualities, as required by their job requirements. (Teacher A).

This affirms that the teachers in this study accept leadership as a significant responsibility in their line of duty.

4.4.4 Overseeing pedagogical practices and building leadership capacity

When teachers' opinions were solicited on the construct of educational leadership, these two major themes were derived: overseeing pedagogical practices and building leadership capacity. That is, the teachers are expected to support other teachers' classroom practices as part of their pedagogical duties, as these came up as sub-themes. Most of the teachers appear to be familiar with the construct of educational leader; however, a few others seemed unable to immediately express their understanding by constructing meaningful sentences to explain it. For example:

Hmmmmm, this reminds me of the just-ended end-of-semester examinations at the master's level in the educational leadership course. The educational or instructional leader could be anyone who supports, scaffolds, and influences educators to effectively implement the cycle of educational planning to enhance programmes and practices at all levels of education (Teacher A).

It was, however, clear that most of them have fore-knowledge about who an educational leader is, probably through their pre-service programme of study, in-service training, or daily practice on the field. They acknowledged that an educational leader is not just limited to a hierarchical position but also functions in a distributive manner since their emphasis was always on the construct of "anyone" and not necessary the "head of school." The teachers, therefore, reasonably demonstrated their sound knowledge and understanding in sharing their opinions on who an educational leader is: one who also promotes appropriate staff and student development. Therefore, following opinions are instructive:

Well, in my opinion, anyone can be a leader in education. An educational leader plans, implements, monitors, scaffolds, and influences children's learning outcomes in a significant administrative position or just a mere classroom leader. Such a leader often models the way when he or she tries to influence others positively to ensure overall school development or improvement processes. (Teacher B)

An educational leader is anyone who encourages, influences, scaffolds, and focuses on improving teachers' classroom practices to improve school quality. It connotes both administration and pedagogy. (Teacher C)

Well, in my opinion, anyone can be a leader in education. An educational leader is

anyone who plans, implements, scaffolds, and monitors children's learning outcomes in the classroom. Such a leader often models how he or she tries to influence others positively to ensure overall school development or improvement processes. (Teacher E)

It may be inferred that, as per their responses, they view classroom teachers as capable of assuming the role of an educational leader.

4.4.5 Leading, curriculum leader, facilitator of learning, assessor, and agent of change

In responding to their prime roles and duties as teacher leaders in the ECE setting, the themes listed in the section heading emerged as the major ones. From the variety of responses received, it can be seen that the teachers accept their role as teacher leaders. Additionally, teacher leaders also have many other roles and responsibilities, aiming at the overall school development and improvement. They, therefore, take on the role of the overall leaders and of that of the curriculum, thereby facilitating learning outcomes and sometimes assessing students' learning to inform instruction.

Here are some excerpts shared by the teachers which generated the above themes:
Well, he/she could act as the curriculum leader, assessor, facilitator of learning, mentor, scaffold, coach, and agent of change or game-changer. (Teacher A)

A teacher leader might not necessarily play the primary school administrative role; however, he or she might be directly responsible for promoting and scaffolding children's overall development. Such a teacher leader also owes a duty to positively influence all other stakeholders, such as colleague teachers, heads of schools, and even parents, towards the school's overall improvement drive. (Teacher B)

Overall, the teachers serve as agents of change or game-changers by scaffolding, motivating, supervising, coaching, collaborating, and promoting the school development drive to students and colleague teachers. The teachers appear to acknowledge that they lead in an administrative position using a bottom-up approach.

4.4.6 Science, art, and craft of teaching and learning process/Forms of instruction in the teaching and learning process

When asked to share their views on constructs such as pedagogy, the themes mentioned in the section heading came up. All the teachers firmly described how they view pedagogy in early childhood settings, which goes beyond regular teaching or instruction. Instead, they emphasised the interactive process that ensues between teachers and their children in a developmentally appropriate manner. These extracts confirm the above assertion that the teachers view pedagogy as the intentional manner of implementing and translating the philosophy of the curriculum developmentally by fostering positive interaction with the children:

I see pedagogy as the appropriate and intentional plans and actions of a teacher or a school intended to promote the transmission of something worthwhile during the teaching and learning process and to contribute towards overall school development. (Teacher A)

To me, pedagogy is all about the implementational aspect of the curriculum by translating its philosophy and goals into reality in a developmentally appropriate manner. (Teacher B)

Hmmmmm, the question is trying to let me go back to my university days! I think that pedagogy is the same as curriculum, which talks about the science, art, and craft of the teaching and learning process. Though it has been years since I revised my education and curriculum or assessment lecture notes, I will try my best. (Teacher G)

In effect, the teachers were seemingly knowledgeable about what pedagogy meant to them. The teachers viewed pedagogy as the implementational aspect of the curriculum and considered that it is often undertaken inclusively in the early childhood setting. They, therefore, view pedagogy as distinctively different and specialised relative to other levels of the educational ladder. To them, pedagogy promotes the teaching and learning process developmentally, interactively, and inclusively. This understanding led to these two themes: the science, art, and craft of teaching and learning process, and “forms of instructions towards inclusive teaching and learning process.” This confirms the assertion that pedagogy connotes different things to different educators.

4.4.7 Fostering positive influences and directions / Capacity to bring about the desired change

In sharing their view on leadership construct, the two major themes mentioned in the section heading were arrived at: fostering positive influences and directions/ capacity to bring about the desired change. The teachers equally demonstrated their authoritative understanding of leadership and how it exerts its influence over the curriculum and pedagogy. Most teachers could easily explain what leadership means: the power of influence to promote the desired change in the school. The desired influence could be positive or negative, however, in the school setting positive influence is preferred. They were, however, quick to show their preference for the positive influence in the early childhood context since the children are often within their formative stage. These excerpts validate this inference by the researcher:

On the other hand, leadership deals with influencing others positively or negatively to achieve an organisation's goal. I hope I am making sense, hahaha. (Teacher G)

Leadership deals with the direction and influences required to improve a teacher's pedagogical approaches. Teachers, therefore, use pedagogical approaches, and leaders influence, scaffold, and give direction to achieve the desired goals in a given school. (Teacher C)

In short, the teachers' view pedagogy as the intentional means of transmitting something worthwhile to cause the desired positive change, and this often occurs in an inclusive manner. The teachers were clear in their view of the relationship between pedagogy and leadership in the early childhood setting since it takes sound leadership to bring about the desired change in pedagogy. This excerpt confirms this view:

Let me put it this way, a teacher can learn all the pedagogical skills and techniques but will remain ineffective if sound leadership does not create the right conditions, climate, and culture. Pedagogy only becomes effective and efficient under appropriate scaffolding and stimulating leadership. Leadership could therefore be seen as the heart of pedagogy, as it gives life to pedagogy. (Teacher D)

4.4.8 Actions are taken to influence, support, and improve pedagogical activity using leadership practices to promote effective teaching and learning processes, as well as the practice of bringing leadership closer to the

learners

When indicating their views on pedagogical leadership, three major themes emerged. The subsequent sub-themes involved “the use leadership practices to scaffold” and “influencing teaching colleagues and student learning.” Most of the teachers interviewed were able to link their understanding of pedagogy and leadership in order to conceptualise pedagogical leadership. However, it was a seemingly new construct for most of the teachers interviewed. There were varying views expressed: a few respondents viewed it as more of an administrative role, even though they indicated that classroom teachers could equally assume such a role. Most of them linked it to actual classroom teaching rather than to the administrative position. The following extracts demonstrate the varying opinions expressed regarding their understanding of the construct of pedagogical leadership:

The concept of pedagogical leadership is equally new to me. However, I think that it deals with bringing leadership closer to the learners and specifically influencing student learning or colleague teachers, as opposed to the traditional hierarchical or positional leadership style. (Teacher A)

Pedagogical leadership can be used in a generic term to mean responsibilities that are not considered managerial tasks but are part of the teaching and learning process. In the Ghanaian context, a head teacher is mandated by Ghana Education Service to double as a pedagogical leader in the administrative or managerial role by supporting teachers to teach and learn effectively. Classroom teachers can also assume such roles by influencing others. (Teacher I)

Well, this sounds new to me, but in my humble opinion, pedagogical leadership is all about using sound leadership practices to scaffold, promoting effective teaching and learning processes and, by extension, improving the overall school improvement process. This might be my simple guess about this new concept introduced to me by you. Hahahaha, indeed, you are trying to take me back to my lecture hall in the education courses! (Teacher B)

In the final analysis, the teachers were somehow knowledgeable about the construct, even though it was new to some of them. However, there were varying views on whether it was more of a classroom or administrative-related role.

4.4.9 The process of using data to plan educational activities and be knowledgeable about assessment

Almost all the teachers interviewed demonstrated their level of competency, mastery, and literacy of classroom assessment in an ECE setting. Most of them rated themselves as somehow knowledgeable about classroom assessment literacy. They, however, indicated their readiness to learn more in that regard. In an attempt to express their views regarding how they understand assessment in an ECE setting, the following emerged as the main themes: using data to plan educational activities and being knowledgeable about assessment. They also narrated their daily practices, including selecting the right tools, analysis, and pedagogical approach needed to promote teaching, learning, and assessment. All of these also emerged as relevant sub-themes. The following extracts confirm how these themes were derived:

Assessment in the early childhood context deals with gathering or collecting information about a child by reviewing the data whilst using such information to plan educational activities that will be at the right level for the child in question, thereby differentiating instruction to promote meaningful learning outcomes in the classroom. Being assessment literate means one understands the philosophy, principles, and practices underlying assessment as a process or product of which I am somewhat capable. (Teacher A)

Assessment is gathering and discussing information from multiple and diverse sources to develop a deep understanding of what students know, understand, and can do with their knowledge and skills, which predicts their potential while improving the teaching and learning process. I am somehow knowledgeable about the assessment processes with regard to the process of defining, selecting, designing, collecting, analysing, interpreting, and using the information to increase students' learning and development, as well as teachers' instructional practices. (Teacher E)

Assessment deals with the process of gathering information about student learning that is embedded into the teaching–learning process. The assessment process is full of emotions, requiring some tactfulness and honesty. I see myself as having the basics in planning, administering, and communicating assessment information ethically, making

me slightly assessment literate. (Teacher H)

Most scholars in the classroom teacher assessment literature indicate that the essential requirement for every pedagogical leader is to be assessment literate. It is essential that the teachers rate themselves as somehow knowledgeable about the assessment process. The process of assessing students could be an emotional activity which then requires some level of tactfulness and honesty when handling assessment data or communicating assessment data to the relevant stakeholders such the parents or the children.

4.4.10 One whose action influences literacies and school assessment practices

In an attempt to share their views on the assessment leader construct, one central theme – being someone whose actions positively influence teachers’ literacy and school assessment practices – was derived from the data analysis. In their opinion, teachers were expected to take a lead role by using developmental assessment practices, thereby influencing colleagues towards the school’s improvement drive. They identified the similarities between being an assessment leader and pedagogical leadership and indicated that this could occur both at the administrative and distributive levels. These extracts came out from their responses:

An assessment leader influences a change in the assessment practices in a school and influences teacher development. (Teacher D)

A leader in assessment is anyone in the administrative or classroom teacher position who aims to create an enabling assessment culture that informs policy and practices developmentally. Such a person usually understands the purposes, principles, planning, implementation, analysis, as well as how to appropriately communicate assessment data or information to the relevant stakeholders. (Teacher F)

A leader in the assessment process takes a lead role to improve teachers’ instructional and assessment processes in order to be able to teach well and assist children in learning to relearn appropriately. (Teacher J)

Most teachers concluded that an assessment leader could be the classroom teacher or the head of school, someone who exhibits a higher level of assessment literacy and leadership skills to influence colleagues to employ appropriate assessment tools and

communicate assessment data professionally and ethically to the relevant stakeholders. This will eventually lead to improvement in instruction and student learning and, by extension, overall school improvement

4.4.10.1 Leading and teaching while improving learning in the classroom and beyond / Leading and teaching whilst improving learning and assessing in the classroom and beyond

In expressing their views on the pedagogical leadership assessment construct, two main themes emerged: leading and teaching while improving learning in the classroom and beyond, and leading and teaching whilst improving learning and assessing in the classroom and beyond. The teachers further indicated the following sub-themes of pedagogical assessment leadership: “leading the culture of sharing and stimulating,” “whilst building a mutual relationship,” “to set innovative goals in classroom assessment.” Some excerpts from the interview are as follows:

*Pedagogical assessment leadership has to do with the capacity to promote comprehensive and developmental assessment practices that inform and support assessment literacy in the classroom, which gauges student learning outcomes and improves instruction. In effect, I see the concept as the practice of creating the conditions, climate, and culture in a school that promotes effective teaching and process, backed by empirical assessment data to cause the needed school and teacher development. This kind of leadership operates at both the school level and in administrative positions.
(Teacher I)*

*I will try and guess right, as this is a new concept. Assessment leadership influences the overall classroom assessment process developmentally by ensuring that suitable assessment tools are employed ethically, morally, and legally at all times whilst modelling the path for other teachers to learn. In essence, pedagogical assessment leadership is all about the act of leading the teaching and learning process whilst using assessment as an ongoing task to inform the teaching and learning process in a cyclical manner.
(Teacher J)*

The process of scaffolding and influencing teaching and learning, making the desired changes, and using assessment data to inform teaching while fostering collaborative

school climatic conditions to incorporate the culture of sharing and teamwork for holistic child and teacher development. (Teacher C)

The teachers could transfer knowledge appropriately by integrating their views on pedagogical and assessment leadership to coin the new term, pedagogical assessment leadership, which does not exist in the literature on early childhood in the Ghanaian context. Most teachers concluded that a pedagogical assessment leader could be anyone in the classroom, or the head of school, who exhibits a higher level of assessment literacy and pedagogical leadership skills to influence colleagues to employ appropriate assessment tools and communicate assessment data professionally and ethically to the relevant stakeholders. This will amount to the process of leading and teaching whilst improving learning and assessing in the classroom and beyond. This will eventually lead to improvement in instruction and student learning and, by extension, to overall school improvement. In effect, pedagogical leadership relates to leading in teaching, which involves not just exhibiting such quality processes in one's own classroom but also the capability to influence colleagues in their classrooms and across the entire school with improved leadership in classroom assessment.

4.4.10.2 More task-oriented and strict / rely on lobbying skills to solicit the support of other colleagues

The teachers were also required to indicate how their gender affects them in their pedagogical leadership assessment practices. Two main themes emerged: more task-oriented, and strictly relying on their lobbying skills to solicit the support of colleagues. For the teachers, gender is a significant issue affects their leadership practices in the educational system. The men appear to use their masculine strength to enforce compliance and obedience, whilst women emphasise assessment as a process and not a product. This means that the teachers rely more on their strengths as male or female to influence their pedagogical leadership practices. They also use more desirable teaching approaches and are often more pedagogically oriented. These were the two main sub-themes that arose from the interview data.

Here are some examples taken from the interview to support the generation of the above-mentioned themes:

Hmmmmmmmm, gender is a big issue in early childhood education. In this field, males, being the minority, might try to use their masculine strength to enforce children's

compliance and obedience. (Teacher A)

The majority of decisions are often carried out when discussing relevant assessment data. We, the men, are task-oriented; therefore, the right thing ought to be done, using the right channel within the shortest possible time. When the right things are done or otherwise, the right rewards systems are applied. (Teacher B)

Women often emphasise assessment as a process and not a product, as most men usually do. We often employ or influence our colleague teachers to use more desirable teaching approaches by using assessment information to inform our pedagogical practice. (Teacher C)

A woman like me will usually rely on my lobbying skills to solicit the support of all colleague teachers to get all on board when planning, implementing, and communicating assessment data to the relevant stakeholders. (Teacher D)

This implies male and female pedagogical practices will differ, and caution ought to be exercised when assessing teachers' pedagogical and assessment practices as gender may be an important determining factor.

4.4.10.3 Challenges encountered as pedagogical and assessment leaders

When asked to list the challenges they often encounter as pedagogical and assessment leaders, five primary themes: lack of capacity, resources, resistance to change, policy changes, and fear of being perceived as all-knowing.

4.4.10.4 Lack of capacity

Most teachers accepted that they do not have the required knowledge, competencies, and capabilities to take their expected roles as pedagogical and assessment leaders. This is probably due to a lack of training or the lack of required initiative of the teachers themselves. There is also the possibility that intrinsic or extrinsic motivation may be lacking, thereby leaving the teacher incapable of taking up the expected roles. Below are some extracts culled from the interviews to support the generating of such a theme:

There has not been any formal training given to all teachers regarding their new expected role as leaders in classroom assessment. As I have a little understanding, more

education and training would be highly appreciated. (Teacher E)

Convincing parents to accept other forms of assessments besides pencil-and-paper tests is my major headache as a teacher when carrying out observation and documentation to gauge the children's learning outcomes. I have not received formal training on using any particular applications or software to implement my assessment practices. (Teacher G)

The teachers were candid in expressing their views by exposing their limitations due to their lack of adequate training to execute leadership practices in communicating assessment data to the relevant others and in using specific classroom assessments.

4.4.10.5 Lack of resources

The teachers commented on the lack of the necessary resources required by pedagogical and assessment leaders as one of the significant challenges they encounter in their line of duty. Most teachers mentioned this, so it emerged as a significant theme, as one of the setbacks. For example, one of the teachers made the following comment during the interview:

The required technology and resources to conduct meaningful documentation and observation are lacking in their Ghanaian context. I am, therefore, limited, except sometimes using my mobile phone to document and gather my assessment and teaching portfolio. (Teacher C)

A lack of resources and skilled assessors, which emerged as a sub-theme, hamper teachers' leadership role in classroom assessment practices. In some cases, the resources might be freely available on the internet, yet the teachers might not have the expertise to harness them, so they refer to the matter as a lack of resources. For instance, there are many free observation and documentation resources on the internet which could help teachers with classroom assessment practices. However, their lack of awareness might lead to a lack of resources, in their opinion.

4.4.10.6 Resistance to change

Most of the teachers interviewed indicated that resistance to change is one of the major problems; this later emerged as one of the main themes. This resistance to change was

sub-divided into parental and educator-induced ones. Typical of every change process, resistance of all kinds is always expected. Teachers will resist such a change process, leading to a greater workload or to movement out of their comfort zones. Parents, too, are likely to resist any pedagogical leadership practices which represent a departure from existing modes of assessing their children. Quotations from the teachers relating to their views regarding the challenges they encounter are presented below:

Most parents might resist using observation and documentation as evidence of their children's learning outcomes rather than the traditional test score. (Teacher D)

The possible discomfort associated with every educational change includes parents' disliking their children not being graded, a lack of training, change in the mode of assessment resulting in more work for teachers, and the possible cost of employing technological devices to do the observation and electronic documentation building. The only available resources are my mobile phone camera and Microsoft Excel to perform data analysis. (Teacher A)

Such resistance may sometimes also come from the heads of schools; such resistance can also be viewed as teacher-induced. Such resistance is always expected in every education change process; therefore, teachers desirous of taking on pedagogical assessment leadership roles should work beyond their ordinary levels to achieve the desired change and influence.

4.4.10.7 Policy changes

Policy changes emerged as one of the themes as regards the challenges teachers confront as pedagogical assessment leaders. Frequent changes in assessment policies came up as a sub-theme. Some teachers commented that assessment policies could sometimes change during crises, as occurred during the Covid-19 pandemic when teaching, learning, and assessment went online. In such situations, teachers are forced to change their leadership and assessment practices, which generally discomfort them. Assessment policy should be consistent and stable to guide future planning and reliability. Some of the teachers were quoted as saying the following when sharing their frustrations:

The possible discomfort associated with every educational change and policy results in

parents' disliking their children not being graded, changes in the mode of assessment, and such new educational policy resulting in more work for teachers to do, and possible cost of employing technological devices to do the observation and electronic documentation building. (Teacher A)

4.4.10.8 Fear of being perceived as all-knowing

Some teachers expressed the fear of being labelled all-knowing; this emerged as a significant theme. The teachers indicated that the fear of being labelled in this manner thwarts their effort to assume the role of pedagogical and assessment leaders. In the Ghanaian early childhood setting, such hardworking teachers are often condemned by their own teaching colleagues, instead of commending such industrious teachers.

The teachers further noted the challenge of being perceived negatively by colleague workers, which emerged as a sub-theme. Below, quotes captured during the interviews authenticate such a negative attitude or perception:

In the Ghanaian context, any teacher who has no formal leadership role, as in an authoritative position, that tries to initiate any innovation to influence others for an improved teaching and learning practice, including assessment, is often labelled as being too-knowing. Some go to the extent of labelling others as workaholics, busybodies, madam know-all, jacks of all trades, and many others. To avoid such tags and labelling, I try to do my little best in my classroom alone.

This limits collaboration and innovation in pedagogical practices. (Teacher F)

As a female, apart from being tagged as a knowing teacher, I also try to avoid having any troubles with my head of school, as he is in an official position to give direction on student assessment procedures. Here in Ghana, head teachers and assigned curriculum leaders have the authority to determine assessment issues in a school. (Teacher H)

It appears that this negative tagging might affect females more than males when considering the role of pedagogical and assessment leadership. Therefore, teachers must be orientated to stop such negative tagging of others, as it reduces initiative and innovations in teachers' assessment and pedagogical practices, thereby negatively affecting the entire school's developmental drive.

4.4.10.9 Summary of the qualitative data

In the sections above, respondents' interview responses and observations made by the researcher have been presented. The qualitative findings led to the conceptualisation of pedagogical assessment leadership as the process of leading and teaching whilst improving learning and assessment in the classroom and beyond. Thirty significant teachers' pedagogical assessment leadership themes emerged from the qualitative thematic analysis. The teachers accepted their roles as assessment and pedagogical leaders, assessors, and facilitators, and were somehow skilful and knowledgeable in their pedagogical leadership roles in classroom assessment. The male teachers were more task-oriented and strict, with the females often relying on their lobbying skills to elicit support from their colleagues in classroom assessment practices. Lack of capacity and resources, resistance to change, frequent policy changes, and the fear of being perceived as all-knowing emerged as themes in relation to the challenges teachers face as pedagogical assessment leaders. The following section presents a comparative analysis of the quantitative and qualitative data of the study.

4.5 INTEGRATION OF QUANTITATIVE AND QUALITATIVE DATA

Employing mixed-methods study goes beyond performing two distinct studies to understand or explore the specific issue; rather, it involves the use of different methods to address a specific research question, thereby facilitating the generation of rich and comprehensive information (Creamer, 2017; Ingham-Broomfield, 2016; Plano Clark, 2019). Integration of the qualitative and quantitative datasets is therefore critical and often seen as the fulcrum of the mixed-methods approach (Guetterman et al., 2015; Plano Clark, 2019). Mixed-methods approach without proper integration of the qualitative and quantitative datasets cannot be described as valid mixed methods approach. Some scholars prefer the mixed-methods approach to be referred as the integration method, as integration is a crucial process in the final analysis stage of a study. Integration is, therefore, a requirement in this study in order to identify the results and findings of convergence and divergence, thereby confirming or disconfirming or contradicting the teachers' conceptualisations of pedagogical assessment leadership skills and practices in classroom assessment (Fitzpatrick, 2016; Guest, 2013).

Table 4.10 below presents a summary of the dataset integration using Fitzpatrick convergence table guidelines. The divergent and convergent findings and results are discussed in Chapter 5. It is argued that presenting qualitative and quantitative dataset separately without detailed integration makes it difficult for many readers to form a mental picture and make the needed connections. However, presenting data integration in a convergence table makes the connection between the qualitative findings and quantitative results more meaningful (Fitzpatrick, 2016).

Lastly, the convergence integration table helped with some limited moderation of the datasets in order to present more focused perspectives of the early childhood teachers' conceptualisation of pedagogical assessment leadership practices and the challenges related to these in the Ghanaian context.

Table 4:10: Data convergence table integrating two datasets

Research question/ Hypothesis	Quantitative(results)	Qualitative theme (findings)	Convergence/ Divergence Type
How do the teachers perceive their assessment and leadership literacy skills and practices (roles and responsibilities)?	Teachers are somehow skilful, literate, and knowledgeable with an average means (M = 3.10 and SD = 0.74)	<p>Roles as and literacy:</p> <ul style="list-style-type: none"> • Leaders, caregivers, facilitators, role models, curriculum leaders, assessors, agents of change, and capacity to bring the desired change. • They view assessment and pedagogical leadership as new constructs. They view themselves as somewhat knowledgeable, skilful, and literate in pedagogical assessment leadership 	Agreed/ supported
To what degree are early childhood teachers skilful in assessment literacy and pedagogical assessment leadership practices?	Missing	<ul style="list-style-type: none"> • Lack of capacity and resources • Resistance to change (educators and parents) • Policy changes • Fear of being perceived as all-knowing 	N/A
What challenges do the teachers face in their classroom pedagogical assessment leadership practices?	Missing	<ul style="list-style-type: none"> • Actions are taken to influence, support, and improve pedagogical activity • Using leadership practices to promote effective teaching and learning process • Process of using data to plan educational activities • One whose actions influence literacies and school assessment practices • Somehow knowledgeable about assessment • They conceptualise pedagogical assessment leadership as leading and teaching while improving learning and assessment in the classroom and beyond. 	Agreed/ Confirmed
HA1: There is a significant positive influence between teachers' classroom assessment literacy and pedagogical assessment leadership practices.	The results show a significant positive influence between teachers' classroom assessment literacy and pedagogical assessment leadership (B = 0.510, p-value = 0.000); thus, HA1 is supported		
How would you conceptualise pedagogical assessment leadership in classroom assessment practices?			

<p>HA2: There is a significant positive influence between technology used by the teachers in their classroom assessment and pedagogical assessment practices</p>	<p>The results show a significant positive influence between technology used by the teachers and pedagogical assessment leadership (B = 0.089, p-value = 0.010); thus, HA2 is supported.</p>	<p>Lack of technological training, resources, and cost</p>	<p>Agreed/confirmed</p>
<p>What challenges do the teachers face with using technology in their classroom assessment practices?</p>	<p>The results show no significant positive influence between school culture and pedagogical assessment leadership (B = 0.023, p-value = 0.514); thus, HA2 is not supported.</p>	<p>School culture includes the fear of being perceived as all-knowing, leading to wrong labelling and negative attitudes and perceptions in the teachers</p>	<p>Agreed/confirmed</p>
<p>How does the school culture influence teachers' pedagogical practices in classroom assessment?</p>	<p>The results show a significant influence between males and females in relation to pedagogical assessment leadership (B = 0.035, p-value = 0.306); thus, HA4 is supported.</p>	<p>Male teachers tend to be more tasked-oriented/strict, using their masculine strength.</p>	<p>Confirmed</p>
<p>HA4: There is a significant influence between males and females and their pedagogical assessment practices.</p>	<p>The results indicate that males have more pedagogical assessment leadership skills than females.</p>	<p>Females rely on lobbying skills to solicit the support of their colleagues.</p>	
<p>How does gender influence the teachers' pedagogical practices in classroom assessment?</p>			

4.5.1 Summary of the integration process

Six significant themes relating to teachers' pedagogical assessment leadership emerged from the qualitative thematic analysis after integrating the two datasets, as there was some convergence and divergence in the findings and results. For example, the teachers accepted their roles as assessment and pedagogical leaders, assessors, and facilitators and were somehow skilful and knowledgeable in their pedagogical leadership roles in classroom assessment. The qualitative findings led to the conceptualisation of pedagogical assessment leadership as the process of leading and teaching whilst improving learning and assessment in the classroom and beyond. The male teachers were more task-oriented and strict, with the women relying on their lobbying skills to elicit support from their colleagues during classroom assessment practices.

Lack of capacity and resources, resistance to change, frequent policy changes, and the fear of being perceived as all-knowing emerged as themes relating to the challenges teachers face as pedagogical assessment leaders. The results from the quantitative data also indicate that the teachers were somehow skilful and knowledgeable in leadership and assessment literacies. The hypotheses testing reveals that teachers' classroom assessment practices and literacy, as well as the use of technology in classroom assessment, has a significant positive influence on their pedagogical assessment leadership practices but not to that of the school culture. The qualitative dataset somewhat contradicted this by revealing that the school environment goes a long way to affect their general pedagogical assessment leadership practices. The women especially wanted to avoid taking on such leadership roles so as not to be labelled as too-knowing and be on the receiving end of other negative cultural attitudes from their colleagues.

Similarly, the quantitative dataset indicates a significant influence between male and female teachers' pedagogical assessment leadership practices, which favours the men. Furthermore, in the qualitative aspect, the women appear to lack behind the capabilities of male teacher leaders in classroom assessment practices.

4.6 SUMMARY OF CHAPTER 4

This chapter has presented a detailed illustration of the analysis of both the quantitative and qualitative datasets gathered for this study. It concluded by integrating qualitative findings and the quantitative results to guide meaningful discussion in the subsequent chapter.

CHAPTER 5

DISCUSSION OF RESULTS

5.1 INTRODUCTION

Rucker (2016), and Annesley (2010), indicate that the function of the discussion chapter of a thesis is to interpret and describe the relevance of the findings or results in line with what is already known regarding the problem under study whilst explaining any new insights that emerge and their possible implications. This chapter discusses the findings from the qualitative dataset and the quantitative results.

This study employs a concurrent triangulation mixed-methods approach to explore how assessment literacy, gender, school culture, and technology use influence their leadership practices in classroom assessment and the challenges associated with. In line with the overall purpose of the study, four research questions and four hypotheses were formulated. In all, six major results emerged. The discussion in this chapter is thus structured according to these six keys results, as follows:

- Teachers' classroom assessment and pedagogical leadership roles, practices, and responsibilities.
- Teachers' conceptualisation of pedagogical assessment leadership and assessment literacy practices and skills.
- Challenges relating to lack of capacity, resources, and resistance to change including policy changes in answer to research question 3.
- The influence of technology on teachers' pedagogical and assessment leadership and the challenges related to this.
- The influence of school culture on teachers' pedagogical and assessment leadership practices.
- The influence of gender on teachers' pedagogical and assessment leadership practices.

5.2 DEMOGRAPHIC PROFILE OF THE PARTICIPANTS AND RESPONDENTS IN THE STUDY

Respondents are critical to any research; understanding the respondents and their characteristics is essential for any successful and relevant study (Hallinger, 2016). The respondents' demographic attributes, as used to describe them in this study, comprise gender, age group, education, institution, number of years for teaching in the early childhood setting, school classification by the Ministry of Education, and school location (see Table 4.1).

Regarding the respondents' gender, the majority of the participants, are women. This female dominance is due to the nature of the educational industry in which the study was conducted. For instance, Wang and Samba (2019), conclude that early childhood care and development education in Ghana is female-dominated because women naturally like and care for young children; therefore, teaching is the appropriate task for them – they work with children in order to satisfy that desire. The early childhood sector of the Ghanaian basic education structure is indeed a female-dominated field (Jahnke et al., 2019; Wang & Samba, 2019).

The other possible explanation is that most male teachers in Ghana are often ridiculed by society for teaching at the early childhood level. They are often given funny names, such as “pampers man,” “diapering guy,” and “KG papa” (father at the kindergarten). This kind of naming calling often deters men from being accepted at the early childhood level. However, children have much to lose during their formative stage if there are no male teachers at all in the early childhood setting. This is because some children are from single-parent homes and live only with their mothers. Only at school can they enjoy fatherly love, in this case from the male teacher. There should, therefore, be a concerted effort to educate the entire Ghanaian populace to do away with such negative attitudes towards male teachers in the early childhood setting in the interest of the Ghanaian children's holistic social-emotional development.

On the age group of the respondents, the findings reveal that a little over 88% of the respondents were between the ages of 31 and 50. However, many of the respondents (45.6%) revealed that their ages at the time of data collection fell between 31 and 40 years. It was also found that a significant 69.7% of the respondents had B.Ed in Early

Childhood Care and Development as their highest level of education, followed by a Diploma in Early Childhood Care and Development (12.4%) and a Master's degree in Early Childhood Care and Development (10.9%). In addition, 54.3% of the study participants indicated that they had been teaching at the ECE level for 6–10 years, while the remaining 45.7% had been teaching at the ECE level for not more than five years.

Furthermore, regarding the respondent's schools, the study reveals that a little over half of the respondents (50.6%) teach in basic private schools, while the remaining 49.4% teach in basic public schools in Ghana. The results also reveal that there is not much difference between the respondents' schools in terms of MOE school classification. It was discovered that the MOE classifies 51.9% and 48.1% of the total respondents' schools as high and low performing, respectively. Regarding the location of the schools, the study reveals that the majority, 78.4%, are located in rural areas, with the remaining 21.6% in urban centres.

5.3 TEACHERS' CLASSROOM ASSESSMENT AND PEDAGOGICAL LEADERSHIP ROLES, PRACTICES, AND RESPONSIBILITIES

The quantitative phase also answered the question: to what degree are the early childhood teachers skilful in assessment literacy and pedagogical assessment leadership practices?

Significant themes relating to teachers' pedagogical assessment leadership emerged from the qualitative thematic analysis after integrating the two datasets. There is some convergence and divergence in the findings and results in the datasets. For example, the teachers accepted their roles as assessment and pedagogical leaders, assessors, and facilitators and were somehow skilful and knowledgeable about their pedagogical leadership roles in classroom assessment. The results indicate that the teachers reported having limited assessment literacy and pedagogical assessment leadership skills, with an average scores of $M = 3.10$ and $SD = 0.74$ and $M = 3.11$ and $SD = 0.76$) respectively. This means that the teachers were somehow skilful and knowledgeable about leadership and classroom assessment literacies.

Recently, assessment literacy has become the centre of attention for educational studies as it equips the teacher leader and assessor to effectively assume the role of pedagogical leader (Kim & Lee, 2021; Lian & Yew, 2020). Huang and He (2016), indicate that limited assessment literacy leads to inaccurate assessment of the learning process in children. According to Tan et al., (2017), effective and efficient assessment literacy acquisition is profoundly located in teacher education and professional development, which leads to the required knowledge, skills, and principles involved in classroom assessment and leadership. However, numerous local and international studies indicate that classroom teachers, whether experienced or new to the job, are not as knowledgeable or skilful in their assessment literacies and practices as they should be. This is so as they are often ill-prepared to assume their expected role as assessment leaders (Abonyi & Sofu, 2019; Akayuure, 2021; Cruickshanks, 2017; Dufour, 2015; Larsari, 2021; Lian & Yew, 2020; O'Connor, 2017; Sbai, 2018; Zee & Koomen, 2016).

The results and findings of this study confirm those of a previous study by Akayuure (2021), and Amoako (2019), who concluded that generally the classroom teachers have low levels of classroom assessment literacy, just as the early childhood teachers in Ghana in this study having limited assessment literacies in relation to their classroom leadership practices. However, it emerged that the teachers were not ignorant of leadership and assessment literacies as they could demonstrate some knowledge by explaining the numerous new constructs while accepting their roles and responsibilities as assessors, leaders, mentors, and facilitators. This also confirms the study by Asare (2014), and Baidoo-Anu and Baidoo (2022), that the teachers are not totally ignorant about assessment literacies in Ghana. The following quote sums up how the teachers view their literacies in assessment and leadership.

A leader in assessment is anyone in the administrative or classroom teacher position who aims to create an enabling assessment culture that informs policy and practices developmentally. Such a person usually understands the purposes, principles, planning, implementation, analysis, and how to appropriately communicate assessment data or information to the relevant stakeholders. (Teacher F)

It is not also surprising that the teachers could identify their self-perceived knowledge and skills, no matter their limited nature, relating to new constructs, such as pedagogical and assessment leadership, as well as their expected roles and responsibilities. This could partly be seen as a credit to the National Teaching Council (NTC) in Ghana, as part of its teacher licensing regime, which had rolled out several continuing professional developments and learning community programmes to update teachers' knowledge and skills in these new constructs.

It could also be argued that all the teachers in the study were professionally trained and educated ECE teachers who might have been exposed to these new concepts or constructs during their pre-service preparation. Similarly, the newly introduced pre-tertiary standard-based curriculum in Ghana lays much emphasis on pedagogical and assessment leadership and instruction.

In Ghana, there have been several reform efforts by the Ghana Education Service to improve the quality of classroom assessment data and classroom assessment practice in line with assessment as and of policy, which the pedagogical leader or the teacher has a pivotal role to play (Ministry of Education, 2018b). However, Tan et al., (2017), also noted that teachers with little assessment literacy often assess learners inappropriately, producing inconsistent classroom assessment data, and negatively affecting pedagogical practices. This finding probably illustrates Ghanaian parents' concerns regarding assessment data as it relates to their children in early childhood settings.

Interestingly, it remains uncertain how early childhood teachers acquire this pedagogical leadership in classroom assessment practices. This is because there is always a vast difference between the teachers' self-perceived competencies and their actual practice in the field. This study states that although the new teacher education policy indicates the leadership and assessment literacies, beliefs and practices expected, teachers are yet to meet the desired change. Perhaps the NTC has to re-evaluate the teacher training and professional development sessions in order to bridge the gap between early childhood teachers' leadership literacy and improved classroom assessment practices.

Again, teachers' limited literacies in leadership in classroom assessment practices may have led to a recent worrying trend in Ghana, whereby some ECE classroom teachers' video record the children who are not performing well, during the assessment process

and later share the recordings on social media platforms to ridicule them. The teachers probably do so due to their ignorance about the ethical issues involved in classroom assessment. The teachers' limited knowledge might have also contributed to their over-reliance on pencil-and-paper tests and positional leadership as against developmentally appropriate assessment tools and distributed leadership styles, as suggested in the new standard-based curriculum.

Failure in assessment literacy and leadership might lead to poor teaching, learning, and assessment practices and, by extension, negatively affect the overall school academic performance, which is the objective of the standard-based curriculum (Ackah-Jnr & Fluckiger, 2021). In short, the teachers in this study rated themselves as having limited assessment and leadership literacies, much as they accepted their numerous roles and responsibilities. They are, however, not ignorant, as they welcome further training and education to update their knowledge of this required skill set.

5.4 TEACHERS' CONCEPTUALISATIONS OF PEDAGOGICAL ASSESSMENT LEADERSHIP AND ASSESSMENT LITERACY PRACTICES AND SKILLS

The first hypothesis testing confirmed a significant positive relationship between the teachers' classroom assessment literacy and pedagogical assessment leadership practices. The SEM results revealed that teachers' classroom assessment literacy practices have the most significant positive influence on their pedagogical assessment leadership practices ($\beta = 0.510$, $p\text{-value} = 0.000$), which supports hypothesis Ha1. "Somehow knowledgeable" in pedagogical assessment literacies emerged as the theme of the response to the qualitative research question, "How would you conceptualise pedagogical leadership in classroom assessment practices?"

The early childhood setting requires competent and effective leadership to successfully implement the school's overall improvement drive (Harris et al., 2013). In line with this, Bloom (2000), opines that competence is contextualised and can be seen in three aspects: knowledge, skills and attitude. She further indicates that knowledge deals with group dynamics, organisational theories, child development, and pedagogical strategies. The skills dimension also relates to the technical, human, and conceptual capabilities required to execute functions such as budgeting, staff improvement drives, and the resolving of staff perturbations. The attitudinal aspect deals with the leader's capability to

appreciate values, beliefs, orientations, and emotional intelligence to get the best out of the classroom assessment leaders.

Given these issues, the Ghanaian early childhood pedagogical leader in classroom assessment must exhibit the highest level of proficiency and literacy in classroom assessment practices and beyond. Assessment literacy, therefore, is often seen as the extent to which individuals or groups of teachers demonstrate knowledge, abilities, and appreciation in relation to assessment and leadership techniques, alternatives, and their applications.

Therefore, the result of this study is consistent with Patore and Andrate (2019), and Reeves (2004a, 2004b, 2006b, 2016), from the global perspective regarding the relationship between teachers' assessment literacy and pedagogical leadership practices. Pedagogical and assessment leadership are new concepts with similar meanings and contextualisation but are used in diverse ways in the early childhood educational literature (Fonsen & Soukainen, 2020).

The teachers' literacy skills enable them to conceptualise the newly coined construct, known as "pedagogical assessment leadership," in the Ghanaian context as the "process of leading and teaching while collaboratively improving learning and assessment in the classroom and beyond." This proposed definition is the most significant contribution of this study to the international literature on early childhood teachers' leadership in classroom assessment practices from the Ghanaian and, more broadly, African perspectives.

In Ghana, Appiah's (2022), pioneering study led to the conceptualisation of pedagogical leadership from early childhood teachers' perspectives. In his qualitative study, involving 19 headteachers and classroom teachers in two districts of Central Region, he defined pedagogical leadership as the "capacity of teachers and school heads to use diverse and suitable methods of teaching to support the learning needs of children, as well as partnering and engaging with multiple stakeholders to sustain teaching and learning to ensure attainment of educational goals (p. 250)." These two conceptualisations are distinct but, in diverse ways, close to numerous conceptualisations of pedagogical leadership or assessment leadership in Australia, Sweden, Norway, Canada, South Africa, and Saudi Arabia, as demonstrated in the following studies: Abel et al., (2017);

Alameen et al., (2015); Chappuis et al., (2005, 2006); Cizek (2004, 1995); Hujala et al. (2016); Lingam and Lingam (2016, 2000).

The uniqueness of this study lies in its ability to extend Appiah's (2022), conceptualisation by integrating the separate constructs of assessment leadership and pedagogical leadership into a newly coined one, pedagogical assessment leadership. Numerous authorities continue to assess assessment and pedagogical leadership as two distinct concepts; however, they are mutually inclusive as pedagogical leaders require knowledge of assessment leadership (Duke, 2004, 2008). Very few authorities view assessment leadership as the specific skill or role of educational or pedagogical leadership. Indeed, assessment is often seen as part of the pedagogical leaders' roles, as there are numerous similarities. It is not, therefore, out of place to combine the two roles or constructs to clarify that leadership, curriculum, instruction, and assessment relate directly and indirectly to teachers' and students' learning outcomes, which are the core responsibilities of early childhood educators.

To conclude, leading assessment is complex and challenging. It requires the capacity to go beyond traditional conceptualisations of leadership to build teachers' ability in assessment innovation. Leaders who draw upon the interplay among values, theoretical and procedural knowledge, professional skills, and personal qualities to shape their leadership vision are more likely to achieve positive organisational change and enhanced professional cultures. Additional benefits include positive student outcomes, enhanced instructional practice, enriched partnerships with parents and community, increased assessment literacy, productive cultures, and more effective monitoring and reporting practices.

5.5 CHALLENGES EARLY CHILDHOOD TEACHERS CONFRONT RELATING TO THE LACK OF CAPACITY, RESOURCES, AND RESISTANCE TO CHANGE INCLUDING POLICY CHANGES

The findings of this study reveal that early childhood teachers in Ghana are faced with many pedagogical assessment leadership challenges, including a lack of capacity and resources. It is further demonstrated that teachers in Ghana are resistant to change, particularly in the face of policy changes in education. This finding is consistent with those of a number of other empirical studies in education, which also indicate that leaders in

ECE face many barriers in the early childhood setting (Fourie & Fourie, 2016). The findings of this study are consistent with several such studies on the global stage. For example, lack of capacity, resources, and training, and resistance to change have already been observed in the international literature as some of the challenges faced by the early childhood educators (Bloom, 1997; Freeman & Brown, 2000; Hayden, 1997; Lingam & Lingam, 2016; OECD, 2016; 2019; Rodd, 1997).

Additionally, the present study finds that inadequate professional training opportunities, a lack of assessment facilities, and the non-availability of modern technological devices for observation and documentation practices to be significant challenges that militate against early childhood teachers being pedagogical leaders in the context of the classroom assessment. Previous related studies in Ghana have also examined the challenges early childhood teachers and head teachers face as pedagogy leaders. For example, in a recent study by Appiah (2022), of the challenges confronted by early childhood teachers and head teachers as pedagogical leaders in Ghanaian classrooms, respondents indicated such challenges as attitude and lack of resources as some of the practical difficulties early childhood teachers and headteachers face.

One of the participants is quoted as saying the following when discussing the challenges that assessment leaders often encounter in the Ghanaian context:

The possible discomfort associated with every educational change includes parents' dislike of their children not being graded, lack of training, changes in the mode of assessment resulting in more work for teachers, and the possible cost of employing technological devices to do the observation and electronic documentation building.

The only available resources are my mobile phone camera and Microsoft Excel to analyse data. (Teacher A)

This quotation from a participant corroborates the findings of Appiah (2022), who gauged early childhood teachers and head teachers concerning the challenges they face as pedagogy leaders. The respondents in his study shared these challenges as relating to attitudes, materials and facilities, professional development, teaching and learning, frequent policy changes, resources, and external challenges.

The implication is that early childhood teacher leaders are challenged, and, until a suitable solution is found for the barriers identified, pedagogical leaders in early childhood

classroom assessment practice will continue to lag behind our international counterparts. Training and education for pedagogical and classroom assessment best practices in pre-service, induction, or practising early childhood teachers should be tailored to the needs of Ghanaian schools.

This aligns with the suggestions offered by Fonsen and Ukkonen-Mikkola (2019), and the OECD (2019). They advocate continuing professional development programmes for classroom teachers and other staff in order for them to embrace distributed leadership practices in classroom assessment at the workplace within the required and specific political, cultural and social contexts.

5.6 TECHNOLOGY INFLUENCE ON TEACHERS' PEDAGOGICAL AND ASSESSMENT LEADERSHIP PRACTICES AND THE RELATED CHALLENGES

The second hypothesis established a significant positive influence of technology use on teachers' pedagogical assessment leadership practices. The qualitative phase also sought to discover the challenges teachers' face when using technology in their classroom assessment practices. Lack of technological training and assessment resources, and the cost of technology emerged from the qualitative data as the significant issues. The SEM results also showed a significant positive influence of the technology teachers use in classroom assessment on their pedagogical assessment leadership practices ($\beta = 0.089$, $p\text{-value} = 0.01$). This implies that the earlier childhood teachers adopt technologies in their classroom assessment, the more improved their pedagogical assessment leadership skills will be. Thus, Ha2 is supported.

This finding is consistent with that of Fadel and Lemke (2006), and Quatroche et al., (2014). After a thorough meta-review of existing studies, they concluded that there is a significant effect of technology usage on teachers' pedagogical leadership practices relating to teaching and classroom assessment. They further discovered that, of all the content areas of study, technology does not only influence but significantly increases the overall learning outcomes of students when school leadership is implemented in a fidelity way by religiously implementing the change process without adaptation. However, they point out that even schools with an abundance of technological resources would still experience some challenges if they lacked vision, research access, teacher leadership

and professional development, an enabling school culture, and the required resources.

The simple implication, therefore, is that there is a strong influence regarding teachers' technology usage on their pedagogical leadership practices in any given school or educational institution at any level, from the kindergarten to the university. An additional implication of this study may be that it takes effective pedagogical leadership to make the technological resources available and to ensure that they are used appropriately to ensure the required learning outcomes.

The conclusion is that there is a strong influence between the level of technology application in the classroom assessment practices of the teachers and their pedagogical leadership practices. It also implies that it takes effective teacher leadership initiative to apply and use appropriate technology to promote learning and assessment in school while reducing the numerous associated barriers. Public school leaders who are technologically proficient have the mandate to promote an enabling environment in which teachers and pedagogical leaders can feel confident using the appropriate technology to enhance classroom assessment practice in Ghana and beyond (Dexter, 2011).

5.7 THE INFLUENCE OF SCHOOL CULTURE ON TEACHERS' PEDAGOGICAL AND ASSESSMENT LEADERSHIP PRACTICES

The third hypothesis sought to establish a positive influence of school culture on teachers' pedagogical leadership practices. The qualitative aspect dealt with how school culture influences teachers' pedagogical leadership practices in classroom assessment.

School culture, which includes norms, traditions, customs, beliefs and values, can positively or negatively affect teachers' behaviours and work habits (Atkinson & Biegun, 2017; Tsai, 2011). In this study, the quantitative analysis demonstrated that school culture had an insignificant positive influence on teachers' pedagogical assessment leadership ($\beta = 0.023$, $p\text{-value} = 0.514$); hence, H_{a3} is not supported. The results suggest that the culture of schools in which early childhood teachers teach does not influence their level of pedagogical assessment leadership practice.

In the qualitative analysis, factors such as the fear of being perceived as all-knowing, wrong labelling, and negative attitude and perceptions among teachers emerged as constituting the school culture and impeding the pedagogical assessment leadership

practices of teachers, ostensibly corroborating the quantitative results in this study. The conversations with teachers, especially the women, indicated their unwillingness to take on pedagogical leadership roles due to the fear of being labelled and socially derided by peers within the context of the school environment.

For example, the following assertion confirms the result from the quantitative data:

In the Ghanaian context, any teacher who has no formal leadership position who tries to initiate any curriculum innovation to influence others for an improved teaching and assessment practices, is often labelled as too-knowing. Some are even labelled workaholics, busybodies, madam all, jacks of all trades, and many others. To avoid such tags and labelling, I try to do my little best in my classroom alone. This limits collaboration and innovation in pedagogical practices. (Teacher F)

The outcome of this study contradicts recent studies that have shown a strong influence of school culture on pedagogical leadership, which fosters an effective classroom assessment process (Lee & Louis, 2019). For example, previous studies have demonstrated that influential pedagogical leaders are expected to know how and when to connect and disconnect with others in the school environment (Walker, 2012). A possible explanation for this contradiction, relative to other international studies, may be partly attributed to the Ghanaian traditional hierarchical leadership style in schools, which involves authority and subordinate relationships. This, in effect, limits the classroom teachers' initiatives to see themselves as potential pedagogical assessment leaders (Fairman & Mackenzie, 2015).

However, the finding in this study is somewhat consistent with that of Cansoy and Parlar (2017). They report negative and insignificant correlations between constraining school culture and leadership, which relates to school administrator's tendencies that prevent teachers from leading pedagogically. The implication is that the teachers in this study will, therefore, require confidence that there is a culture of trust that will allow them to "take risks in a given school and thereby learn from their mistakes" in order to lead pedagogically in classroom assessment practices (James, 2017, p.165).

Some form of reward system backed by a robust educational policy that enhances individual teacher initiatives could be taken by NTC as part of its teacher education reform agenda. This can be achieved through mental re-orientation programmes and activities

aimed at helping teachers collaborate and accept support and help from others in order to grow on the job as pedagogical assessment leaders.

The conclusion, therefore, is that there may be a culture of fear and silence in the schools selected in this study, one which does not promote pedagogical leadership being horizontally distributed in teachers' classroom assessment practices. As such, urgent intervention is warranted.

5.8 THE INFLUENCE OF GENDER ON TEACHERS' PEDAGOGICAL AND ASSESSMENT LEADERSHIP PRACTICES

The fourth hypothesis sought to establish significant influence of the genders (male and female) in the quantitative phase, as seen below. The qualitative aspect of the study also intended to ascertain how gender influences pedagogical leadership practices in classroom assessment. These themes emerged after detailed analysis.

The study attempted to confirm the following hypotheses:

- Ho4: No statistically significant influence exists between male and female regarding teachers' pedagogical assessment leadership practices.
- Ha4: There is a statistically significant influence between male and female regarding teachers' pedagogical assessment leadership practices.

The results from the quantitative dataset confirm an influence between male and female teachers' on their pedagogical assessment leadership practices and skills, though it is not significant ($\beta = 0.035$, $p\text{-value} = 0.306$). The results also indicated that male early childhood teachers do possess better pedagogical assessment leadership practices than their female counterparts. Thus, hypothesis Ha4 is supported (see Table 4.8).

The qualitative dataset also found that male teachers tend to be more task-oriented and, hence, strict, using masculine strength in their pedagogical leadership roles. Female teachers in this study, on the hand, instead rely on lobbying skills to solicit effort and support from their colleagues. This implies that gender of the teachers influences their pedagogical leadership practices. However, in the qualitative phase, the finding was not in favour of either gender.

The outcome of this study conflicts with that of Abonyi et al., (2022), who conclude that there was no influence between male and female positional school heads in their study in two educational districts in Ghana. However, the research findings of the present study are consistent with many other research outcomes as regards there being slight differences between male and female leadership practices or styles practised at the school level (Anderson, 2019; Bullough, 2015; Burke & Collins, 2001; Rahman & Lim, 2018; Rausch, 2018).

The result from the quantitative dataset also contrasts sharply with many international research results, including those from West African neighbours, since, in most instances, the influence often favours women. For example, Anderson (2019), Burke and Collins (2001), Eagly and Carli (2003), and Hallinger et al., (2016), in a meta-analysis of over 50 studies in Asia and Europe spanning the period from the 1980s to the 2000s, showed a significant gender effect in favour of female principals regarding the use of instructional or pedagogical leadership practices or styles. Again, empirical evidence shows that, in several Francophone African countries, elementary schools with women as elementary school heads outperform their male-headed counterparts in terms of the reading and numeracy skills of the children who participated in the 2019 PASEC assessment (IIEP Dakar & UNICEF, 2022).

The possible implications for the outcome of this study, that women often outperform men in their pedagogical leadership practices, could be that Ghana, as a patriarchal society, might have male leadership that is often more experienced than its female leadership. Sikweyiya et al., (2020), believe that, in a patriarchal country like Ghana, persistent cultural mindsets, behaviours, and practices may undermine the leadership roles and practices of women. Stereotyping female leaders with incorrect perceptions due to cultural and ethnic orientation could account for the women not exhibiting a high level of pedagogical leadership practice compared to men (Agyeiwaa & Attom, 2018; Brion & Ampah-Mensah, 2021; Djan & Gordon, 2020). This was evident during the interviews, with some female participants sharing these frustrations, thereby limiting their self-perceived pedagogical leadership potential:

Hmmmmmmm, gender is a big issue in early childhood education. In this field, males being the minority might try to use their masculine strength to enforce children's compliance and obedience. (Teacher A)

As a female, apart from being tagged as a knowing teacher, I also try to avoid having trouble with my head of school, as he is in an official position to give direction on student assessment procedures. Here in Ghana, head teachers and assigned leaders have the authority to determine assessment issues in a given school. (Teacher H)

From the views expressed, it is evident that the female teachers in this study want to comply and conform to positional leadership and therefore have levels of low self-initiative skills to lead in a distributed manner or pedagogically. These female teachers probably have bought into the traditional orientation in Africa, which is fuelled by patriarchal cultures and the mindset that male leaders can lead better than women can (Bush & Glover, 2016).

The other possible or viable implication may be that female pedagogical leaders experience many challenges. Researchers in South Africa have concluded that self-esteem and self-efficacy beliefs due to negative stigmatisation may hinder women from seeking to lead pedagogically (Naidoo & Peumal, 2014).

Such influences may also be the result of the fact that men often view leadership as leading the change process, while females perceive leadership as facilitating process of change. In the Ghanaian context, some women often prefer to be led by men rather than by their female counterparts. This situation is locally termed “women are their enemy.” It could also be that some men enter teaching in the early childhood setting knowing well that their chances of assuming a hierarchical leadership role are higher owing to female dominance in the field. This may mean that any man, with little effort, can easily be recognised by others, knowing that most females prefer male leaders.

Pedagogical and assessment leadership is, however, not about the effort of an individual but rather that of all those who have an interest in guiding and promoting children’s learning outcomes. This calls for a collective effort by all teachers and other relevant stakeholders in the assessment process. Fortunately, Ghana, as a collective nation, in which the needs of a group overrides that of the individual, requires a distributed form of pedagogical leadership in classroom assessment practices. It must, however, be argued that women in Ghana, by their nature, are born to lead, as they do that at home by nurturing their children. In this vein, Naidoo and Perumal (2014), believe that women can lead horizontally or in a distributed manner if they are provided with the required support

and encouragement.

In summary, the male teachers in this study perceived themselves as having a high level of pedagogical leadership practice, even though they are in the minority compared to the female teachers in the early childhood setting in Ghana. Educational authorities and policymakers ought to employ more men to teach ECE, thereby possibly improving pedagogical leadership practices and classroom assessment practices in the school and beyond by their influencing other colleague teachers developmentally. However, female teachers in the majority can be equal or even lead horizontally if only certain cultural practices and hindrances or barriers are removed. It must also be noted that, due to variations in male and female leadership practices, the influence between male and female teachers on their pedagogical leadership practices might not necessarily connote the dominance of one over the other.

5.9 SUMMARY OF CHAPTER 5

This chapter has presented detailed discussions and possible inferences relating to the results from the quantitative datasets and the findings from the qualitative data and their subsequent integration. The review of related literature in Chapter 2 also guided the discussion, which was organised in line with the research questions and hypotheses outlined in Chapter 1 of this study.

CHAPTER 6

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

6.1 INTRODUCTION

Discussion of the results and findings were presented in Chapter 5. This chapter presents a summary of the study as a whole, including the results and findings discussed in the previous chapter. It also presents the conclusions, recommendations, implications, suggestions for further research, as well as the limitations of the study. In the next section of this chapter, a summary of the findings and results of the two datasets is presented. The section following that presents the conclusions drawn from the study in line with the research questions and the hypotheses. The implications of the study are also discussed. Finally, recommendations, limitations, and suggestions for future research are also presented.

6.2 SUMMARY OF THE STUDY

This section presents a summary of the study. The summary analysis is classified into the research process, chapters, and the quantitative and qualitative datasets.

6.2.1 Summary of the research process

The primary purpose of the research undertaken for this study has been to explore and explain Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership practices and the factors influencing these in classroom assessment, along with the associated challenges. The study adopted a pragmatist perspective, with triangulation possible due to the concurrent mixed-methods design. Quantitative and qualitative data were collected concurrently in order to gauge the breadth of teachers' pedagogical assessment practices whilst generalising and contextualising the results and findings of the study.

A multi-stage sampling technique was utilised in the study. The traditional Kumasi Metropolitan Assembly was purposively selected due to its dense population of early childhood teachers and its cosmopolitan nature. Following the determination of the

sample size, a multi-stage cluster sampling technique was used to select 700 participants from the pool of 2,042 professionally trained early childhood teachers on the NECGTAG Telegram platform. They were working in the ten municipalities that form the traditional Kumasi Metropolitan Assembly. The schools were considered as the unit for the administration of the questionnaire, which also constituted the sampling frame. The clusters were defined as the ten municipalities in which the schools are located. The cluster size was defined as the number of teachers in the cluster. The sampling frame was stratified into 10 municipalities. The stratification ensured that data could be safely distributed randomly into the traditional Kumasi Metropolitan Assembly. For each stratum, the sampling was undertaken in two stages.

In the first stage, schools were split into public and private; likewise, the gender of the participants, comprising male or female teachers, was selected using PPS – larger public or private schools, and whichever gender was better represented among the teachers, had a higher probability of having their members selected. In the second stage, a fixed number of teachers were selected from each municipality using a systematic sampling technique. The number of teachers selected from each municipality was fixed to ensure that the PPS was compensated for in the second sampling stage.

At the final stage, a simple random sampling method was used to select early childhood teachers. In all, 700 teachers participated in the quantitative phase of the study. Simple random sampling allowed the researcher to avoid the skewed choice of individuals/elements and draw objectively valid conclusions about the sample.

A convenience sampling technique was used for qualitative data collection in order to select respondents for the interviews. Convenience sampling was used to select the early childhood teachers who voluntarily nominated themselves to be interviewed for the study. The purposive technique was used to select one teacher each from the highly populated ECE centres within the 10 municipalities. In effect, 710 respondents were covered in the quantitative and qualitative datasets.

The quantitative portion of the study involved using 5-point Likert-type scale questionnaires adapted from the internet-based survey, TPALSPCAS, to gather data on pedagogical and assessment leadership practice and skills from the participants. This questionnaire was tested after thoroughly reviewing the pedagogical leadership and

assessment literature. The quantitative data were analysed using descriptive statistics, EFA, CFA, measurement model assessment, and SEM, whilst the qualitative data was thematically analysed.

6.2.2 Summary of chapters

The study was structured into six chapters. **Chapter 1** began with a brief description of the background of the study. The description details the relevance of pedagogical and assessment leadership for all pedagogical leaders in ECE.

The background section contextualised pedagogical and assessment leadership in the Ghanaian setting. The rationale driving the study and the problem statement was also justified by indicating the gap in the literature, and in policy and practice that the study intended to bridge.

Furthermore, sub-questions and research hypotheses were present to delimit the scope of the study. Thereafter, the significance of the study was discussed along with the assumptions underpinning it. The chapter also discussed the research philosophy, design and methodology, delimitation of the study, and definition of critical concepts. It concluded by presenting the organisation of the other chapters.

Chapter 2: A review of the related literature was thoroughly discussed. This was grouped into three phases, a theoretical review, the conceptual framework, and an empirical review of the study. The theoretical review underlying the study centred on the social constructionist view of Lev Vygotsky, social-cultural theory, and distributed leadership. The literature review was structured to establish the need to study teacher leadership skills and how technology, gender, and school culture influence teachers' pedagogical leadership in classroom assessment practices, along with the related challenges teachers confront in this regard. The review indicated that teacher leadership is of immense value for study, both in Ghana and worldwide.

The researcher concluded the review by justifying the need to integrate assessment and pedagogical leadership as one construct called pedagogical assessment leadership.

Chapter 3: This chapter described the methodology that guided the study. The guiding philosophy was thoroughly discussed by touching on the epistemology, axiology, and

ontology of various research paradigms whilst justifying the pragmatist philosophical assumption, which was selected to combine positivist and interpretive approaches in an abductive stance.

The pragmatist philosophical assumption also guided the use of the mixed-methods approach and the subsequent selection of the concurrent triangulation mixed-methods design for the study. The use of a descriptive survey for the quantitative phase and interviews for the qualitative phase were also discussed and justified. The multi-stage sampling technique used in the study was also justified the adoption of the concurrent triangulation mixed-methods design.

Furthermore, the instruments used in the study were explained as was how the pilot testing was accomplished before the primary data gathering occurred. The instruments utilised in the study to collect data were a questionnaire and semi-structured interviews. This chapter indicated how permission was sought from and granted by the participants and authorities relevant to the study and how the ethical issues were managed. Furthermore, data analysis and procedures for both the qualitative and quantitative phases were discussed thoroughly, and the chapter closed with a summary of its content.

Chapter 4: The chapter illustrated the quantitative results and the qualitative findings. It began with an introduction where research questions and the hypotheses were stated before the statistical analysis was performed. The chapter was grouped into three phases, the quantitative, qualitative, and data integration, which covered both quantitative and qualitative datasets.

Chapter 5: The chapter discussed the findings and results presented in the preceding chapter. This discussion was tailored to align with the research questions and hypotheses, using relevant literature sources, presented mainly in the second chapter, to support or reject the findings or results of the study. Relevant implications and explanations were also offered to enrich the discussion chapter and to draw sound conclusions and recommendations.

Chapter 6: The last chapter presents this summary, and the conclusion, implications, contribution to knowledge, limitations, and recommendations of the study. It began with the summary phase, covering quantitative and qualitative results and findings. Conclusions are subsequently drawn regarding the research questions and research hypotheses. The implications of the findings and results are discussed in line with theory, practice, and policy. Thereafter, the contribution to knowledge and recommendations are presented in line with various research questions and hypotheses. Lastly, the limitation of the study and suggestions for further research are presented.

6.2.3 Summary of quantitative data

This section presents an overview of the quantitative data, categorised into questions and hypotheses.

6.2.3.1 Summary of the research questions

To what degree are early childhood teachers skilful in their classroom assessment literacy skills and pedagogical assessment leadership practice? The results indicated that the teachers reported having some limited assessment literacy and pedagogical assessment leadership literacy skills, with an average score of $M = 3.10$ and $SD = 0.74$; $M = 3.11$ and $SD = 0.76$ respectively.

6.2.3.2 Summary of the research hypotheses

In sub-section 4.7, the researcher presented the four hypotheses tested in the study. Based on the purpose of the study, the following hypotheses were formulated to guide the study:

- Ho1: There is no statistically significant positive influence of teachers' classroom assessment literacy practices on their pedagogical assessment leadership practices.
- Ha1: There is a statistically significant positive influence of teachers' classroom assessment literacy practices on their pedagogical assessment leadership practices.
- Ho2: There is no statistically significant positive influence of technology on the

teachers' pedagogical assessment leadership practice.

- Ha2: There is a statistically significant positive influence of technology on the teachers' pedagogical assessment leadership practice.
- Ho3: There is no statistically significant positive influence of teachers' school culture on their pedagogical assessment leadership practices.
- Ha3: There is a statistically significant positive influence of teachers' school culture on their pedagogical assessment leadership practices.
- Ho4: There is no statistically significant influence teachers' gender on their pedagogical assessment leadership practices.
- Ha4: There is a statistically significant influence of teachers' gender on their pedagogical assessment leadership practices.

The SEM results revealed that teachers' classroom assessment literacy practices had the most significant positive effect on pedagogical assessment leadership ($\beta = 0.510$, p -value = 0.000), supporting hypothesis H1. This result signifies a significant positive relationship between teachers' classroom assessment literacy practice and pedagogical assessment leadership. Similarly, the SEM results showed a significant positive influence between the technology teachers use in classroom assessment and pedagogical assessment leadership practice ($\beta = 0.089$, p -value = 0.01). Thus, H2 was supported. This implies that the earlier early childhood teachers adopt technologies in their classroom assessment, the more they improve their pedagogical assessment leadership skills.

The results also showed that school culture had an insignificant positive influence on teachers' pedagogical assessment leadership practice ($\beta = 0.023$, p -value = 0.514); hence, H3 was not supported. The results suggest that the culture of schools in which early childhood teachers teach does not necessarily influence their level of pedagogical assessment leadership practices.

The results indicated that male early childhood care and development teachers have a higher level of pedagogical assessment leadership than their female counterparts. Likewise, the results confirmed an influence between male teachers' pedagogical assessment leadership and female teachers' pedagogical assessment leadership, though it was not significant ($\beta = 0.035$, $p\text{-value} = 0.306$). Thus, hypothesis Ha4 was supported.

6.2.4 Summary of qualitative data

Ten participants were interviewed, comprising five females and five males. The analysis of the interview data began with the interviewees' socio-demographic data. This section summarises the themes from the qualitative data gathered by means of semi-structured interviews (see Appendix G). Six significant themes emerged, as follows:

- Teachers' classroom assessment and pedagogical leadership roles, practices, and responsibilities.
- Teachers' conceptualisation of pedagogical assessment leadership and assessment literacy practices and skills.
- Challenges relating to early childhood teachers' lack of capacity, resources, and resistance to change including policy changes in answer to research question 3.
- The influence of technology on teachers' pedagogical and assessment leadership practices and the challenges related to this.
- The influence of school culture on teachers' pedagogical and assessment leadership practices.
- The influence of gender on teachers' pedagogical and assessment leadership practices.

6.3 CONCLUSION

This section presents the conclusion of the study. The conclusion is based on the research questions of the study. Quantitative and qualitative findings were combined and synthesised to ensure a concise and narrative conclusion for each research question. The researcher was able to answer the research questions; the results are presented below.

6.3.1 Teachers' classroom assessment and pedagogical leadership roles, practices, and responsibilities emerged as the themes of the qualitative phase in relation to the first research question

The quantitative phase rather answered the question: to what degree are the early childhood teachers skilful in assessment literacy and in pedagogical assessment leadership practices? Having integrated the qualitative findings and the quantitative results relating to this research question, the researcher can state that the teachers in this study perceived themselves as having limited assessment and leadership literacy skills and practices, much as they accepted their numerous roles and responsibilities as pedagogical assessment leaders. They preferred not being totally ignorant and rather welcomed more training sessions and education to update their knowledge of these required skill sets. The teachers in this study are capable of assuming their expected pedagogical leadership roles in classroom assessment practices. They have limited leadership and assessment literacy skills but are not totally ignorant and as such feel the need to be adequately informed.

6.3.2 Teachers' conceptualisations of pedagogical assessment leadership and their assessment literacy skills and practices

The qualitative question concerned how one would conceptualise pedagogical leadership in classroom assessment practices, which resulted in the above theme. The SEM results for the quantitative component also revealed that teachers' classroom assessment literacy practices had the most substantial significant positive effect on their pedagogical assessment leadership practices.

Following from the integration of the findings of both datasets, the study concludes that the teachers' literacy skills enabled them to conceptualise the newly coined construct, pedagogical assessment leadership, in the Ghanaian context as the "process of leading and teaching, whilst improving learning and assessment in the classroom and beyond in a collaborative manner." That is, early childhood teachers in Ghana can conceptualise and contextualise pedagogical assessment leadership skills and practices.

6.3.3 The influence of technology on teachers' pedagogical and assessment leadership practices and the related challenges

The qualitative research question sought to discover the challenges that the teachers face as pedagogical assessment leaders in relation to technology use. The themes that emerged were a lack of technological training and assessment resources, resistance to change, frequent policy change, and the high cost of technology. The quantitative hypothesis also established a strong positive influence of technology used in classroom assessment by the teachers on their pedagogical assessment practices. The conclusion is that technology application in classroom assessment practices guides and influences teachers' pedagogical leadership practices. This also implies that it takes effective teacher leadership initiative to apply and use the appropriate technology to promote learning and assessment in school while reducing the numerous associated barriers, such as a lack of capacity and resources and resistance to change including with policy changes.

6.3. The influence of school culture on teachers' pedagogical leadership practices and skills

The third hypothesis sought to establish influence school culture on teachers' pedagogical leadership practices. The qualitative aspect also dealt with how school culture influences teachers' pedagogical leadership practices in classroom assessment. The quantitative result suggested that the culture of schools in which early childhood teachers teach does not positively influence their pedagogical assessment leadership practices. School culture as involving the fear of being perceived as all-knowing, wrong labelling, and negative attitudes and perceptions in the teachers emerged from of the qualitative dataset.

The conclusion, therefore, is that there may be a culture of fear and silence in the selected schools in this study which does not promote leadership being horizontally distributed pedagogically in their classroom assessment practices. An urgent intervention is therefore warranted in the schools to ensure that the school culture is enabling, stimulating, facilitating, and inviting in order to foster positive collaboration among teachers to lead pedagogically.

6.3.5 The influence of gender on teachers' pedagogical and assessment leadership practices and skills

The fourth hypothesis sought to establish significant influence of gender groups in the quantitative phase. The qualitative aspect of the study also intended to ascertain how gender influences pedagogical leadership practices in classroom assessment. The results indicated that male early childhood teachers have better pedagogical assessment leadership skills or abilities than do their female counterparts. The qualitative dataset also found that male teachers tend to be more task-oriented and hence strict, using masculine strength in their pedagogical leadership roles. Female teachers, on the other hand, rely on lobbying skills to solicit effort and support from their colleagues.

It can be concluded that male teachers in this study pedagogically lead better than the females, even though the males are in the minority in the early childhood setting in Ghana.

6.4 IMPLICATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This section presents the implications of the study. These have been organised into theory, policy, and research practice.

6.4.1 Implications for theory

The review of the related literature on early childhood teachers' pedagogical assessment leadership practices and skills in Ghana was contextualised and conceptualised on the basis of social constructivism and distributed leadership theories. These theories were relevant to this study as they provide a context from which early childhood teachers can socially interact and collaborate whilst distributing leadership horizontally in their assessment practices. The theories also aid understanding of how early childhood teachers use scaffolding, social interaction, and zones of proximal development in leading, teaching, and collaboratively assessing practices.

The implication therefore is that the early childhood teachers ought to socialise and collaborate with one another in order to improve their pedagogical assessment leadership role during classroom teaching and assessment practices.

6.4.2 Implications for policy

The study identified several fundamental challenges associated with the teachers' pedagogical assessment leadership practices and skills. It has been argued that the fundamental challenges found among the early childhood teachers in the study run across all the 350 selected ECE centres in Ghana. Given widespread problems such as a lack of capacity and technology, the high cost of technology, low self-image, and a negative school culture affecting pedagogical practices, policy-makers and other relevant stakeholders in the field of early education ought to generate policy interventions to address the challenges.

Educational stakeholders such as the MoE, GES, UNICEF, the Colleges of Education and the various teacher education universities in Ghana, NTC should collaborate to fashion pedagogical and classroom assessment training programmes for all early childhood teachers in the country. The capacity-building programme should cover pre-service, induction, and continuing professional development in order to update teachers' knowledge and skills in the gap area identified. Policy intervention and mass education are highly recommended to reduce society's negative perceptions, traditions, and cultural discrimination against women.

6.4.3 Implications for research and practice

Since there is a vast difference between gauging teachers' perceptions and actual practice in the field, there is the need to use action research in experimental design to establish early childhood teachers' actual pedagogical assessment leadership practices and skills. This will help the nation explore teachers' actual pedagogical leadership performance against these self-reported practices and skills in classroom assessment.

6.5 CONTRIBUTION TO KNOWLEDGE

The overriding purpose of this study has been to answer the following question: what are the perceptions of the early childhood teachers in Ghana regarding pedagogical assessment leadership skills and practices, and how do assessment literacy, gender, school culture, and technology use influence their leadership practices in classroom assessment, and the challenges relating to these? Social constructivist and distributed leadership theories undergirded the study, whilst using concurrent triangulation mixed-

methods design added to knowledge in methodology and research domains. Lau (2017) recommends that multiple research designs for studying educational phenomena, such as teachers' pedagogical and assessment leadership practices, offer an opportunity to put theory into practice in applied research. This allowed the researcher to solve a real-world problem while contributing to creating new knowledge.

The methodological approach adopted in this study integrated varying methods that collected distinct views from participants in the ECE setting. The contribution made by stakeholders helped to map out strategies to possibly reduce the various barriers that the teachers identified as hindrances to their pedagogical assessment leadership practices and skills.

Furthermore, the study adapted an existing questionnaire to gauge early childhood teachers' pedagogical assessment practices and skills and validated this survey tool. This validated survey tool could be used as a pioneering questionnaire for the study of Ghana's early childhood teachers. This contextualised tool may benefit other researchers in Ghana who undertake similar studies in the early childhood teacher education field.

The novel finding of the study led to its conceptualisation of pedagogical assessment leadership as a new construct to be added to the literature on the global stage, with Ghana as a reference point. Early childhood teachers in Ghana define pedagogical assessment leadership in the Ghanaian context as the "process of leading and teaching, whilst improving learning and assessment in the classroom and beyond in a collaborative manner."

Overall, it emerged that the concept pedagogical assessment leadership is a relatively new concept to the early childhood teachers in the Ghanaian context. As such its implementation is at its infant stage. The study also emerged that gender, technology use, assessment literacy influence teachers' pedagogical assessment leadership practices but not that of the school culture. They also face related attitudinal, logistical and cultural challenges in their line of duty as pedagogical assessment leaders in the Ghanaian context.

6.6 RECOMMENDATIONS

This section presents recommendations based on the findings and results of the study.

6.6.1 Recommendation 1: Vigorous teacher education and training programmes should be implemented in Ghana at pre-service, induction, and continuing professional development levels.

The qualitative finding and that of the quantitative result relating to research question 1 and hypothesis 1, was that the teachers in this study perceived themselves as having limited assessment and leadership literacy skills and practices, much as they accepted their numerous roles and responsibilities as pedagogical assessment leaders. They accepted not being totally ignorant of pedagogical leadership in classroom assessment practices.

Aggressive teacher education programmes on pedagogical assessment leadership practices should be formulated to update and upgrade the teachers' knowledge and skillsets for these constructs and practices. This should be undertaken at all three levels of teacher education and development – pre-service, induction, and continuing professional development – more training and education to update their knowledge of these required skill sets is needed.

6.6.2 Recommendation 2: Professional community opportunities should be provided to assist teachers in developing more profound and advanced knowledge and understanding in order for them to function effectively as pedagogical assessment leaders, with an emphasis on the need to integrated assessment and pedagogical leadership.

The early childhood teachers reported having limited literacies in leadership and classroom assessment; yet, they were somehow capable of conceptualising and contextualising pedagogical assessment leadership skills and practices. As regards the above recommendation, teachers should be provided with the skillsets and knowledge to devise appropriate pedagogical leadership strategies to contextualise their practices whilst collaboratively working with others.

When this is done in a vigorous manner, with school heads distributing leadership through the delegation of duties, teachers will also be able to develop mutual and shared leadership conceptualisations in a contextualised manner.

Teachers and others in education service delivery should also be assisted to perceive integrated pedagogical and assessment leadership as a single concept. When this is accomplished, teachers will understand the need to play their expected dual role as pedagogical assessment leaders and not see these as separate tasks.

6.6.3 Recommendation 3: Ghana Education Service and private school owners ought to provide more capacity-building programmes and sufficient technological resources to the teacher pedagogical leaders.

The qualitative research question sought to determine the nature of the challenges that the teachers face as pedagogical assessment leaders in relation to technology use in their classroom assessment. The themes that emerged were a lack of technological training and assessment resources, and the high cost of technology. The hypothesis in the quantitative phase also establishes a positive influence between the variables.

Given this, there should be a strong influence between the level of technology application in the classroom assessment practices of teachers and in their pedagogical leadership practices. This implies that it takes adequate governmental and stakeholder support that encourages teacher leadership initiative to apply and use the appropriate technology to promote learning and assessment in school while simultaneously reducing the numerous associated barriers, such as a lack of capacity and resources, and resistance to change including policy changes.

6.6.4 Recommendation 4: Socio-cultural and distributed leadership theories should be adapted and applied in the early childhood schools in Ghana through professional learning community sessions.

Findings pertaining to research question 3 and hypothesis 3 suggest that there may be a culture of fear and silence in the schools selected for this study. Such circumstances do not promote leadership being horizontally or pedagogically distributed in classroom assessment practices; urgent intervention is warranted.

The researcher recommends that ECE teachers should be provided with intensive training and education so that they may attain the capacity to execute influential leadership qualities in their teaching profession. The Ministry of Education should also implement a regulation that promotes distributed leadership and reduces the hierarchal form of leadership in schools.

6.6.5 Recommendation 5: More male teachers should be employed in ECE settings, whilst empowerment should be provided to the female teachers to reduce gender inequalities

The fourth hypothesis sought to establish significant influence between the gender in the quantitative phase. The results indicated that male early childhood teachers have higher level of pedagogical assessment leadership than do their female counterparts. The qualitative aspect of the study also intended to determine how gender influences pedagogical leadership practices in classroom assessment.

It is recommended that all forms of harmful socio-cultural practices that decrease female teacher self-confidence and their willingness to innovate and initiate processes of leading pedagogically be given priority as an advocacy tool to bridge the gap between men and women. Stiffer punishment therefore ought to be instituted by the education regulatory authorities against people who discriminate against female pedagogical leaders. Again, whilst targeted strategies encourage more female participation, men with an equitable and benevolent orientation towards gender should also be employed to model the way for the female teachers to acquire more leadership qualities. The entire school culture should therefore encourage female teachers to take on roles as pedagogical assessment leaders as the school culture also do away with its negative discrimination against female school leaders.

6.7 SUGGESTIONS FOR FURTHER RESEARCH

The researcher believes that using action research in the form of an experimental design in order to establish early childhood teachers' actual pedagogical assessment leadership practices and skills is an ideal suggestion for further research. Such experimental research should involve both experimental and control groups in order to control for possible confounding variables. This will help the nation explore teachers'

actual pedagogical leadership performance as against the self-reported practices and skills relating to classroom assessment that were explored in this study.

6.8 LIMITATIONS OF THE STUDY

Limitations may constrain the study from being completed as scheduled (Creswell & Creswell, 2018). Some limitations were evident with this mixed-methods study. First, there were methodological limitations relating to the selection of the sample size for the qualitative phase and to the actual locations studied. The study obtained data from 350 private and public ECE schools, though these were selected from only one metropolitan city in Ghana. For this reason, the findings and results cannot be safely generalised to all ECEs schools in the city of Kumasi in Ghana, West Africa. However, data triangulation in the course of the use of two different data collection tools guaranteed some limited generalisability and credibility of the findings and results of the study.

Furthermore, the seeming lack of relevant and related literature on pedagogical and assessment literature, especially in Ghana – and the African continent as a whole – meant that the literature used applied mainly to foreign contexts, which may be considered a limitation. Concerted efforts were made to access some of the few closely related local literature materials to juxtapose them with the international sources to provide a necessary blend for a proper literature review to undertaken. Despite these such limitations, it can be concluded that the right choice was made to employ the concurrent triangulation design within the mixed-methods approach. It appropriately addressed the relevant research questions and hypotheses in order to explore ECE teachers' pedagogical assessment leadership practices and skills in Ghana.

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APPENDICES

APPENDIX A: PERMISSION LETTER TO THE METRO DIRECTOR OF EDUCATION



The Director
Ghana Education Service
Kumasi Metro Education
P.O. Box 1906
Kumasi- Ghana

Dear Sir/Madam,

Request for permission to conduct research in the Metro

I am **Kotor Asare** by name and currently enrolled at the University of South Africa for a Doctor of Philosophy in Education. Your metropolis has been selected in my research study as I consider it capable to provide the most valuable data for my study. The topic of my PHD study is titled: *Early Childhood Teachers' Pedagogical Assessment Leadership Practices and Skills in Ghana.*

The study aspires to use an extensive review of related literature and subsequent field work to explore, confirm, compare and understand this important question: what are Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership in classroom observation and documentation practices, likewise the influence of assessment literacy, gender, school culture, and technology leadership in their classroom pedagogical assessment leadership skills and practices, regarding the children learning outcomes? The study is supervised by Prof. S. Krog from the University of South Africa.

I kindly request permission for me to do the data collection within your metropolis. The research entails low risk. The early childhood teachers, who form part of this study, will be required to answer a questionnaire, and 10 will be selected to participate in an interview. The interviewees will be audio-taped and this will be transcribed. Data captured from the questionnaires, interviews and written notes of the researcher and the early childhood teachers will be used for this study. Interviews with the early childhood teachers will be conducted by me for about 30 minutes and audio-taped to facilitate collection of accurate

information.

Anonymity and confidentiality will be always adhered to. The participants will take part in the study at their own free will. No school instructional hours will be lost during the study as the interviews will be conducted after school's hours. The questionnaires will be distributed to the participants via email or in hard copy.

All participation is voluntary and participants in the study may withdraw from the study at any timewithout penalties. Any information obtained in the collection of this study will only be used for my PHD degree and excerpts of the interviews, field notes and audio recordings may be made part ofthe final research report, but under no circumstances will the schools' name or individuals be includedin the report.

A copy of the formal findings of the research project can be made available to you upon your request. Participants also have the right to request that any data can be withdrawn from the study after having provided it. I look forward to your positive response. Please do not hesitate to contact me if you have any questions about this humble request.

Yours sincerely



Mr Kotor Asare (Ph.D.

Student)Contact

Number: 0244725604

Contact Email: 66091012@mylife.unisa.ac.za



Supervisor: Prof. S. Krog

Email: Krogs@unisa.ac.za

-

APPENDIX B: PERMISSION LETTER TO THE KUMASI METRO EARLY CHILDHOOD COORDINATOR



The Early Childhood Coordinator
Ghana Education Service
Kumasi Metro Education
P.O.Box 1906
Kumasi Ghana

Dear Early Childhood Coordinator,

Request for permission to conduct research

I am **Kotor Asare** by name and currently enrolled at the University of South Africa for a Doctor of Philosophy in Education. Your metropolis has been selected in my research study as I consider it a information rich metropolis to provide the most valuable data for my study. The topic of my PHD study is titled: *Early Childhood Teachers' Pedagogical Assessment Leadership Practices and Skills in Ghana.*

The study aspires to use an extensive review of related literature and subsequent field work to explore, confirm, compare and understand this important question: what are Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership in classroom observation and documentation practices, likewise the influence of assessment literacy, gender, school culture, and technology leadership in their classroom pedagogical assessment leadership skills and practices, regarding the children learning outcomes? The study is supervised by Prof. S. Krog from the University of South Africa.

I kindly request permission for me to do the data collection within your metropolis. The research entails low risk. The early childhood teachers, who form part of this study, will be required to answer a questionnaire, and 10 will be selected to participate in an interview. The interviewees will be audio- taped and transcribed. Data captured from the questionnaires, interviews and written notes of the researcher and the early childhood teachers will be used for this study. Interviews with the early childhood teachers will be conducted by me for about 30 minutes and audio-taped to facilitate

collection of accurate information.

Anonymity and confidentiality will be always adhered to. The participants will take part in the study at their own free will. No school instructional hours will be lost during the study as the interviews will be conducted after school's hours. The questionnaires will be distributed to the participants via email or in hard copy. All participation is voluntary and participants in the study may withdraw from the study at any time without penalties. Any information obtained in the collection of this study will only be used for my PHD degree and excerpts of the interviews, field notes and audio recordings may be made part of the final research report, but under no circumstances will the schools' name or individuals be included in the report.

A copy of the formal findings of the research project can be made available to you in an electronic format upon your request. Participants also have the right to request that any data can be withdrawn from the study after having provided it. I look forward to your positive response. Please do not hesitate to contact me if you have any questions about this humble request.

Yours sincerely



Mr Kotor Asare (Ph.D.

Student) Contact

Number: 0244725604

Contact Email: 66091012@mylife.unisa.ac.za



Supervisor: Prof S Krog

Email: krogs@unisa.ac.za

APPENDIX C: PERMISSION LETTER TO THE HEAD TEACHER OF EARLY CHILDHOOD SCHOOL



The Head Teacher
Early Childhood School

Dear Head Teacher,

Request for permission to conduct research in your school

I am **Kotor Asare** by name and currently enrolled at the University of South Africa for a Doctor of Philosophy in Education. Your metropolis has been selected in my research study as I consider it capable to provide the most valuable data for my study. The topic of my PHD study is titled: **Early Childhood Teachers' Pedagogical Assessment Leadership Practices and Skills in Ghana.**

The study aspires to use an extensive review of related literature and subsequent field work to explore, confirm, compare and understand this important question: what are Ghanaian early childhood teachers' perceptions of pedagogical assessment leadership in classroom observation and documentation practices, likewise the influence of assessment literacy, gender, school culture, and technology leadership in their classroom pedagogical assessment leadership skills and practices, regarding the children learning outcomes? The study is supervised by Prof. S. Krog from the University of South Africa.

I kindly request permission for me to do the data collection within your school. The research entails low risk. The early childhood teachers, who form part of this study, will be required to answer questionnaire, and participate in an interview. The interviewees will be audio-taped and transcribed.

Data captured from the questionnaires, interviews and written notes of the researcher and the early childhood teachers will be used for this study.

Interviews with the early childhood teachers will be conducted by me for about 30 minutes and audio-taped to facilitate collection of accurate information.

Anonymity and confidentiality will be always adhered to. The participants will take part in the study at their own free will. No school instructional hours will be lost during the study as the interviews will be conducted after school's hours. The questionnaires will be distributed to the participants via email or in hard copy. All participation is voluntary and participants in the study may withdraw from the study at any time without penalties. Any information obtained in the collection of this study will only be used for my PHD degree and excerpts of the interviews, field notes and audio recordings may be made part of the final research report, but under no circumstances will the schools' name or individuals be included in the report.

A copy of the formal findings of the research project can be made available to you upon your request. Participants also have the right to request that any data can be withdrawn from the study after having provided it. I look forward to your positive response. Please do not hesitate to contact me if you have any questions about this humble request.

Yours sincerely,



Mr Kotor Asare (Ph.D. Candidate)

Contact Number: 0244725604

Contact Email: 66091012@mylife.unisa.ac.za



Supervisor: Prof S Krog
Email: Krogs@unisa.ac.za

Consent granted

I,the head teacher of the
hereby give permission to the researcher to include the Early Childhood
School in the
study.

Head Teacher: _____

DATE _____

APPENDIX D: ETHICAL CLEARANCE CERTIFICATE



UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date:22/02/09

Ref: **2022/03/09/66091012/17/AM**

Name: Mr K ASARE

Student No.: 66091012

Dear Mr K ASARE

Decision: Ethics Approval
from 2022/03/09 to 2027/03/09

Researcher(s): Name: Mr K ASARE
E-mail address:
66091012@mylife.unisa.ac.za Telephone:
+233244725604

Supervisor(s): Name: Prof S Krog
E-mail address: krogs@unisa.ac.za
Telephone: 012 4294461

Title of research:

**EARLY CHILDHOOD TEACHERS' PEDAGOGICAL ASSESSMENT LEADERSHIP
PRACTICES AND SKILLS IN GHANA**

Qualification: PhD Early Childhood Development

*The **low risk** application was reviewed by the Ethics Review Committee on 2022/03/09 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics attached.
2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.



4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
8. No field work activities may continue after the expiry date **2027/03/09**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above-mentioned research.

Ethics approval is granted for the period 2022/03/09 to 2027/03/09.

Note:

*The reference number **2022/03/09/66091012/17/AM** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Kind regards,

Prof AT Motlhabane
CHAIRPERSON: CEDU RERC
motlhat@unisa.ac.za

Prof Mpine Makoe
ACTING EXECUTIVE DEAN
qakisme@unisa.ac.za

Approved - decision template – updated 16 Feb 2017

APPENDIX E: LETTER OF PERMISSION FROM GES TO THE ECE SCHOOLS
GHANA EDUCATION SERVICE

Tel: 0208364857/0244149522
Email: ges.suamemunicipal@gmail.com



SUAME MUNICIPAL EDUCATION OFFICE
POST OFFICE BOX 2900 – SUAME
GhanaPostGPS:AK-086-2424
ASHANTI

In case of reply the number
and date of this letter
should be quoted

REPUBLIC OF GHANA

Our Ref No: GES/ASH/SMEO/ANL./VOL.1/PO21
Your ref:

DATE: 25th April, 2022

ALL HEADS OF PUBLIC BASIC SCHOOLS IN THE MUNICIPALITIES

DATA COLLECTION IN YOUR SCHOOL FOR RESEARCH PURPOSE

I write to notify that management of the education directorate has given approval to **Mr. Kotor Asare**, a Ph.D. candidate of Department of Early Childhood Development of the University of South Africa to gather data from the early childhood teachers in the municipalities within the metropolis for the conduct of his Ph.D. thesis. He is working on the topic; **Early Childhood teachers' Pedagogical Assessment Leadership Skills and Practices in Ghana.**

The data collection methods are semi-structured interview and the filling of an online monkey survey questionnaire. This exercise is expected to take place in May, 2022. However, the data collection ought to be carried after the instructional hours, in order not to interfere with their teaching duties. All teachers to be sampled are encouraged to avail themselves for such exercise, whilst adhering the covid-19 protocol to stay safe.

I am relying on your usual cooperation for a successful data collection exercise. Thank you.

A handwritten signature in blue ink, appearing to read 'Anthony Anyamesem-Poku'.

PASTOR DR. ANTHONY ANYAMESEM-POKU
MUNICIPAL DIRECTOR OF EDUCATION, SUAME

APPENDIX F: QUESTIONNAIRE GUIDE FOR EARLY CHILDHOOD TEACHERS

TPALSPCAS Questionnaire

Informed consent form

Study title: *Early Childhood Teachers' Pedagogical Assessment Leadership Practices and Skills in Ghana*

Purpose of study: the study aims at exploring Early Childhood Teachers' Pedagogical Assessment Leadership Practices and Skills in Ghana.

Before you agree to participate in this study, it is important that you read and understand the information provided in the informed consent form. If you have any questions, please ask the researcher for clarification using this whatsapp phone number (0244725604).

How many people will take part in the study? It is estimated that 500 participants will be involved in this study.

How long will I be in the study? The guided questionnaire protocol will approximately take 30- 45minutes to complete.

What are the risks involved in part-taking in this study? The risks are considered minimal., if any at all. If you experience any emotional discomfort during or after participating, please let the researcher know and will provide you with local mental resources.

What are the benefits for taking part in this study? There may be no immediate benefits to you personally for participating in this study. However, some participants in this study may benefit from an increase in self-awareness. You will also be offered upon request, a little amount of internet data or airtime as a gift for participating in the study.

What about confidentiality and protection? Study-related records will be held in confidence. The information you provide will be kept strictly confidential. Participants names will not be collected in order to protect and hide the identity of individuals. The results of this study may be published in a thesis format and subsequently in journals, books, and presentations.

Participation in the study is voluntary: You are free to decline to participate or to withdraw from this study at any time, either during or after your participation, without negative consequences. The researcher is also free to terminate the study at any time.

I consent to participate in this study.

Yes:

No:

I agree to the use of my data for research in the present and future studies.

Yes:

No:

Signature:

Date:.....

Please respond to all the questions as truly as possible. Tick [√] the appropriate box for your correct responses.

Section A- Personal information

1. Age.....

2. Gender

a) Male { }

b) Female { }

c) Other.....

3. Highest educational qualification attained

a) Middle School Leaving Cert. { }

b) S.S. S. C. E / WASSCE { }

c) Certificate in Pre-school Education { }

d) Teacher's Cert. 'A' { }

e) Diploma in Basic Education { }

f) Diploma in Early Childhood Care & Development { }

g) B.Ed in Early Childhood Care & Development { }

h) Master's Degree (e.g. MA, M.Sc, M.Ed, M.Phil in ECE) { }

i) Others Please specify

4. In which type of institution are you teaching?

a) Private { }

b) Public { }

5. How many years have you been teaching at the kindergarten level?

.....

6. How is your school classified by MOE?

a) High { }

b) Low { }

7. Where is the school located?

a) Urban centre { }

b) Rural centre { }

Section B: Pedagogical Assessment leadership Literacy Skills

Directions: This contains 10 items that address issues of pedagogical leadership assessment of ECE teachers regarding, students learning outcomes. For each item, please indicate how often you lead skilfully, in the various assessment practices, using these rating scales. The rating scales defined as follows:

Skill scale: 1 = not at all skilled, 2 = a little skilled, 3 = somewhat skilled, 4 = skilled, 5 = very skilled Please, place a tick (√) in the appropriate box to indicate the extent to which you agree or disagree with the following statements using the following scale:

No	Pedagogical Assessment Leadership Literacy Skills (PALLS)	Not at all skilled	A little skilled	Somewhat skilled	Skilled	Very skilled
8	Appreciating current information, resources and principles governing assessment practices					
9	Appreciating and recognizing that children work is an indicator of what they know, value and can do					
10	Gauging levels of pedagogical assessment literacy, among teaching professionals in my ECE centre					
11	Exhibiting the knowledge and ability to adequately determine the standards of existing assessment practices in the classroom of my school					
12	Conducting continuing critical examination of my own pedagogical assessment leadership literacy-skills					
13	Differentiating instruction and developmentally assessment practices to meet individual needs					
14	Using professional resources and ICT tools in classroom assessment practices					

Section C: Teachers' classroom assessment practices and skills

Directions: This contains 19 items that address issues of the self-perceived assessment skills of ECE teachers, regarding their classroom observation and documentation practices on student learning outcomes. For each item, please indicate how often, the various assessment practices are demonstrated, using these rating scales. The rating scale is defined as follows:

Practice scale: 1 = never, 2 = seldom, 3 = occasionally, 4 = frequently, and 5 = very often

No	Teachers' Classroom Assessment Practices (TCAP)	Never	Seldom	Occasionally	Frequently	Very often
15	Collect multiple forms of children-assessment data in a developmentally appropriate manner					
16	Adjust instruction based on outcomes from children assessment data					
17	Mindful of the validity and reliability of the assessment tools					
18	Design, use and encourage others to also employ time sampling to document children learning outcomes					
19	Design, use and advocate the use of sociogram to observe or document children learning outcomes					
20	Design, use and encourage others to also employ anecdotal records to document children learning outcomes					
21	Design, use and advocate the use of differentiated teacher-made-pencil-and-paper-test to observe or document children learning outcomes					
22	Design, use and advocate the use of class appreciation to observe or document children learning outcomes					
23	Provide oral feedback to document children learning outcomes					
24	Communicate classroom assessment results to students, teachers and parents as part of the observation or documentation of children learning outcomes					
25	Avoid teaching to test when preparing children for test					

26	Recognize unethical, illegal, or otherwise inappropriate assessment use of assessment information for decision making					
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Section D: Teachers' classroom observation and documentation involving technology Directions:

This contains 10 items that address how ECE teachers use ICT tool, regarding their classroom observation and documentation practices on student learning outcomes. For each item, please indicate how the ICT tools are used, involving these rating scales. The rating scale is defined as follows: Practice scale: 1 = never, 2 = seldom, 3 = occasionally, 4 = frequently, and 5 = very often

No	Technology use in classroom observation and documentation	Never	Seldom	Occasionally	Frequently	Very often
27	ICT tools to collect, observe, measure, evaluate, document, store and retrieve children learning outcomes in schools					
28	ICT tools to improve and support pedagogical leadership literacy skills					
29	ICT tools to document, share and reflect on children learning outcomes in schools					
30	ICT tools to support and communicate critical reflection by children, teachers and family					
31	ICT tools to build or strengthen networks and collaboration between early childhood centres and teachers					
32	ICT tools to support planning, administration and information management as that of the classroom assessment practices of teachers					
33	ICT tools to create and main electronic portfolios, documentation and databases within early childhood classroom					

	assessment process					
34	ICT tools to support ECE teachers continuing professional development in assessment leadership practices and skills					
35	ICT tools to advocate and enhance differentiated instruction and classroom assessment to meet individuals needs					
36	ICT tools to advocate and enhance multiple classroom assessment methods and data to meet individuals needs					

Section E: Culture in the ECE schools

School culture scale: 1 = never, 2 = seldom, 3 = occasionally, 4 = frequently, and 5 = very often

No	School Culture and Climate (SSC)	Never	Seldom	Occasionally	Frequently	Very often
37	The school provides flexible schedule, routine and ritual to foster professional leadership development in classroom assessment					
38	School policy builds and sustains relationships among staff					
39	School centre or positional leadership fosters positive workplace collaborations and/or conducive climate among staff					

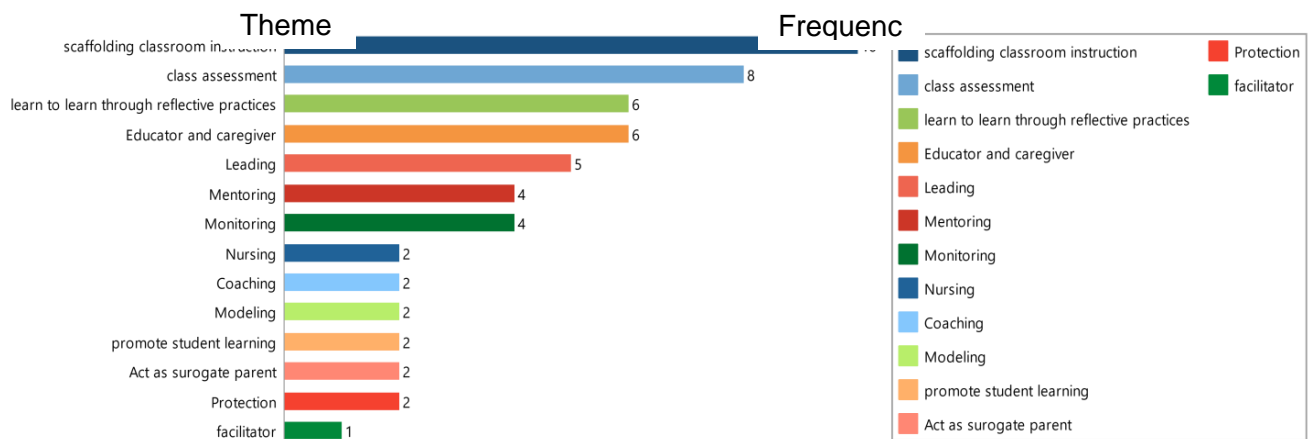
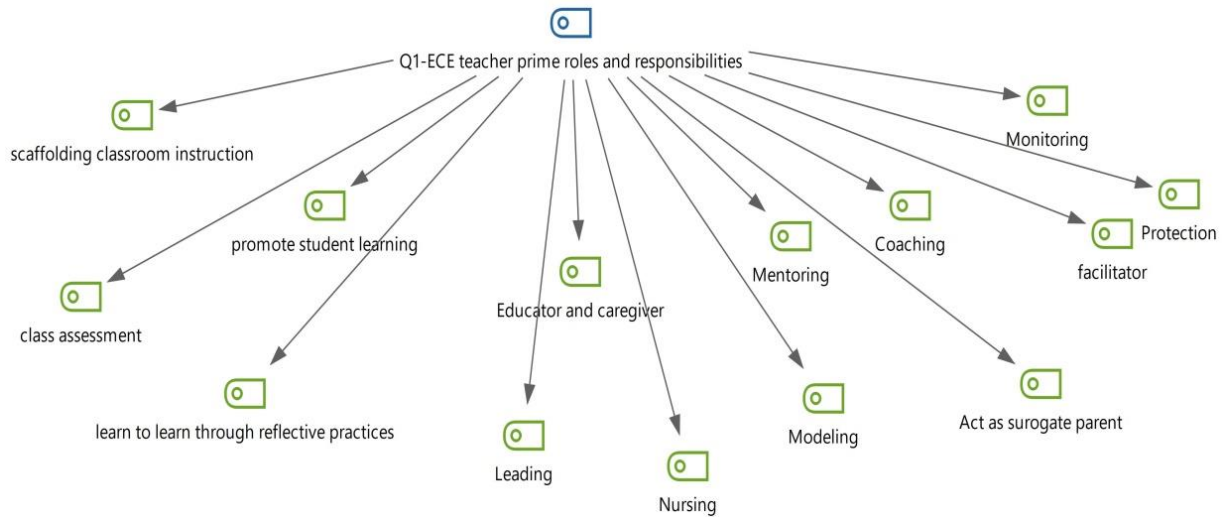
40	School policy ensures effective communication that helps teachers to share ideas and avoid conflicts					
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Thank you for completing this questionnaire.

APPENDIX G: INTERVIEW PROTOCOL GUIDE FOR EARLY CHILDHOOD TEACHERS

1. As a classroom teacher in the ECE setting, what are your prime roles and responsibilities?
2. It is often said that every teacher is a leader. How do you agree with this statement?
3. In your opinion, who is an educational leader?
4. In the literature of educational leadership, there could be positional or hierarchical leadership and teacher leadership. In your opinion, who is a teacher leader?
5. What might be the roles and duties of a teacher leader in the ECE setting?
6. As a teacher in the ECE setting, you might be familiar with concepts such as curriculum, assessment, leadership and pedagogy. In a simple sentence, how will you explain the concepts pedagogy and leadership?
7. Now that you do understand these concepts, how will you explain pedagogical leadership?
8. What is assessment in an early childhood education setting?
9. Who is an assessment leader?
10. How would you explain assessment leadership as a concept?
11. How would you describe pedagogical assessment leadership?
12. How does your gender as a male or female influence your pedagogical assessment practices and skills?
13. Can you please share with me the possible challenges that, the pedagogical assessment leaders are likely to face in their documentation and observation practices in the ECE settings

APPENDIX H: AN OUTPUT FROM THE QIQA DATA MINING SOFTWARE



APPENDIX I: OUTPUT OF TPALPCAS SURVEY MONKEY GOOGLE FORM

KEY

PALLS - Pedagogical Assessment Leadership Literacy Skills

TCAPS - Teachers' Classroom Assessment Practices

TCOD - Technology use in Classroom Observation and Documentation

PALLS 1 - [Appreciating current information, resources and principles governing assessment practices]

PALLS 2 - [Appreciating and recognizing that children work is an indicator of what they know, value and can do]

PALLS 3 - [Gauging levels of pedagogical assessment literacy, among teaching professionals in my ECE centre]

PALLS 4 - [Exhibiting the knowledge and ability to adequately determine the standards of existing assessment practices in the classroom of my school]

PALLS 5 - [Conducting continuing critical examination of my own pedagogical assessment leadership literacy-skills]

PALLS 6 - [Differentiating instruction and developmentally assessment practices to meet individual needs]

PALLS 7 - [Using professional resources and ICT tools in classroom assessment practices]

TCAPS 1 - [Collect multiple forms of children-assessment data in a developmentally appropriate manner]

TCAPS 2 - [Adjust instruction based on outcomes from children assessment data]

TCAPS 3 - [Mindful of the validity and reliability of the assessment tools]

TCAPS 4 - [Design, use and encourage others to also employ time sampling to document children learning outcomes]

TCAPS 5 - [Design, use and advocate the use of sociogram to observe or document children learning outcomes]

TCAPS 6 - [Design, use and encourage others to also employ anecdotal records to document

- TCAPS 7** - [Design, use and advocate the use of differentiated teacher-made-pencil-and paper-test to observe or document children learning outcomes]
- TCAPS 8** - [Design, use and advocate the use of class appreciation to observe or document children learning outcomes]
- TCAPS 9** - [Provide oral feedback to document children learning outcomes]
- TCAPS 10** - [Communicate classroom assessment results to students, teachers and parents as part of the observation or documentation of children learning outcomes]
- TCAPS 11** - [Avoid teaching to test when preparing children for test]
- TCAPS 12** - [Recognize unethical, illegal, or otherwise inappropriate assessment use of assessment information for decision making]
-
- TCOD 1** - [ICT tools to collect, observe, measure, evaluate, document, store and retrieve children learning outcomes in schools]
- TCOD 2** - [ICT tools to improve and support pedagogical leadership literacy skills]
- TCOD 3** - [ICT tools to document, share and reflect on children learning outcomes in schools]
- TCOD 4** - [ICT tools to support and communicate critical reflection by children, teachers and family]
- TCOD 5** - [ICT tools to build or strengthen networks and collaboration between early childhood centres and teachers]
- TCOD 6** - [ICT tools to support planning, administration and information management as that of the classroom assessment practices of teachers]
- TCOD 7** - [ICT tools to create and main electronic portfolios, documentation and databases within early childhood classroom assessment process]
- TCOD 8** - [ICT tools to support ECE teachers continuing professional development in assessment leadership practices and skills]
- TCOD 9** - [ICT tools to advocate and enhance differentiated instruction and classroom assessment to meet individuals needs]
- TCOD 10** - [ICT tools to advocate and enhance multiple classroom assessment methods and data to meet individuals needs]

APPENDIX J: SAMPLE SIZE CALCULATION USING YAMANE (1967) FORMULA

Yamane (1967) offers a simplified formula to calculate sample sizes. This formula was employed to determine the sample sizes in this study. A 95% confidence level and $P = .5$ were assumed for the equation below.

$$n = \frac{N}{1 + N(e)^2}$$

Determination of sample covering a population of 820 for the public-school ECE teachers.

$$= \frac{820}{1 + 820(0.05^2)}$$
$$= 269$$

Determination of sample covering a population of 1222 for the private school ECE teachers.

$$n = \frac{1222}{1 + 1222(0.05^2)}$$
$$= 301$$

APPENDIX K: SOCIO-DEMOGRAPHIC PROFILE OF PARTICIPANTS WHO WERE INTERVIEWED

Participants	Educational Background	Gender	Teaching experience
Teacher A	M.Phil. ECE / B.Ed. ECE	M	20
Teacher B	B.Ed. ECE	F	18
Teacher C	B.Ed. ECE	F	16
Teacher D	B.Ed. ECE	F	10
Teacher E	B.Ed. ECE	F	16
Teacher F	B.Ed. ECE	F	14
Teacher G	Diploma ECE	F	10
Teacher H	Diploma ECE	M	6
Teacher I	B.Ed ECE	M	10
Teacher J	B.Ed M.Phil ECE	M	9

APPENDIX L: SAMPLE TRANSCRIPT: EARLY CHILDHOOD TEACHERS

As a classroom teacher in the ECE setting, what are your prime roles and responsibilities? - Interviewer

To me, the primary role of a teacher is to act as a leader to scaffold classroom instruction and assessments that promote student learning, whilst I also learn to learn through my daily reflective practices- Teacher-A

I see myself as an educator and caregiver since teaching at the ECE goes beyond the mere teaching and learning process in the classroom. Our job includes leading, mentoring, nursing, coaching, promoting, modeling, assessing, monitoring, scaffolding collaborating, learning, and being surrogate parents to the children under our care- Teacher B.

I influence, teach, guide, assess, scaffold, protect and monitor the progress of children learning by being a good leader and a learner- Teacher C

Hmmmmmm, I have a lot of roles and responsibilities as a teacher- caregiver. My role is to be a good role model to the children that I lead and mentor. I, therefore, play the role of a substitute parent, leader, and learner of curriculum and assessment by coaching, scaffolding, mentoring, leading, playing, and assessing my student's overall growth, development, and learning process- Teacher D

My roles are numerous but notably, they include teaching, mentoring, learning, guiding, scaffolding, leading, and assessing children learning outcomes to achieve overall human development- Teacher E

The roles may include, learning, teaching, leading, influencing, supporting, scaffolding, sharing and assessing, measuring, and evaluating children's overall developmental attainment- Teacher F

I am a facilitator and scaffold the link between parents, the community, and the children in my classroom by providing sound leadership traits for the children to learn for life- Teacher G

I am the chief child's advocate and promoter. I also lead and scaffold the entire teaching and learning process- Teacher H

I lead, teach, learn, scaffold, and assess the learning outcomes of the children in my classroom and assigned to me- Teacher I

Just to promote teaching, learning, scaffolding, and assessing or monitoring, while also offering leadership to the children and other colleagues - Teacher J

It is often said that every teacher is a leader. How do you agree with this statement?

Well, a leader influences and scaffolds people to follow him or her and this makes teachers become leaders and role models, who lead the way for both students and teachers alike- Teacher A.

Oh yeah, I couldn't agree more than this, as the teacher plays a very vital leading role in teaching, communicating, managing, scaffolding, planning, and assessing children's growth, maturation, development, and learning process and product. A good teacher, therefore, leads with example by modeling the right path for the children to learn and imitate- Teacher B.

We as teachers lead in every aspect of our work from the teaching, learning, scaffolding, and the assessment process by modeling the way to influence others positively and negatively, as the case may be Teacher C

As teachers, we influence and scaffolds others positively to achieve organizational objectives in all our endeavors in and outside the classroom- Teacher D

Teachers lead and scaffold students, parents, colleague teachers, and even the entire community in executing a particular task as and when necessary- Teacher E

One can be a successful teacher, if he or she cannot influence and scaffold others to achieve an organizational objective that leads to the overall school improvement process, therefore teachers must see themselves as leaders- Teacher F

This question reminds me of our lectures on school leadership at the master's level when literature indicates that aside from classroom teaching, leadership comes next as the major factor influencing and scaffolding school improvement drive- Teacher G

Most teachers are either born as leaders or simply learn to lead as the nature of the teaching job requires- Teacher H

It is a must for teachers to possess and exhibit leadership traits and qualities, as required by their job requirements- Teacher J

In your opinion, who is an educational leader?

Hmmmmm, this reminds me of the just-ended end-of-semester examinations at the master's level in the educational leadership course. Anyway, the educational or instructional leader could be anyone, who supports, scaffolds, and influences educators to effectively implement the cycle of educational planning to enhance programs and practices at all levels of education- Teacher A

Well, in my opinion, anyone can be a leader in education. An educational leader is anyone who plans, implements, monitors, scaffolds, and influences children's learning outcomes, either in a major administrative position or just a mere classroom leader. Such a leader often models the way, when he or she tries to influence others positively to ensure overall school development or improvement processes- Teacher B

An educational leader is anyone who encourages, influences, scaffolds, and focuses on improving the classroom practices of teachers to improve school quality. It connotes both administration and pedagogy- Teacher C

Oh, he/she could be anyone, who leads, monitors, scaffolds, collaborates, and promotes the development and implementation of an effective educational program or curriculum in the classroom and the wider school environment- Teacher D

Well, in my opinion, anyone can be a leader in education. An educational leader is anyone who plans, implements, scaffolds, and monitors children learning outcomes in the actual classroom situation. Such a leader often models the way, he or she tries to influence others positively to ensure overall school development or improvement processes- Teacher E

Educational leaders are those responsible for overseeing the pedagogical practices in line with the educational philosophies of the school involved- Teacher F

Educational leadership deals with leading, collaborating, creating, scaffolding, and monitoring school improvement plans, providing appropriate professional development for staff, building the capacity for leadership in others, and conducting staff development and appraisal- Teacher G

Educational leadership involves the mobilization of staff development toward an instructional vision, whilst developing teacher pedagogy and assessment practices- Teacher H

Educational leadership deals with the process of leading and scaffolding the teaching and process, whilst influencing others toward the attainment of the overall improvement agenda- Teacher I

The process of leading the teaching, learning, scaffolding, assessing, and monitoring the progress of students- Teacher J

What might be the roles and duties of a teacher leader in the ECE setting?

Well, he/she could act as the curriculum leader, assessor, facilitator of learning, mentor, scaffold, coach, and agent of change or game-changer- Teacher A

A teacher leader might not necessarily play the major school administrative role, however, he or she might have the direct responsibility of promoting and scaffolding children's overall development. Such a teacher leader also owes a duty to positively influence all other stakeholders such as colleague teachers, heads of schools, and even parents towards the school's overall improvement drive- Teacher B

Well, he/she could act as the curriculum leader, facilitator of learning, mentor, scaffolder, coach, and agent of change or game-changer -Teacher C

The duties are numerous that include but are not limited to curriculum experts, coaching, mentoring, supervising, scaffolding, and assessing the teaching and learning process, while influencing other colleague teachers pedagogically -Teacher D

A teacher leader is a process by which taking-lead, being ahead, motivating, mentors, collaborating, assessing, initiating, promoting, scaffolding, and motivating students and her colleagues- Teacher E

He/she could act as the curriculum leader, scaffolder, promoter, guide, assessor, facilitator of learning, mentor, coach, and agent of change or game-changer- Teacher F

A teacher leader might not necessarily play the major school administrative role, however, he or she might have the direct responsibility of promoting and scaffolding children's overall development. Such a teacher leader also owes a duty to positively influence all other stakeholders such as colleague teachers, heads of schools, and even parents towards the school's overall improvement drive- Teacher G

Well, he/she could act as the curriculum leader, facilitator of learning, mentor, coach, and agent of change or game-changer -Teacher H

The duties are numerous that include but are not limited to curriculum experts, coaching, mentoring, supervising, and assessing the teaching and learning process - Teacher I

A teacher leader is a process by which taking-lead, being ahead, motivates, mentors, collaborating, assessing, and promoting and motivates students and colleagues-Teacher J

As a teacher in the ECE setting, you might be familiar with concepts such as curriculum, assessment, leadership, and pedagogy. In a simple sentence, how will you explain pedagogy and leadership?

Well, I see pedagogy as the appropriate and intentional plans and actions of a teacher or a school intended to promote the transmission of something worthwhile during the teaching and learning process towards the overall school development. Leadership on, the other hand, is seen as the intentional process to influence and scaffold others to bring up the desired change in a child or the entire school setting- Teacher A

To me, pedagogy is all about the implementational aspect of the curriculum by translating its philosophy and goals into reality in a developmentally appropriate manner. Leadership, however, is all about fostering positive or negative influences and direction to cause the desired change in the curriculum. In effect, pedagogy is about what and how to teach the desired learning outcome, while the leadership gives direction and the desire influences to positively change the process- Teacher B

Pedagogy is the broader and all-embracing form of instruction as it pertains to the teaching and learning process. Leadership deals with the direction and influences required to improve a teacher's pedagogical approaches. Teachers, therefore, use pedagogical approaches, and leaders influence, scaffold, and give direction to achieve the desired goals in a given school- Teacher C

Let me put it simply, a teacher can learn all the pedagogical skills and techniques but will remain ineffective, if the right conditions, climate, and culture are not created by sound leadership. In effect, pedagogy only becomes effective and efficient under appropriate scaffolding and stimulating leadership. Leadership could therefore be seen as the heart of pedagogy, as it gives life to pedagogy- Teacher D

Leadership is all about influencing and scaffolding positively to create a conducive and enabling school environment to support the effective and efficient act and science or craft in the teaching and learning process, which is simply termed pedagogy- Teacher E

To be honest, this is fairly a new area to me. But I will attempt by saying that, it might deal with the process of intentionally building and scaffolding a culture that promotes self-reflection and inquiry that form the foundation for transforming children learning and the entire school for improvement purposes- Teacher F

Hmmmmm, the question is trying to let me go back to my university days! Well, I will try my best, though it's been years since I revised my education and curriculum or assessment lecture notes. I think that pedagogy is the same as curriculum, which talks about the science, art, and craft of the teaching and learning process. Leadership, on the other hand, deals with the process of influencing others positively or negatively to achieve an organization's goal. I hope am making sense though, hahaha- Teacher G

Pedagogy is simply seen as the science, art, and craft of the teaching and learning process in a school. Leadership, however, deals with the process of influencing and scaffolding others positively or negatively to achieve an organization's goal by creating a collaborative and supportive school climate or environment- Teacher H

Leadership is all about the capacity to bring up the desired change by influencing and scaffolding others. Pedagogy is about the act of teaching with an emphasis on the dispositions and behaviors of teachers and their interactions with children -Teacher I

Pedagogy is often seen as an inclusive and conscious view of all components of the teaching and learning process, including the learning environment. Leadership, however, is the kind of mutual and influential relationship between the leader and the follower to achieve an organizational goal by causing the expected change- Teacher J

Now that you do understand these concepts, how will you explain pedagogical leadership?

The concept of pedagogical leadership is equally new to me. However, I think that it deals with the practice of bringing leadership closer to the learners and specifically influencing student learning or colleague teachers, as opposed to the traditional hierarchical or positional style of leadership-Teacher A

Well, this sounds new to me, but in my humble opinion, pedagogical leadership is all about the act or process of using sound leadership practices to scaffold, promote effective teaching and learning processes and by extension improve the overall school improvement process. This might be my simple guess about this new concept introduced to me by you. Hahahaha, indeed you are trying to take me back to my lecture hall in the education courses!-Teacher B

Pedagogical leadership deals with anyone whose actions, speeches, thinking and influence supports and improves pedagogical activity at the school level, being the classroom teacher or the head of school- Teacher C

Pedagogical leadership amounts to the process of leading or scaffolding or influencing, with the sole aim of improving the teaching and learning process, whilst creating a culture of collaborative support, resulting in team learning- Teacher D

Pedagogical leadership is about creating and scaffolding a conducive supporting environment that facilitates teaching and learning, whilst assisting by leading another colleague to improve practices and skills to bring up the desired change -Teacher E

Pedagogical leadership deals with the act of teaching and learning with an emphasis on the dispositions and behaviors of teachers and their interactions with children-Teacher F

Pedagogical leadership deals with the process of coaching and mentoring teaching and learning by supporting the teachers to implement the curriculum, whilst ensuring quality overall school improvement agenda. It is not just related to a positional leadership role- Teacher G

Pedagogical leadership can be seen as an aspect of leadership, which builds capacity, whilst developing and changing the learning outcomes, the environment of students and colleague teachers alike- Teacher H

Pedagogical leadership can be used in a generic term to mean responsibilities that are not considered managerial tasks but that of the actual teaching and learning process. However, in the Ghanaian context, a head teacher is mandated by Ghana Education Service to double as a pedagogical leader in the administrative or managerial role and that of the distributive classroom responsibility by supporting teachers to teach and learn effectively. Classroom teachers can also assume such roles by influencing others- Teacher I

Pedagogical leadership includes planning, developing, teaching, and assessing by leading, developing, scaffolding, and implementing the curriculum. A pedagogical leader can also be seen as a person who is the director of an organization such as a school- Teacher J

What is assessment in an early childhood education setting how literate are you?

Assessment in the early childhood context deals with the process of gathering or collecting information about a child, by reviewing the data, whilst using such information to plan educational activities that will be at the right level of the child in question, thereby differentiating instruction to promote meaningful learning outcomes in the classroom. Being assessment literate means one understands the philosophy, principles, and practices underlying assessment as a process or product of which I am somewhat capable- Teacher A

Assessment amounts to the process of collecting and gathering data to document students learning. To me, assessment literacy involves the task of understanding the purpose, principle of assessment, and the process of data collection, analysis, and the ability to communicate assessment information to the relevant stakeholders. I am somehow knowledgeable at these- Teacher B

For assessment, it forms part of my daily work, as I use it before, during, and after teaching, just to gather enough data and information from my children, regarding their attainment of my instructional objectives or otherwise. Simply put, assessment has to do with the process of gathering or collecting enough evidence to tell a story about the children learning outcomes- Teacher C

Assessment involves the purposeful collection and use of empirical data on student learning to refine the pedagogical approaches, whilst improving student learning outcomes. Literacy in assessment, on another hand, deals with one's competency in planning, implementing, and communicating assessment information to the relevant others. I see myself a bit capable as an assessment literate- Teacher D

Assessment is the process of gathering and discussing information from multiple and diverse sources to develop a deep understanding of what students know, understand, and can do with their knowledge and skills, which predicts their potential while improving the teaching and learning process. I am somehow knowledgeable in the assessment processes regarding, the process of defining, selecting, designing, collecting, analyzing, interpreting, and using the information to increase students' learning and development, likewise the teachers' instructional practices- Teacher E

Assessment is the systematic collection, review, and use of information about educational programs undertaken to improve student learning and development. I know a little about assessment practices and skills and therefore less confident- Teacher F

Assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students. I can somehow competently plan, implement and evaluate students learning outcomes- G

Assessment deals with the process of gathering information about student learning that is embedded into the teaching-learning process. I see myself as having the basics in planning, administrating, and communicating assessment information, thereby making me slightly assessment literate- Teacher H

Assessment is all about the dynamics involved in the collection, gathering, analyzing, interpreting, and communicating of assessment-rich data to the relevant individuals for the overall school's pedagogical improvement. I do somehow or relatively good in these aspects- Teacher I

The process of gauging what children know and can do by using the most developmentally appropriate tools. I consider myself somehow assessment literate by using the right tools to determine the level of mastery in all the domains of development in order to communicate the learning outcome appropriately. It also informs and influences my instructional practices-Teacher J

Who is an assessment leader?

Simply, I will say that such a person leads the overall school and classroom assessment processes while informing policy and practice appropriately by influencing and scaffolding others in the assessment practices by modeling the way. Such a leader ought to be competent in the assessment practices-Teacher A

Just as I predicted for pedagogical leadership, one who leads, motivates, scaffolds, and influences others in the assessment and teaching process in any given school could be described as the leader of the assessment process-Teacher B

An assessment leader is anyone whose actions, speeches, thinking and influences assessment literacies and classroom assessment practices-Teacher C

An assessment leader is anyone who influences a change in the assessment practices in a school and teacher development- Teacher D

An assessment leader is anyone being a classroom teacher, who assumes the position of influence to improve teaching, learning, and assessment. Such a person ought to be versatile in the assessment process and always seeks developmentally appropriate practice in order to arrive at assessment data that can inform classroom teaching and learning process- Teacher E

A leader in assessment is anyone whether in the administrative or classroom teacher position, whole aims at creating an enabling assessment culture that informs policy and practices developmentally. Such a person usually understands, the purposes, principles, planning, implementation, analysis, and how to communicate assessment data or information to the relevant stakeholders appropriately- Teacher F

Anyone who takes leadership in classroom assessment practices, with the intention of using data to inform the teaching and learning and being literate in the assessment processes. Not just being literate is enough, but rather the one, who displays and exhibits a high level of disposition, attitude, and professionalism in all the stages of the assessment processes- Teacher G

A leader in the assessment process at the school is a classroom teacher, the head of school, or the curriculum leader, who shares his/her knowledge and experiences with other colleagues as a way of influencing them positively to cause the needed change in the entire school's improvement agenda- Teacher H

A teacher who is tasked or nominated himself or herself as the leader of the curriculum to bring about the desired change in the assessment practices, thereby informing the overall teaching and learning process- I

Simply, a leader in the assessment process takes a lead role to improve teachers' instructional and assessment process, in order to be able to how teachers teach well, likewise assisting children to learn to relearn appropriately- Teacher J

How would you describe pedagogical assessment leadership?

The ability or capacity to effectively create enabling, inviting, stimulating, scaffolding, and conducive conditions to ensure that first and foremost the school promotes effective and efficient assessment as an ongoing activity in order to inform the teaching and learning processes, whilst improving the entire school and teacher developmental agenda- Teacher A

This is an extremely difficult question for me. To begin with, pedagogy deals with the teaching and learning process. Assessment, on the other hand, forms part of the teaching and learning process. I can therefore infer that the process of using sound leadership practices to promote effective teaching and learning, whilst in- cooperating sound assessment measures to ensure the overall school improvement process could be known as pedagogical assessment leadership- Teacher B

Well, let me try by saying that in short, pedagogical assessment leadership can be defined in the Ghanaian context, as the process and practice of leading and scaffolding teaching, learning, and classroom assessment in the interest of students and teachers alike, which promotes conducive, enabling, inviting and stimulating the culture of sharing, empowerment, influence, and direction towards overall school improvement drive- Teacher C

Simply, I will rather say that it is the kind of distributive leadership for teaching, and learning including classroom assessment practices and skills exhibited or demonstrated by teachers The process of leading the charge while creating and facilitating an environment that improves and scaffolds teachers' assessment literacy and classroom practices- Teacher D

Pedagogical assessment leadership is not different from what assessment leader does in the wider school or specific classroom. In effect, it amounts to the process whereby effective assessment leaders influence others developmentally, to accomplish the school's overall objectives while directing or scaffolding others to take their expected role in the assessment practices as teachers- Teacher E

Pedagogical assessment leadership promotes and fosters the charge of building relationships, innovation goal setting, being disciplined, and educating oneself to improve teachers' assessment practices and literacy skills- Teacher F

Pedagogical assessment leadership helps to define the practices of members of the learning community that promotes improved assessment practices during the classroom teaching processes- G

Pedagogical assessment leadership is defined as any action taken by any member of the school community that helps educators in the learning community to more fully adopt and implement assessments for learning practices in the classroom- H

Pedagogical assessment leadership has to do with the capacity to promote comprehensive and developmentally assessment practices that inform and support the assessment literacy in the classroom, which gauges student learning outcomes and improves instruction. Well, in effect, I see the concept as the practice of creating the conditions, climate, and culture in a school that promotes effective teaching and process, which is backed by empirical assessment data to cause the needed school and teacher development. This kind of leadership operates at both the school and administrative position- Teacher- I

I will try and guess right, as this is equally a new concept to me. However, assessment leadership deals with the process of influencing the overall classroom assessment process developmentally, by ensuring the right tools of assessment are employed ethically, morally, and legally at all times, whilst modeling the path for other teachers to learn. In essence, pedagogical assessment leadership is all about the act of leading the teaching and learning process, whilst using assessment as an ongoing task to inform the teaching and learning process in a cyclical manner- Teacher J

How does your gender as male or female influence your pedagogical assessment leadership role?

Hmmmmmmmm, gender is a big issue in early childhood education. In this field, males being the minority might try to use their masculine strength to enforce children's compliance and obedience - Teacher A

The right rewards systems are applied, when the right things are done or otherwise. The majority of decisions are often carried out when discussing relevant assessment data. We the men are tasked oriented, therefore, the right thing that ought to be done, using the right channel within the shortest possible time- Teacher B

We the women often lay much emphasis on assessment as a process and not a product as most men usually do. We often employ or influence our colleague teachers to use more desirable teaching approaches by using assessment information to inform our pedagogical practice- Teacher C

A woman like me will usually rely on my lobbying skills to solicit the support of all other colleague teachers to get all on board, when planning, implementing, and communicating assessment data to the relevant stakeholders- Teacher D

Evidence from literature indicates women leaders and teachers usually perform better than their male counterparts when it comes to literacy in formative assessment. I believe this is partly so in the Ghanaian situation as even at all levels from KG to secondary schools, the assessment results of schools headed by females often outperform their male leaders- Teacher E

Female leaders in assessment usually focused more on the pedagogical aspect and leave the overall administration in the hands of the males, who are often product and not process-oriented per se- Teacher F

Most female leaders in all endeavors are often strict and lead by example. Such a trend in leadership also operates in classroom assessment. Most female teachers therefore would be literate in developmentally appropriate practices in assessment and thereby capable of influencing others having modeled the way- Teacher G

As a man, my focus is to achieve the desired goal and as such, I ensure that the laid down assessment procedure is followed through religiously. I won't, therefore, expect others to deviate from the norm. Strict adherence to the laid down school assessment policy must be followed by all- Teacher H

We the females are often flexible in our approach to the assessment process. However, we succeed to get the support of all teachers to improve teaching and assessment practices, then female leaders in assessment assume the strict personality trait in order to attain the desired organizational goal-Teacher I

I am of the opinion that men might often use brute force in providing leadership in their assessment processes as I often see male teachers do in their classrooms, a departure from the females, who are usually flexible and compassionate in the assessment process- Teacher J

Can you please share with me the possible challenges with particular emphasis on the use of technology that, the pedagogical assessment leaders are likely to face in their documentation and observation practices in the ECE settings?

The possible discomfort associated with every educational change includes parents' dislike about their children not being graded, lack of training, change in the mode of assessment resulting in more work for teachers to do, and possible cost of employing technological devices to do the observation and electronic documentation building. The only available resources are my own mobile phone camera and Microsoft excel to perform data analysis- Teacher A

The whole pedagogical leadership in classroom documentation and observation as an assessment process is a new concept and as such not all teachers will be ready and willing to accept such a role. Teachers might not also be fully skillful to even play their expected role. There will be always teacher perturbations and resistance to any new educational change process, like the pedagogical leadership assessment concept. There are no computer applications solely for conducting observation and documentation in my school. I often used my mobile phone to record and document all my portfolios- Teacher B

The required technology and resources to conduct meaningful documentation and observation are lacking in their Ghanaian context. I am therefore limited, except to sometimes use my mobile phone to document and gather my assessment and teaching portfolio- Teacher C

Most parents might resist the use of observation and documentation as evidence of their children's learning outcomes as against the traditional test score- Teacher -D

There hasn't been any formal training given to all teachers regarding their new expected role as leaders in the classroom assessment. Much as I have a little understanding, more education and training would be highly appreciated- Teacher E

In the Ghanaian context, any teacher who has no formal leadership role as in an authoritative position that tries to initiate any new innovation to influence others for an improved teaching and learning practice including assessment is often labeled as too knowing. Some even go to the extent of being labeled as a workaholic, busy body, madam do all, jack of all trades, and many others. To avoid such tags and labeling, I try to do my little best in my classroom alone. This, therefore, limits collaboration and innovation in pedagogical practices- Teacher F

How to confuse parents to accept other forms of assessments other than a pencil-and paper-tests is my major headache as a teacher when carrying out observation and documentation to gauge the learning outcomes of the children. I haven't received any formal training on the use of any particular applications or software to carry out my assessment practices- Teacher G

As a female apart from being tagged as a too knowing a teacher, I also try to avoid having any troubles with my head of school, as he is in an official position to give direction on student assessment procedures. Here in Ghana, head teachers and assigned curriculum leaders have the authority to determine assessment issues in a school- Teacher H

The workload as the classroom teacher alone is enough, let alone trying to assume other roles of influencing assessment processes and practices in the entire school, without any monetary reward, is enough to discourage me from assuming the role as a leader in classroom assessment practices outside my own classroom- Teacher I

Most heads of schools operate close climatic conditions in the school, thereby limiting the required distributive leadership practices regard of a leader in classroom assessment- Teacher J

APPENDIX M: TURNITIN CERTIFICATE

**EARLY CHILDHOOD TEACHERS'
PEDAGOGICAL ASSESSMENT
LEADERSHIP PRACTICES AND
SKILLS IN GHANA**

by Kotor Asare

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EARLY CHILDHOOD TEACHERS' PEDAGOGICAL ASSESSMENT LEADERSHIP PRACTICES AND SKILLS IN GHANA

ORIGINALITY REPORT

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APPENDIX N: CERTIFICATION OF EDITING

Certification of Editing

This serves to certify that the Unisa PhD thesis

“EARLY CHILDHOOD TEACHERS’ PEDAGOGICAL ASSESSMENT LEADERSHIP PRACTICES AND SKILLS IN GHANA”

by Kotor Asare

has been professionally edited to comply with the language requirements for the submission and/or publishing of academic texts.

Editor: Richard Bowker

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Signature:

