

**CONCEPTIONS AND PRACTICES OF ASSESSMENT: CASE STUDIES OF
NIGERIAN TEACHER EDUCATORS**

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DEDICATION

I dedicate this success to the loving memory of my two superheroes [my mother and grandmother], Hussainah and Shifa'au Ayinde who taught me to persevere and always pray. You both loved and supported me with everything you had and prayed for success in my endeavours. Your words were "Mobola, you shall triumph and be victorious like the meaning of your name 'Monsurat'". Yes, I made you proud again!! I wish you were here, but Allah knows best. Thank you for supporting my learning journey since childhood and for teaching me that persistence, dedication, and diligence are essential elements for success.

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ABSTRACT

This qualitative case study research explores the conceptions of assessment and assessment practices of five Teacher Educators [TEs] in Nigeria. Evidence points to the crucial role of teacher education in developing assessment literacy among teacher candidates. Several research findings also suggest a connection between how teacher candidates experience assessment while in teacher training and their conceptions and practices of assessment when they begin their teaching careers. This doctoral research assumed a sociocultural perspective to explore TEs' conceptualizations of assessment, and their assessment practices drawing on three conceptual frameworks [conceptions of assessment; assessment practices; influencing factors]. Specifically, this study explored TEs' conceptions and assessment practices, the nature of the connection between TEs' conceptions and assessment practices, as well as influencing support and impediments to their conceptions and practices of assessment through research with five Nigerian TEs who teach a specific assessment course in teacher education programs. The five TE participants teach in teacher education programs across the three types of universities in Nigeria (federal, state, and private). Each TE represented the unit of analysis – a case, hence there were five cases in total. Data collected to analyze each TE's case included interviews, observations of online classes, assessment samples, and the course syllabus. Data from these four sources were analyzed using qualitative content analysis. Nigerian policy documents on assessment in teacher education were also reviewed to provide context to TEs' classroom assessment practices. The results of the study revealed that the TEs hold multiple conceptions of assessment which varied across conceptions of assessment categories and co-existed interestingly within each case. Findings also suggest that generally, TEs' assessment practices focused on summative practices with minimal formative assessment practices. Factors shaping TEs' conceptions and assessment practices were mainly micro and meso-level factors such as large class sizes, facilities and resources for online assessment, funding for professional development, as well as collegial support and colleagues' views on assessment. Results of this study describe in-depth, the complexities inherent in TEs' assessment practices, as well as the sociocultural factors relating TEs' conceptions and assessment practices in the context of Nigerian teacher education. This study contributes to what is still a very limited body of literature on conceptions of assessment and the sociocultural influences that shape TEs' assessment practices, particularly in the Nigerian educational and research spaces.

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CHAPTER 1: INTRODUCTION

Significant research on classroom assessment has called for a shift from merely a view of assessment for summative purposes to including more formative purposes of assessment that support student learning (Black & Wiliam, 1998a, 2018; Wiliam & Leahy, 2015). Demands for shifts in the purposes for classroom assessment arose from accountability and standards-based frameworks that permeate teaching, learning, and assessment practices at all education levels around the world (Brookhart, 2011). Hence, there is a widespread call for assessment capable educators who possess the knowledge to integrate assessment with instruction and practice assessment in ways that support students' learning, that engage students in assessment processes, and also support and improve educators' teaching pedagogies (Black & Wiliam, 2018; Earl & Timperley, 2014). In spite of the calls for assessment knowledgeable educators, there is strong research evidence suggesting that mainly, teachers possess low pedagogical knowledge of assessment (Greenberg & Walsh, 2012), especially early career K-12 teachers (Roscoe, 2013; Volante & Beckett, 2011).

Whereas changing views on assessment to support student learning and to advance educators' assessment knowledge often concern how prospective K-12 teachers are prepared, including the assessment courses they take and the assessment pedagogies they learn while in teacher education programs (Volante & Beckett, 2011), it is surprising how assessment pedagogies have received limited attention in terms of research in teacher education (Brown, 2021). Although teacher education programs have a role to play in developing new K-12 teachers' classroom assessment practices (Roscoe, 2013), the assessment views and capabilities of Teacher Educators (TEs) may not be sufficient to actualize this goal (Brunker et al., 2019).

There is a need therefore, for studies that explore the classroom assessment practices and conceptions of TEs (Roscoe, 2013).

Classroom assessment involves the procedures teachers engage in when making inferences about student learning (Black & Wiliam, 2018); classroom assessment includes both formative and summative assessments (Black & Wiliam, 1998a). Indeed, formative and summative assessment can be used in the classroom and are central to teaching and learning processes; however, the purpose for which assessment results are utilized (Black & Wiliam, 2018), the inferences made from assessment evidence (Wiliam & Leahy, 2015), and the provision of useful feedback targeted at improving learning and instruction (Winstone & Boud, 2020) makes an assessment formative or summative.

The role of assessment in the culture of the classroom is shifting towards the inclusion of sociocultural perspectives to assessment (Shepard, 2000; 2001). Drawing on Vygotsky's sociocultural theory, Shepard notes that the "development of competencies normally occurs by experts and novices having the opportunity to converse as they work together on a common goal or product" (2000, p. 28). Consequently, many assessment researchers (e.g., Gipps, 1999; Shepard, 2000) argue that classroom assessment should be viewed as a social practice that involves a process of enculturation as well as a dynamic and collaborative process that considers students' perspectives alongside those of educators. While providing an example of the connection between enculturation, collaboration, and student learning through assessment, Shepard mentions that "if in classroom exchanges students are routinely asked to explain their thinking or to clarify terms, then eventually these habits are internalized and become a part of their thinking process as well as a social norm in the classroom" (2000, p. 28). Thus, there is a

need for shifts in classroom assessment culture towards assessment practices geared at improving educator's teaching plans and students' learning progressions (Shepard, 2000).

In higher education contexts, extant research documents the numerous and sometimes competing roles of assessment, which include accountability, measurement of achievement, advancing (or supporting) learning (Brunker et al., 2019; Carless, 2019), program certification and licensing (Wei & Pecheone, 2010), as well as sorting, ranking, and admitting students into programs (Munroe et al., 2015). Among these multiple roles, assessment researchers in higher education (e. g., Carless, 2019; Nicol, 2010) continue to promote and emphasize assessment practices that support student learning.

The higher education context offers several programs; one is the teacher education program. Indeed, evidence points to the crucial role of teacher education in the development of assessment literacy among teacher candidates and the provision of a foundation for early-career K-12 teachers' assessment practices (Brookhart, 2017). Educational researchers (e. g., Brown, 2021; Gulikers et al., 2009; Poth, 2013; Roscoe, 2013) suggest shifts in course offerings in teacher preparation programs from merely focusing on tests and measurement to include a variety of classroom assessment methods and a broader view of assessment will more effectively develop teacher candidates' skills in classroom assessment. A key player in the development of assessment literacy in teacher education is the Teacher Educator (TE). TEs hold the dual role of supporting teacher candidates' learning by modelling the roles of a teacher as well as developing prospective teachers' teaching and assessment pedagogies (Lunenberg et al., 2007). Specifically, assessment researchers (e. g., Brookhart, 2017; Brown, 2021; Munroe et al., 2015; Roscoe, 2013) recommend that TEs should explicitly enact and model assessments that support student learning to teacher candidates while in teacher education programs. Whereas TEs' practices are central to

the advancement of teaching and learning among prospective and early career teachers (Roscoe, 2013), Brookhart (2017) reports that some TEs fail to practice assessment for formative purposes, despite the extant research reporting the usefulness of formative purposes of assessment for advancing teacher candidates' learning.

Prior to securing teaching positions in K-12 education, a major requirement for teacher candidates is graduation from a teacher preparation program. In addition, one of the expectations of newly recruited teachers includes sound assessment literacy and pedagogy since an important role for a teacher is to make appropriate assessment decisions as well as sound conclusions about student learning progression. Relevant studies suggest that there is a connection between TEs' approaches to assessment and teacher candidates' assessment education (Brown, 2021; DeLuca & Volante, 2016; Volante & Beckett, 2011). It is therefore crucial to understand the pedagogical processes involved in developing teacher candidates' knowledge regarding classroom assessment during teacher education programs (DeLuca & Volante, 2016). Specifically, while understanding how teacher candidates are prepared to assess students' learning, it is crucial to begin by seeking insights into TEs' assessment approaches and pedagogies (Roscoe, 2013) as well as how TEs conceptualize assessment (Wang, 2020).

Similarly, TEs' practices that support teacher candidates' learning and develop their assessment literacy involve the interaction of a variety of factors, including how TEs conceptualize assessment (Deneen & Brown, 2016; Wang, 2020). Nevertheless, it may be necessary for TEs to adapt their conceptions of assessment in order for more innovative assessment practices to emerge in teacher education (Brookhart, 2017). Efforts towards shifting TEs' conceptions regarding assessment need to begin by seeking to understand how they conceptualize and practice assessment, why they conceptualize and practice assessment the way

they do (Deneen & Brown, 2016) and seeking an understanding of the culture of assessment in the context where they work (Brown et al., 2019).

Furthermore, research suggests that the way TEs conceive of assessment may influence the assessment strategies they adopt and implement in teacher education programs (Xu & Brown, 2016). For example, Deneen and Brown mention that:

Positive conceptions of assessment (e.g., assessment should enhance students' learning) have been shown to precipitate beneficial assessment practices; negative conceptions of assessment (e.g., assessment is bad for students or irrelevant to learning) may play a significant role in teachers resisting or subverting assessment policies and intended practices. (p. 2)

These authors further argue that the importance of teacher education programs is premised on enhancing practices, hence it is highly necessary to seek an understanding of the connection between TEs' conceptions and practices of assessment as well as teacher education programs' approaches towards developing TEs' assessment literacy (Deneen & Brown, 2016).

Seeking an understanding of the connection between TEs' conceptions and assessment practices may not provide sufficient evidence needed to holistically understand the nuances of TEs' assessment practices in teacher education programs. For example, Shepard (2000) contends that "no aspect of learning can be understood separate from the whole or separate from its social and cultural context" (p. 20). On a similar account, the conceptions and practices of assessment espoused by educators are often operationalized within the boundaries of their "immediate workplace community and larger social, political, and cultural contexts. These micro- and macro-contextual variables exert an influence on teachers' assessment practices individually or in concert through policies, norms, rules, regulations, and conventions" (Xu & Brown, 2016, p. 157).

The epistemological stance adopted in this doctoral study (sociocultural theory) connects with those espoused by assessment theorists concerning classroom assessment practices being influenced by social and cultural (Gipps, 1999; Shepard, 2000) as well as political, and conceptual factors (Suurtamm & Koch, 2014), micro and macro sociocultural factors (Xu & Brown, 2016), and micro-, meso-, and macro-level factors (Fulmer et al., 2015). Studies considering sociocultural aspects of classroom assessment need to consider the broader influences of “the social, cultural and political aspects of the individual, the classroom, the school, the district and beyond” (Koch, 2010, p. 13). As such, it is very relevant to seek an understanding of TEs’ conceptualizations and practices of assessment drawing from broad perspectives that include paying attention to the sociocultural influences surrounding both their conceptualizations and their assessment practices in the context where TEs work (Brown, 2021; Xu & Brown, 2016). An expanded discussion of the literature concerning sociocultural views on classroom assessment is presented in Chapter 3 under the theoretical framework section.

Statement of the Problem

Research into educators’ (K-12 and higher education teachers) conceptions of assessment has been widely conducted across several education contexts (e. g., Azis, 2015; Brown, 2011; Brown & Gao, 2015; Gebril & Brown, 2014; Opre, 2015). Nevertheless, a thorough search of the literature suggests that while several studies have researched K-12 educators’ and university instructors’ conceptions and practices of assessment, there are few empirical studies focused specifically on the nature of TEs’ conceptions and practices of assessment. In a similar view, Goodwin and Kosnik (2013) observed a “notable silence” (p. 334) in research studies on how TEs prepare for the roles they assume in teacher education programs. Consequently, one of the necessary steps to move scholarship forward in the area of TEs’ assessment practices includes

seeking an understanding of the views that they have regarding assessment (DeLuca & Volante, 2016).

Related to the lack of literature on TEs' conceptions and practices of assessment is the contextual dependency noticed in the area of classroom assessment research. For example, Ercikan and Solano-Flores (2016) argue that perceptions and practices of educational assessment depend largely on sociocultural contexts. Ercikan and Solano-Flores further establish how assessment practices and conceptions cannot be separated from "the culture and the characteristics of a society (mainly its history, social structure, priorities, values, technological development, legislation, communication styles, and ways of doing things and viewing the world)" (p. 491). Accordingly, Xu and Brown (2016) advocate for researchers to pay close attention to the broader influence on classroom assessment practices such as the policies and views on assessment as well as cultural practices inherent in specific research contexts.

Another key idea noticed in the literature concerns the quality of teaching and assessment pedagogies as practiced in some parts of the world. In all education contexts, quality pedagogical approaches attend to differences in student demographics and learning styles; however, pedagogy extends beyond classroom management, designing questions, and providing explanations; it is underpinned by educators' beliefs about knowledge construction, learning, and learners (Stutchbury, 2014). Since pedagogy "is a dynamic process informed by theories, beliefs and dialogue, but only realized in the daily interactions of learners and teaching and real settings" (Stutchbury, 2014, p. 2), TEs need to pay close attention to their personal beliefs as well as their daily interactions with teacher candidates. Stutchbury goes further to suggest that effective pedagogical approaches can change students' lives; TEs have very critical roles in helping teacher candidates to achieve excellent teaching potential, hence, "we need good

teachers, and we therefore need expert TEs” (Stutchbury, 2014, p. 2). Sadly, studies report on the incapacities of some TEs and teacher education programs, especially in developing countries, to provide the necessary training that teacher candidates need to become expert teachers (Barnes et al., 2019; Stutchbury, 2014; Westbrook et al., 2013).

Similar to providing quality teaching and assessment pedagogies are discussions advocating for explicit assessment courses in teacher education. Recently, assessment researchers (Brown, 2021; DeLuca et al., 2021) call for stand-alone assessment courses drawing from research findings that suggest that embedding assessment instruction in courses may not provide teacher candidates with a holistic learning experience needed to develop their assessment literacy (Deneen & Brown, 2016). Several researchers also suggest that these courses not be “tests and measurement” courses but rather courses in classroom assessment practices (Brown, 2021; Roscoe, 2013). Others have noted that even including a stand-alone assessment course cannot guarantee positive changes in teacher candidates’ assessment literacy; “new approaches to assessment in teacher education are needed to achieve impact. The current model of a course on assessment may simply not present sufficient time to precipitate this impact. A sustained program-level engagement with assessment may be needed” (Deneen & Brown, 2016, p. 12). Program-level engagement with assessment in teacher education would need to consider “students’ conceptions, the ways in which beliefs form, and their impact on effective practice” (Deneen & Brown, 2016, p. 11).

As stated earlier, research efforts around conceptions and practices of assessment need to seek an understanding of how educators conceptualize and practice assessment while identifying the social and cultural views on assessment and other elements of the context where they work (Brown et al., 2019; Xu & Brown, 2016). Drawing from the above issues suggested by the

literature and as far as conducting classroom assessment research is concerned, it appears necessary to concentrate on contexts where there are limited empirical studies focused on educators' conceptions and practices of assessment. A search of the literature suggests that developing countries such as Nigeria have recently begun to research classroom assessment practices that consider the broader social and cultural perspectives of assessment practices – such studies include very recent research (Ogunjimi & Lawal, 2020) on basic education teachers' conceptions of assessment.

Yet, in Nigeria, no research has been conducted in teacher education programs regarding the intersection of TEs' conceptions and practices of assessment. For example, a few studies report on higher education instructors' assessment practices (e. g., Anyanwu & Iwuamadi, 2015; Olutola & Olatoye, 2020; Osadebe, 2015) and their low levels of assessment knowledge and pedagogies (Adeosun, 2014; Adodo, 2013). It is more likely that higher education instructors possess limited assessment pedagogies due to institutional cultures of assessment, lack of professional development specifically focused on educational assessment, and the national policies on higher education assessment (Anyanwu & Iwuamadi, 2015; Ogidi & Udechukwu, 2020). Specific to teacher education, studies report on the influence that large class sizes, societal and institutional assessment culture, and limited opportunities for teacher professional learning and development (Adeosun, 2014; Barnes et al., 2019) may have on Nigerian TEs' assessment practices. Still, these factors, are yet to be investigated nor confirmed through empirical research studies in Nigeria. It is essential for researchers to seek an understanding of what influences TEs' actions and decisions (Volante & Beckett, 2011); these insights may assist in the development of requisite teaching, learning and assessment pedagogies that could advance teacher candidates' conceptions (Wang, 2020) and assessment practices (Brown, 2021; Munroe et al., 2015).

A large body of prior investigations into educators' conceptualizations and practices of assessment employed quantitative methodologies, however, interpretive methodologies could offer deeper insights into the analysis and understanding of the key concepts and influencing factors in the area of educators' conceptions and practices of assessment (Barnes et al., 2019; Offerdahl & Tomanek, 2011). Thus, an interpretive methodological approach may avail researchers a glimpse into participant TEs' experiences (opportunities and concerns) with assessment within their contexts, which may influence how and why they practice assessment the way they do (Xu & Brown, 2016). Furthermore, a general review of Nigerian literature specifically around classroom assessment research indicates that most studies utilize quantitative research methodologies, with very little research detailing the voices of stakeholders through interpretive methodologies. Consequently, it appears beneficial to provide insights into TEs' conceptions and practices of assessment through a methodological approach that will not only offer an interpretive understanding of research concepts, but also contribute towards more interpretive methodological approaches in the Nigerian classroom assessment research space.

Drawing on the above observations concerning conceptions and assessment practices research in Nigeria, there is an important gap to be filled specifically in teacher education concerning the conceptions and practices of assessment among TEs in Nigeria. Thus, the purpose of this study is to explore the conceptions and assessment practices of five Nigerian TEs who teach assessment courses, the nature of the connection between each TE's conceptions and practices of assessment, and the opportunities and constraints they experience as they teach assessment course(s) using a qualitative case study methodology.

Personal Interests

During my work experience as a research and training administrator at the Center for Research, Development, and In-House Training (CREDIT) in a north-western Nigerian university, one of my roles involved organizing professional development training for all academic and non-academic staff in the university. One such professional development training that I organized focused on developing teaching practices for newly recruited academic staff. Specifically, the training aimed at introducing attendees to higher education teaching and assessment pedagogies, since most Nigerian instructors do not require a teaching qualification to begin their careers as academics. I was interested in one of the topics (assessment of student learning) because I realized how assessment had shaped my education and career trajectories.

As the organizer, I wanted to also learn how university instructors make decisions and judgements on student learning. However, the facilitator for this session, a professor in the Faculty of Education (with concentration in measurement and evaluation) focused his assessment session majorly on developing mid-term and end of semester tests and examinations. Specifically, the session focused on multiple-choice question construction and marking. I was surprised to notice there was no mention of ongoing assessment strategies that involve and engage students in the assessment process, despite that the professor had published articles on the formative purposes of assessment and how it could improve student learning. Having recently studied in the United Kingdom, where I learned the importance of engaging students in the assessment process and ensuring assessment is an ongoing process that involves grading and non-graded components, added to my curiosity to understand why university professors practice assessment the way they do.

My interest in understanding the intersection of educators' conceptions and practices of assessment was further reinforced during my Master of Education program in Canada. My master's thesis sought to understand how high school teachers conceptualize assessment and their efficacy in developing assessment tools in classrooms (Raji, 2019). One of the findings from my thesis pointed out that often times, K-12 teachers practice assessment drawing from their experiences with assessment while in teacher education programs. One teacher mentioned how TEs' modelling of assessment (specifically through an assessment course) to improve student learning provided the foundation for his assessment design and decisions despite graduating over a decade ago from teacher education program (Raji, 2019). Another teacher stated how for the most part, TEs in his teacher education program consistently practiced one-off assessment; therefore, limiting his scope and understanding of assessment to improve student learning (Raji, 2019).

The findings from my master's thesis and my personal experiences regarding classroom assessment in higher education serve as an impetus to further explore how TEs conceptualize and practice assessment, specifically in an assessment course in teacher education programs. In addition, reading a significant body of research that suggests the need for contextualized research studies seeking insights into TEs' conceptualizations and practices of assessment based on micro-institutional and macro sociocultural perspectives to and influences on assessment (Brown, 2021; Deneen & Brown, 2016; Xu & Brown, 2016) added to my interest in this topic. Thus, I am curious to understand "why" (i.e., conceptualizations of assessment) and "how or what" (assessment practices and decisions unfold) as well as possible connections between these two concepts within Nigerian TEs' contexts. Again, drawing on classroom assessment literature,

I wonder how TEs' conceptions and assessment practices are influenced by sociocultural factors existing in the Nigerian education context.

Classroom Assessment in the Context of Nigerian Teacher Education

In Nigeria, the Federal Ministry of Education (FME) oversees the affairs of education at all levels, including the development and review of education policies. In 2010, the FME published the first *National Teacher Education Policy* (NTEP) with a goal that Nigeria will continue “to ensure that teachers are trained and recruited to teach to world-class standards and to continue to develop their competencies in their entire careers” (FME, 2010, p. 6). Specifically, NTEP aims to improve the in-service teacher education system, as well as the process of admission, administration, instruction, examination, induction, and graduation of teacher candidates. Whereas the FME includes statements in the NTEP, indicating ways to improve Nigerian teacher education programs, several calls for action and scientific evidence suggest that Nigerian teachers at all stages in their careers and at all education levels lack the requisite knowledge and skills to perform their professional roles effectively (Adeosun, 2014). Regarding enhancing instruction and examination in teacher education, the NTEP aims to ensure structured and supportive supervision of teaching practice as well as proper certification and licensing. Also, NTEP touches on improving TEs' practices by recruiting and supporting sufficiently trained TEs who are capable of imparting and modelling desired knowledge, attitudes, and skills to teacher candidates (FME, 2010). Yet, since the publication of the NTEP, TEs continue to possess limited ability to effectively engage teacher candidates in participatory teaching and assessment activities (Barnes et al., 2019).

Assessment education studies (e. g., DeLuca & Volante, 2016; Smith et al., 2014) suggest for teacher education programs to include assessment-specific courses. Assessment-specific

courses in teacher education can help to develop teacher candidates' views and understanding of how assessment can be used to support teaching and learning (Smith et al., 2014). In Nigeria, teaching at any education level in most cases does not require the attainment of a teaching qualification, thus, most early and mid-career teachers in Nigeria do not possess a teaching qualification. However, at some stages in their teaching career, Nigerian educators may choose to enrol in a post-degree teacher education program. Consequently, the majority of Faculties of Education offer teacher education programs at the undergraduate (four-year program) and/or at the post-graduate (two-year program) levels. That is, there is a mainstream four-year undergraduate program for students intending to graduate with a Bachelor of Education degree and a two-year postgraduate program for teachers already teaching without a teaching qualification, who previously graduated from any discipline and have been teaching but then chose to obtain a teaching qualification.

Faculties of Education in Nigerian university offer four teacher education programs that cater to both new and in-service teacher candidates looking to obtain a teaching degree: undergraduate regular; undergraduate sandwich; postgraduate regular; and postgraduate sandwich in addition to the masters and doctoral education programs. The undergraduate regular program is a four-year full-time Bachelor of Education program where teacher candidates fulfil program requirements following regular academic terms and dates. The undergraduate sandwich program is a four-year part-time Bachelor of Education program designed for students who had already completed a three-year College of Education diploma program and are already teaching but intend to complete a Bachelor of Education degree. In Nigeria, teachers with a College of Education diploma can only teach in K-6, but teachers with a university degree can teach from K-12.

The postgraduate regular program is a full-time two-year teacher education program intended for students who previously graduated from an undergraduate degree in another Faculty that is not a Bachelor of Education degree and intend to obtain a teaching qualification. Teacher candidates in the full-time two-year program fulfill teaching qualification obligations throughout the two academic years. The postgraduate sandwich program is designed for teachers who are already teaching with a university degree but do not have a teaching qualification. In this case, such teacher candidates fulfil program obligations on a part-time basis in the summer months (from July to September) over a two-year period.

In the Nigerian undergraduate Bachelor of Education program (which is where this study focused), *Tests and Measurement* is the only compulsory assessment course for all teacher candidates. *Tests and Measurement* offers students “an experience in test construction, administration, analysis and interpretation” (Benchmark Minimum Academic Standards (BMAS) Education, National Universities Commission (NUC), 2007, p.19). Statements such as this concerning the only compulsory assessment course in Nigerian teacher education provide evidence of an emphasis on teaching test development and interpretation to teacher candidates which elsewhere has been shown to be inadequate for the assessment knowledge and skills that they need in their future careers (Brown, 2021; Gulikers, 2009; Roscoe, 2013).

The NUC, through BMAS, prescribes the techniques for student assessment in Nigerian teacher education programs. The NUC mentions that the final grade of teacher candidates in a semester comprises of continuous assessment (between 30% and 40%) and final examination grades. Assessment techniques suggested for TEs’ use include “written essay examination, written objectives examination, individual and group projects, term paper, seminar presentation, oral examination and field experience or laboratory assessments” (BMAS, NUC, 2007, p. 9).

Although TEs may adopt peer assessment tasks if they wish, “the tradition is that the teacher is the assessor” (BMAS, NUC, 2007, p. 9). Furthermore, recommendations for TEs’ assessment of teacher candidates’ learning are that “the final grade of a student in a semester consists of two parts: (a) final assessment grade and (b) all assessments prior to final examination” (BMAS, NUC, 2007, p. 9). These recommendations for assessment in teacher education imply greater focus on summative than formative assessment practices in Nigerian teacher education.

A critical analysis of the BMAS suggests 1) there is only one compulsory assessment education course offered to teacher candidates, 2) the course focuses on teaching students the modalities of developing and administering tests, 3) the title of the compulsory assessment course (*Tests and Measurement*) also points towards the assessment education that is valued for teacher candidates, 4) TEs being the active implementers of assessment may signal an assessment policy with limited focus on student-centred learning or it may just be a clear indication that grades need to be assigned by professors and not be assigned by students, and 5) there is minimal focus on formative assessment practices such as timely and constructive feedback and continuous assessment appears to signify only that additional tasks must be graded and added to students’ exam final grade.

Perhaps, the above factors justify why Adeosun (2014) notes that although assessment education is compulsory during teacher education in Nigeria, most TEs do not practice assessment strategies that support the formative purposes of assessment due to existing assessment policies. Similarly, a study examining university instructors’, TEs’, and students’ views on the usefulness of continuous assessment to Nigerian higher education students’ learning (Adodo, 2013) illustrates how the Nigerian policy guidelines on assessment influence the views and practices of the key actors in teacher education programs – educators and students.

Specifically, both TEs and teacher candidates share a similar view that assessment tasks should be graded and part of students' final grades and that seems to be the extent of how "continuous assessment" is enacted (Adodo, 2013).

Yet, it is important to note that in situations as is in the Nigerian teacher education, there may be a few TEs who explicitly practice formative assessment with teacher candidates. Thus, it appears worthwhile to examine whether TEs who teach specific assessment courses in Nigerian teacher education programs conceive of assessment as tests and examinations only. In addition, do TEs' assessment practices reflect approaches to assessment that can improve the assessment literacy of teacher candidates? Do TEs conceptualize and practice assessment in alignment with how assessment is perceived in their assessment policy documents and among the wider university community and society? Will there be a connection between how TEs conceptualize assessment and the assessment tasks they implement? These intriguing questions inform the research questions that I explore in this thesis.

Purpose of the Research and Research Questions

The current Nigerian teacher education policy provides limited support for TEs' enactment of effective assessment (Anyanwu & Iwuamadi, 2015) and appears focused on teacher-centred education. The issues raised in previous paragraphs point to the need for further studies on classroom assessment practices and conceptualizations in Nigerian teacher education. Therefore, this study sought to unpack how TEs conceptualize and practice assessment with teacher candidates as well as examine the nature of the relationship between TEs' conceptions and assessment practices, especially those TEs who teach assessment courses to future teachers. By identifying some social and contextual factors that may impact how assessment is conceptualized and practiced (Ercikan & Solano-Flores, 2016), this study also explores

opportunities and constraints to TEs' conceptualization and practices of assessment in the context of Nigerian teacher education. Thus, the purpose of this study is to explore the conceptualizations and assessment practices of five Nigerian TEs who teach assessment courses, the nature of the connection between their conceptions and practices of assessment, and the opportunities and constraints they experience as they teach assessment course(s) through a qualitative, multiple case study methodology.

Specifically, this study sought to address the following research questions:

1. What are the assessment conceptions and practices of the five Nigerian TEs?
2. What is the nature of the connection between the five TEs' conceptions of assessment and their assessment practices?
3. What do the five TEs perceive as opportunities and constraints influencing their conceptions of assessment and their assessment practices in the context of Nigerian teacher education?

To address these questions, I collected data through (1) one-on-one interviews, (2) observation of online classes, (3) course syllabi and assessment samples, and (4) assessment of policy documents from five Nigerian TEs who teach an undergraduate assessment course.

Thesis Outline

This thesis is organized into seven chapters starting with this introductory section that provides an overview of the study, statement of the problem, my personal interests in the research, discussions around classroom assessment in the context of Nigerian teacher education, and the purpose of the research and research questions. Chapter 2 provides a review of literature related to the central ideas of my study. The chapter focuses on discussing formative and summative assessment research literature, conceptions of assessment in higher education contexts and in teacher education programs, and studies on the nature of the relationship between

conceptions and assessment practices. Chapter 2 concludes with a review of existing studies related to assessment practices in the context of Nigerian higher and teacher education.

Chapter 3 outlines the theoretical framework that guides my research and begins with my epistemological position to this study: sociocultural theory, then the sociocultural views of assessment and some sociocultural perspectives of conceptions and assessment practices are discussed. The chapter concludes with the conceptual framework adopted from theoretical models to address this study's research questions and presentation of findings. Chapter 4 details the methodological approach for the study, which is situated within a qualitative research paradigm. Chapter 5 begins with a document analysis illustrating the main components of the Nigerian policy documents on assessment in teacher education. This is followed by a description of the individual TE's cases, illustrating each person's conceptions of assessment, their assessment practices, influencing factors that shape their conceptions and practices of assessment.

Chapter 6 discusses and draws connections and differences among the five cases and includes a discussion of the findings in relation to the larger body of literature surrounding the main ideas in this study. Chapter 7 summarizes the key findings that emerged from this study. These findings reveal complexities in TEs' assessment practices while developing teacher candidates' assessment literacy in Nigeria. Chapter 7 concludes with contributions of the study to the literature, implications for professional development and practice, limitations to this study, and my future goals given the findings from this study.

CHAPTER 2: LITERATURE REVIEW

This chapter provides a review of literature concerning various aspects of classroom assessment. I begin by discussing formative and summative assessment purposes as well as the centrality of both forms of assessment to classroom practice. Then, I discuss assessment practices in higher education including a review of some studies on assessment in online courses, which leads to discussions of assessment practices in teacher education. A broad review of research on conceptions of assessment is presented, which is followed by reviewing conceptions of assessment in higher education contexts. I also reviewed the few studies that examine conceptions of assessment in teacher education programs, and I include a review of studies on the nature of the relationship between conceptions and assessment practices.

Because my research intends to contribute insights into TEs' assessment practices and conceptions in teacher education programs in Nigeria, I review existing studies related to assessment practices in the context of Nigerian higher and teacher education. For clarity, in this thesis, I use K-12 teachers to refer to teachers who teach in K-12 education, instructors refer to educators who teach any discipline in higher education, and I use Teacher Educators (TEs) to refer to those who teach in teacher education programs. The chapter concludes with discussions of previous studies relating to the factors that influence educators' conceptions and practices of assessment.

Classroom Assessment

Classroom assessment concerns the totality of the procedures and processes utilized by teachers and students to collect information from multiple sources and used to evaluate and to support student learning, as well as to improve instruction (Kane & Wools, 2020). Classroom assessment involves both formative and summative assessment (Black & Wiliam, 1998a; Wiliam

& Leahy, 2015). Drawing from Black and Wiliam's (1998a) seminal paper on the purposes for assessing student learning, assessment can serve either a formative or summative purpose. Assessment serves a formative purpose when the "evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction" (Black & Wiliam, 2009, p. 9), as well as to improve student learning (Wiliam & Leahy, 2015). Assessment may serve a summative purpose in the classroom where the evidence or judgement is used to grade students for reporting and promotion purposes as well as for taking decisions regarding their future potential (Black & Wiliam, 2018). I agree with the perspective of assessment researchers (e. g., Wiliam & Black, 1996; Wiliam & Leahy, 2015) that "assessments themselves cannot be formative or summative" (cited in Black & Wiliam, 2018, p. 553), the types of evidence generated, how the evidence generated is utilized, and the inferences drawn from assessment matters the most (Wiliam & Leahy, 2015). Hence, the function that assessment serves and the purpose for assessing student learning are highly important when designing classroom assessment tools (Suurtamm et al., 2016).

Whereas considerations must be paid to the function of assessment so that the evidence generated from assessments are interpreted and used for the reasons for which they were designed, educational researchers identify misconceptions in the functions that assessments serve in the classroom (Dixon & Worrell, 2016; Suurtamm et al., 2016; Wiliam & Leahy, 2015). These misconceptions arise as a result of "the increased focus on testing, as well as student and teacher accountability, which has blurred the low-stakes/high-stakes distinction between formative and summative assessment" (Dixon & Worrell, 2016, p. 154).

Furthermore, many educators discuss formative and summative assessment as two distinct assessments, however, the same assessment can serve either a formative or summative

function (Dixon & Worrell, 2016; Wiliam & Leahy, 2015). For example, educators may “use summative classroom assessments for formative purposes when they use the summative results to understand students’ misconceptions and design future instruction accordingly, or when they use tasks from large-scale assessments for instructional purposes” (Suurtamm et al., 2016, p. 3). In this instance, assessment is serving a formative purpose or function. As well, if all that happens is that the summative assessment is used to record students’ grades, without any form of feedback to improve students’ learning and educator’s instruction, then the assessment is serving only a summative function (Dixon & Worrell, 2016). Summarily, both formative and summative assessments are important in the classroom; what distinguishes them is the function they serve and how the evidence gathered is utilized (Wiliam & Leahy, 2015).

Research suggests that drawing evidence and inferences from assessment for formative purposes and utilizing such evidence in a timely manner (Black & Wiliam, 2018) has a strong influence on student learning and teaching strategies (Wiliam & Leahy, 2015). Hence, recently, classroom assessment researchers encourage the implementation of formative assessment by “articulating students’ learning targets, collecting feedback about where students are in relation to those targets, and prompting adjustments to instruction by teachers as well as changing learning processes and the revision of work products by student” (Andrade & Brookhart, 2020, p. 351). Similarly, Brookhart (2017) suggests that to practice sound and effective assessment that can improve student learning, teachers at all levels should begin to shift their assessment approaches from merely summative purposes to more formative purposes.

There is a great deal of discussion surrounding what sound classroom assessment that encourages more formative purposes to support student learning might look like. Drawing on the works of Black and Wiliam (1998a; 1998b) and Wiliam (2011), Wiliam and Leahy (2015)

present five key strategies to using formative assessment as a tool to guide student learning as well as to provide information that teachers can use to improve their instructional practices. The five key strategies of formative assessment include “clarifying, sharing, and understanding learning intentions and success criteria, engineering effective discussions, tasks, and activities that elicit evidence of learning, providing feedback that moves learning forward, activating students as learning resources for one another, and activating students as owners of their own learning” (Wiliam & Leahy, 2015, p. 11). Furthermore, Leahy and colleagues posit that to improve student learning and instruction, formative assessment involves three processes to consider: where the learner is going, where the learner is at the moment in their learning, and how the learner will achieve the desired learning outcomes (Leahy et al., 2005).

Similar elements of the key strategies of formative assessment proposed by Wiliam and Leahy are observed in other works by Andrade (2000), Cizek (2010), and more recently, Suurtamm and Arden (2017), as well as in Moss and Brookhart (2019). Formative assessment includes integrating assessment within instruction, involving students in the assessment process, and ultimately, choosing and implementing assessments that support student learning (Suurtamm & Arden, 2017). Sound classroom assessment involves collecting a range of types of evidence, including but not limited to, information from informal observations, classroom tests and quizzes, conversation with students, student self- and peer assessment, and student performance assessments (Andrade & Brookhart, 2020). A critical analysis of literature on classroom assessment implies that for assessment to be sound and effective, assessment needs to be a collaborative process that requires the active participation of the teacher, learner, and peers. Specifically, a synthesis of assessment research suggests that for assessment to be effective in moving classroom learning and instruction forward, assessment needs to (1) be embedded within

instruction, (2) be frequent and ongoing, (3) include feedback that is non-evaluative, timely, learning goal-oriented, and provides opportunities for students to revise and improve their work and deepen conceptual understandings, (4) use a variety of assessment strategies, (5) clarify learning goals and assessment criteria, and (6) include students in the assessment process (e.g., self- and peer assessment, developing assessment criteria with students) (Cizek, 2010; Moss & Brookhart, 2019; Suurtamm & Arden, 2017).

In addition to discussions on assessment as highlighted above, assessment pedagogy may unfold in unique ways when teaching in an online environment. For instance, assessing students in online classrooms may offer some affordances such as different opportunities for in-the-moment, oral, and written feedback which have the potential to improve student learning (Baleni, 2015; Panadero et al., 2022). However, online teaching has some challenges, particularly when this mode may be unfamiliar to educators. These challenges might stem from educators' and students' limited technological skills which may affect their usual assessment practices such as self and peer assessment, portfolios, or assignments. Furthermore, educators have limited control over the students' learning environments which may affect conducting virtual tests and examinations (Bartolic et al., 2021).

Evidence suggests that professors who move to online pedagogy may experience differences in practice in enacting formative and summative assessment in online settings. For instance, an educator familiar with providing oral feedback to support learning while stopping by a group who are working on a task may or may not be able to transfer these in-person strategies to an online learning setting. These differences may be due to limited professional development regarding adapting to emerging and new teaching situations (Panadero et al., 2022), limited

institutional resources to support online teaching and assessment practices, and coping with increased plagiarism (Baleni, 2015; Hill et al., 2021).

In both environments, the above discussions position classroom assessment as involving both formative and summative assessment and as a process that is central to teaching and learning. The discussions also highlight the essential purposes for assessing students and how recent research focuses on the implementation of assessment for the improvement of teaching and learning. This section also emphasizes the key strategies to pay attention to when educators attempt to implement sound and effective assessment and highlights some affordances and challenges in assessment that may arise when teaching in an online environment. The intersecting functions of assessment suggest a complex process that requires continual research investigation (in actual classroom practice) in light of the implementation of assessment strategies that can inform student learning as well as improve instructional strategies. Hence, the next section in this chapter discusses related studies on classroom assessment practices at the higher education level.

Classroom Assessment Practices in Higher Education

Classroom assessment in the higher education sector continues to attract the attention of education stakeholders from around the globe (Brunker et al., 2019; Carless, 2015). Discussions focus on ongoing concerns about assessment strategies that improve student learning as well as how assessment practices can stimulate lifelong learning among higher education students (Carless, 2015). A major challenge for higher education instructors relates to the “dual-duty” characteristic of assessment: accountability and learning (Carless, 2015, p. 964). That is, classroom assessment in higher education serves various and sometimes competing functions which include promoting learning, instructional design, grading, and promotions as well as

certification of studies. Consequently, higher education instructors often lack autonomy of practice and mostly experience practicing assessment for multiple and conflicting purposes (James, 2014).

There is strong research evidence (e. g., Black & William, 1998; Carless, 2015, 2019; Wiliam & Leahy, 2015) indicating that both formative and summative assessment approaches are effective means of improving student learning across contexts and education levels. Consequently, assessment experts advocate integrating summative and formative assessment practices in higher education to achieve the full range of purposes of assessment. Some studies (e.g., Carless; 2019; Postareff et al., 2012; Wu & Jessop, 2018) suggest that higher education instructors occasionally practice limited formative assessment, but typically, most higher education instructors simply assess student learning through end of the term examinations (Postareff et al., 2012). This assessment, often fail to assess higher-order skills in students, as well as have limited potential to provide useful feedback needed to advance student understanding and learning in a course (Carless, 2019).

A qualitative study conducted to examine higher education instructors' assessment practices at the University of Helsinki's Faculty of Pharmacy stated that the Faculty "was selected as one of the centres of excellence in teaching in 2010-2012. The atmosphere at the Faculty is enthusiastic for the development of teaching and a lot of effort has been paid to teaching development" (Postareff et al., 2012, p. 91). Postareff and colleagues report that 20 instructors out of a sample of 28 in the Faculty of Pharmacy assessed students using a singular traditional assessment tool: paper and pencil examination. Participant instructors who implement traditional assessment reported designing assessment questions outside of the course content to ensure high standards are set for passing the course, and also implementing assessment for

grading purposes and to rank students, as well as to confirm how well students covered the course content. Results from this study suggest that the majority of the higher education instructors that participated in the study practiced teacher-centered assessment with minimal support for deep student learning nor a life-long learning foundation for the students (Postareff et al., 2012). Despite that the Faculty of Pharmacy represents one of the centers of teaching excellence where instructors are provided opportunities for professional advancement in teaching and learning, it appears that instructors view assessment and teaching as two separate entities. Hence, in developing higher education instructors' teaching pedagogies, emphasis should be placed on developing instructors' knowledge on integrating assessment with teaching and learning processes (Postareff et al., 2012).

Similarly, Carless (2019) examined four Hong Kong university students' experiences with the feedback they receive from instructors drawing on data from eight semi-structured interviews. Students mentioned their preferences for dialogic, mid-semester feedback rather than the monologue, end of semester feedback that instructors often provided. Students in Carless' study added that end of semester feedback provides limited opportunities to improve their learning in the course, as it typically comes too late to offer improvement opportunities. Feedback to students no longer offers formative purposes when instructors foster grades above student learning; students report on instructors' incessantly grade-only feedback with limited empathy on how students receive the feedback (Carless, 2019). A related study explored the assessment experiences of 386 undergraduate students across 14 disciplines in three UK universities and found that students rated formative assessment as the least utilized form of assessment in their programs (Wu & Jessop, 2018). Thus, the study concludes that "grade-orientation is alive and well in UK higher education" (Wu & Jessop, 2018, p. 1027). Similar

findings are reported in other UK studies on limited formative assessment implementation in higher education (Jessop et al., 2014; Jessop & Tomas, 2017), with differences across disciplines due to institutional assessment systems (Gibbs & Dunbar-Goddet, 2009).

A Canadian study sought to investigate the occurrence and diversity of assessment practices in higher education and their relationship to student learning through descriptive quantitative research (Rawlusk, 2018). To establish whether instructors' assessment methods had learning potential and to determine the influence of program, class size, and teaching experience on instructors' use of assessment strategies in higher education, Rawlusk surveyed 1195 instructors from 12 higher education institutions across Alberta, Canada. Instructors' disciplines varied from Arts, Science, Nursing, Kinesiology, Education, Business and Creative Arts. Findings reveal that instructors' assessment methods had learning potential from their implementation of various assessment tasks. Instructors' most frequently used assessment methods included written response examinations, multiple-choice tests, quizzes, essay exams, and true-false and matching. Instructors also reported using self and peer assessment, written papers with feedback, and individual and group projects to facilitate student learning. Across disciplines, results indicate that Education and Nursing faculties enacted more assessment methods than Creative Arts, Business, Science, and Kinesiology. Further, instructors' years of experience did not impact the use of assessment strategies, while more assessment strategies were implemented when class sizes were lower (Rawlusk, 2018).

Despite that some studies report limited formative assessment enactment in higher education, a few studies report contrary results (e.g., Carless, 2015; Hansen, 2020). In a recent study, Hansen (2020) indicates that findings from their study "differ quite substantially from the usual norm within higher education" (p. 7). Hansen points out that findings from their study

differ from those reported in related studies because instructors in their study implemented a classroom assessment culture that focuses on collaborative learning and shared understanding between students and instructors. The main intention of instructors in Hansen's study was to holistically facilitate learning in ways that support students' desire to learn, and instructors exemplified this intent "by improving the students' self-belief and previous habits of thinking in relation to assessment, by enhancing their self-regulatory practices through self-assessment and reflection and finally, by facilitating a social classroom structure that did not undermine students' learning experiences" (Hansen, 2020, p. 7).

A qualitative study explored five award-winning instructors' learning-oriented assessment practices in Business, Geology, Law, History, and Architecture departments in a research-intensive university (Carless, 2015). Award-winning instructors have been found to excel in the design of innovative curriculum, implementing effective teaching and learning strategies as well as sound teaching and learning scholarship (Carless, 2015). Learning-oriented assessment is a multi-source approach that promotes current and future student learning (Carless, 2015). Learning-oriented assessment does not necessarily draw from formative assessment practices; summative assessment can be learning-oriented when it encourages deep learning as well as when it promotes a continuous high-level cognitive engagement (Carless, 2015).

Findings from Carless' study suggest higher education instructors practice assessment in ways that support student learning and engagement with content. For example, in the case of the Architecture professor, assessment was continuous and formative with the use of a cumulative portfolio. In Business, multiple assessment tasks were enacted and students were included in the process of assessment decisions. The Geology case involved laboratory activities with reports, differentiated group projects, and a final examination. In the case of the History professor, all the

features of a learning-oriented assessment were implemented. In Law, tasks involved critical analysis reports from media outlets, traditional tests and examinations, and a reflective portfolio-based diary. Although Carless' study illustrates the implementation of different assessment task designs across the five departments, results indicate that all the higher education instructors in the study practiced at least one learning-oriented assessment principle such as designing quality assessment tasks, developing students' evaluative expertise, and providing opportunities for student engagement with feedback (Carless, 2015). However, the degree to which opportunities for peer feedback is allowed and how peer feedback is orchestrated differ across the disciplines (Carless, 2015).

Relatedly, Hansen (2020) examined the views of two mathematics instructors and 20-25 students in the use of assessment strategies in a European higher education institution through a phenomenological approach. Students and instructors reported how timely feedback, self-assessment, instructor-student dialogue, and reflection activities assisted in instructional planning and students' understanding of the course content (Hansen, 2020). Hansen concludes that one of the fundamentals of assessment is a collaborative act between instructors and students in the process of teaching, learning, and assessment in higher education. As informative as Hansen's study appears, there was no detailed information describing the biography of the two mathematics instructors, which is a limitation that may affect the interpretations that can be made from the results. Contrary to Carless' (2015) description of participants as award-winning instructors whose experiences in professional teaching and learning programs could account for their assessment practices, it is difficult to understand what influenced participants' implementation of assessment in Hansen's (2020) study. Carless' study, however, indicates the

centrality of some social and cultural factors on how instructors approach assessment in higher education.

Evidence points to the mode of instruction as an influence on how assessment is practiced in higher education settings. For example, switching from in-person classrooms to virtual classrooms during the recent pandemic lockdowns revealed changes in instructors' assessment pedagogies in higher education. For instance, Sharadgah and Sa'di (2020) examined how instructors in a Saudi Arabian university approached assessment in a virtual learning environment. These authors found that higher education institutions were partially prepared in terms of policies and facilities to assess student learning in online contexts. Instructors also reported beliefs regarding increased student cheating in online assessment; thus, they were less convinced that online assessment could adequately offer effective learning opportunities for students. Findings from Sharadgah and Sa'di's study also point to lack of instructors' knowledge in e-assessment and other technological features required for online assessment. Sharadgah and Sa'di (2020) however argue that over a longer period of implementing online assessment, these limitations could be averted through continuous policy reviews on assessment in online environments and improved professional training for instructors.

Panadero and colleagues explored changes in 192 Spanish higher education instructors' assessment practices (e. g., assessment standards, tasks, grading, feedback, and rubrics) as a result of moving from in-person classrooms to online teaching. Findings from their quantitative research revealed that instructors included more multiple-choice questions than essay questions in examinations, enacted less group assignments and self and peer assessment, but reported minimal changes to their feedback and rubrics use and grading practices (Panadero et al., 2022). Specifically, 54% of instructors reported employing the same frequency and content of feedback

while 30% reported an increase, with 17% reporting a decrease respectively. Similar results were recorded for instructors' use of rubrics: 39% used them before and in online teaching, 46% did not use rubrics before and do not use them in online classes, and 15% reported changes in rubrics use. Panadero et al. (2022) contend that the slight changes in instructors' grading practices may be related to existing accountability frameworks in higher education contexts whereby instructors must provide grades as evidence of student's knowledge and passing or failing of a course. Also, it is likely that feedback and rubrics use remained the same since instructors teach older students who are more technologically advanced, therefore, feedback and rubrics use may have been virtually implemented prior to shifting to online learning (Panadero et al., 2022).

Further to discussions on sociocultural factors and how they may influence instructors' assessment practices, in Nigeria, "a contending issue with assessment is the fact that claims are made by many teachers in higher education to be practicing student-centered practices without doing so in reality" because of some entrenched cultural practices (Anyanwu & Iwuamadi, 2015, p. 353). Anyanwu and Iwuamadi's point is buttressed in a study that examined the relevance of continuous assessment practices among 81 Nigerian university instructors across five faculties (Arts, Science, Education, Law, and Social Sciences) through a quantitative descriptive analysis (Adodo, 2013). Continuous assessment is an essential assessment component used in the process of determining student progression and achievement in a course as well as contributing to students' program certification (Osokoya, 2012).

Continuous assessment in the Nigerian higher education system is mostly designed and marked by instructors, requires grading (30-40% of final student marks), and despite being referred to as "continuous", is often a one-shot and sometimes an impromptu activity (Anyanwu & Iwuamadi, 2015; Olutola & Olatoye, 2020). Although results from Adodo's (2013) study

indicate that higher education instructors perceive continuous assessment as a sound assessment method that helps to provide feedback to students and instructors, the only form of feedback were grades and continuous assessment was practiced in a one-time, test-based mode. Adodo's (2013) study concludes that instructors highly recommend the continual use of continuous assessment in higher education despite instructors' enactment of continuous assessment solely for summative purposes. Anyanwu and Iwuamadi as well as Adodo's studies illustrate how ingrained historical and cultural perspectives and practices could influence assessment practices in higher education.

Findings from the studies discussed in this section point to various assessment practices in higher education contexts. While some studies suggest limited formative assessment approaches in higher education, a few others indicate effective implementation and use of formative assessment strategies, and several note that assessment in online courses differs from in-person courses. Consequently, further research and analysis is required particularly along the lines of discipline specialties and contextual features. Higher education degree programs demonstrate extreme differences in their assessment situations based on the variation in the program and curriculum design processes and pedagogical conceptualizations in the disciplines (Jessop & Tomas, 2017; Postareff et al., 2012). The next section in this thesis discusses classroom assessment practices specifically in teacher education programs.

Classroom Assessment Practices in Teacher Education

Classroom assessment is an essential element of teacher education programs (Gulikers et al., 2009; Lunenberg et al., 2007). Given "the potential for education to influence the future and affect the world around us, deep thought into teaching, learning and assessing is critical" in teacher education programs more so than in other higher education programs (DeLuca et al.,

2021, p. 1). As a result of the complexities and demands of teaching as a profession, teacher education programs are expected to prepare competent teachers who have the requisite skills to educate students in the 21st century (Popoola & Afurobi, 2020). Literature on teacher education reveals that programs exist at different levels: preservice, postgraduate, and in-service teacher education. The focus of this thesis is on preservice teacher education, also referred to as preservice teacher training programs or initial teacher education where aspiring teachers learn the theoretical, practical, and pedagogical nuances of educating students in K-12 education systems. Teacher Education involves “the policies, procedures, and provisions designed to equip prospective teachers with the knowledge, attitudes, behaviours and skills they require to performing their task effectively in the classroom, the school and wider community” (Popoola & Afurobi, 2020, p. 63). Hence, a crucial goal for teacher education is to assist preservice teachers or teacher candidates in the effective learning, conceptualization, and understanding of teaching and assessment strategies prior to occupying professional teaching positions in schools (DeLuca et al., 2021).

A vital agent involved in formally educating teacher candidates is the Teacher Educator (TE). TEs teach (part-time or full-time) in teacher education colleges or Faculties of Education in universities and may also be involved in supervising teacher candidates during clinical practice (practicum) (Swennen & van der Klink, 2009). More recently, Kleinsasser (2017) describes TEs as ‘university-based doctoral-prepared faculty who engage in teacher educating – that is, the preparation of preservice or future teachers’ (p. 1035). Recent advancements in education indicate that in addition to teaching pedagogies, teacher candidates are expected to enter the teaching field with in-depth understanding and application of a variety of classroom assessment methods that support student learning (Munroe et al., 2015). However, earlier and recent studies

indicate that teacher candidates are mostly unfamiliar with classroom assessment pedagogies and its vital connection to instructional practices and student learning (e.g., Brown, 2021; Graham, 2005; Volante & Fazio, 2007; Xu & Brown, 2016).

One of the methods to develop teacher candidates' pedagogical understanding of assessment is for TEs to promote useful theoretical and philosophical notions of assessment through the assessment they practice with teacher candidates (Lunenberg et al., 2007). Another approach to improving teacher candidates' learning about assessment is through TEs' modelling of K-12 classroom practices that may be useful to teacher candidates in their future practices (Munroe et al., 2012; Munroe et al., 2015). Literature on assessment in teacher education reiterates the effects of modelling formative assessment practices to teacher candidates learning about classroom assessment. However, a review of formative assessment practices in teacher education programs indicates disparate levels of formative assessment implementation (Brookhart, 2017). For instance, studies (e.g., DeLuca et al., 2021; Grainger & Adie, 2014; Jones, 2014; Smith et al., 2014) indicate high-quality formative assessment implementation in some teacher education programs. Other studies (e.g., DeLuca & Bellara, 2013; DeLuca & Volante, 2016; El Ebyary, 2013; MacLellan, 2004) found minimal formative assessment practices among TEs.

The effect of modelling useful formative assessment practices in teacher education is illustrated where the assessment beliefs and practices of first- and third-year New Zealand teacher candidates as well as TEs across four teacher education programs were examined by Smith et al. (2014). Participating TEs described how they implemented formative and interactive assessment alongside seeking evidence of student learning through multiple sources while teaching a classroom assessment course. By the end of their program, teacher candidates' beliefs

shifted from mainly summative to more formative purposes of assessment. Specifically, teacher candidates developed greater awareness of the role of students in assessment and how assessment informs both teaching and learning processes (Smith et al., 2014). Similar conclusions of improvement in teacher candidates' learning about classroom assessment as a result of modelling effective assessment practices by TEs were reported in studies with 96 Australian teacher candidates in an assessment course (Grainger & Adie, 2014). Key findings indicate that teacher candidates perceived the course as valuable since their assessment knowledge was significantly increased (Grainger & Adie, 2014). Specifically, teacher candidates mentioned how their assessment skills improved due to TEs' provision of timely and useful feedback, implementation of peer assessment, and their co-creation of assessment criteria with teacher candidates (Grainger & Adie, 2014).

Similar findings to Grainger and Adie's Australian study were reported among a sample of 35 teacher candidates in an initial teacher education program in a Canadian university (DeLuca et al., 2021). These authors sought to examine the pedagogical conditions that assisted teacher candidates' learning in an assessment and evaluation concentration stream at various times during their teacher education program. Due to the fast-paced structure of most teacher education programs, DeLuca and colleagues situated their research within a slow movement conceptual framework (Fink, 2013) that supports deep knowledge and significant learning goals. Fink's significant learning taxonomy is interactive and relational as well as provides opportunities for students to:

Learn how to apply content and see connections with other content knowledge, understand the human implication of what they have learned, and come to care about learning how to keep learning, it may be possible that they will both retain

what they have learned and continue to utilize the concepts once they leave the classroom. (Fink 2013, p. 58)

Teacher candidates enrolled in the assessment and evaluation concentration take two classroom assessment courses over two semesters as well as a 3-week practicum (to experience hands-on assessment in K-12 education) during their teacher education program (DeLuca et al., 2021). Results from analysis of multiple data sources indicate significant learning progression during their programs. Specifically, in addition to building foundational knowledge of classroom assessment through the introduction to assessment theories, terminologies, sound practices, and policies, teacher candidates developed practical sustained integration and application of assessment knowledge through practicum engagements (DeLuca et al., 2021). The conditions modelled in the assessment and evaluation concentration that assisted teacher candidates include implementing student-centered assessment, prioritizing formative assessment implementation, cycles of coursework and practicum placements, collaboration between TEs and teacher candidates to design assessment criteria, and learning with and from peers (peer assessment strategies) (DeLuca et al., 2021).

Findings from Grainger and Adie (2014), Smith and colleagues (2014), as well as DeLuca and colleagues' (2021) studies highlight the implications of including an assessment-focused course in teacher education as a big step towards effectively modelling sound assessment strategies to teacher candidates. A study that reviewed assessment literacy development in teacher education argues that specific and distinct assessment course models have proven to be the most effective in developing teacher candidates' assessment knowledge compared to integrated and blended models (DeLuca & Volante, 2016). Furthermore, these studies also emphasize the significance of designing instruction and learning outcomes in

assessment courses in ways that support teacher candidates' learning and future applications in teaching positions.

Moreover, over a decade ago, Volante and Fazio in their study on teacher candidates' assessment knowledge in specific assessment courses warned that "teacher education programs that provide specific courses on assessment and evaluation...should not necessarily assume their teacher candidates are graduating with an acceptable level of assessment literacy to assess and evaluate students effectively" (2007, p. 761). Yet, more recently, DeLuca and Volante (2016) advocate for greater integration of formative assessment practices in teacher education programs as well as inclusion of specific assessment courses. It follows then, that the focus of TEs' practices in specific assessment courses should be to assist in bridging the knowledge gap by modelling sound assessment practices in teacher education. As teacher candidates experience sound, sustained, and effective assessment practices in teacher education, there is a better chance for the extension of such practices to K-12 students' learning (DeLuca & Volante, 2016). Similarly, the literature is clear regarding offering classroom assessment courses rather than only Tests and Measurement courses in teacher education programs as a means to develop teacher candidates' skills in classroom assessment (Brown, 2021; Gulikers et al., 2009; Poth, 2013; Roscoe, 2013).

Despite the call for more formative assessment in teacher education drawing from evidence-based research, limited formative assessment enactment in teacher education is discussed by DeLuca and Volante (2016) where the authors report on the inadequacies of most North American TEs to integrate formative assessment in their courses. Inadequate formative assessment practices by TEs may undermine teacher candidates' knowledge of sound classroom assessment practices (DeLuca & Volante, 2016). A similar claim is noticed regarding TEs across

universities in Egypt, Libya and Saudi Arabia who practiced minimal formative assessment and often confused summative purposes for formative purposes of assessment (El Ebyary, 2013).

A total of 63 TEs across three universities responded to surveys and granted interviews that formed the data analyzed in El Ebyary's study. Findings from this study indicate irregularities in TEs' formative assessment practices as most TEs perceive formative assessment as an invalid tool towards the effective assessment of teacher candidates' understanding of course content. High-stakes assessment priorities existing in the three countries, lack of institutional support to enact innovative assessment, as well as institutional and jurisdictional assessment policies influenced TEs' assessment practices (El Ebyary, 2013). Although institutions impose guidelines that conform to theoretical advancement in the field of assessment education, there is an established paradox between theory and practice in the three education systems sampled in El Ebyary's study. The study concludes that limited and misconstrued enactment of formative assessment practices among TEs resulted in perceived distrust in formative assessment among teacher candidates (El Ebyary, 2013).

In response to the growing understanding of classroom assessment as central to teacher candidates' learning (Poth, 2013) and future professional practices (DeLuca et al., 2021), teacher candidates are expected to be well-informed and familiar with the application of assessment that can support student learning (Earl, 2013). Hence, modelling of practical assessment strategies that are useful for student learning is essential in teacher education (Roscoe, 2013). However, Stutchbury noted in their experience of working with TEs across Africa, the UK, and India, how TEs are highly knowledgeable about the theory supporting learner-centered practices, nevertheless, "a disconnect remains between theory and practice and this should be a priority for

those of us involved in designing teacher education programs. Teacher education is rarely learner-centered and can perpetuate models of authoritarianism” (2014, p. 6).

Still on practicing learner-centered assessment in teacher education, Asim and colleagues sought to examine the competencies of 88 teacher candidates in a Nigerian teacher education program through descriptive statistical analyses (Asim et al., 2013). These authors argue that several issues related to “accusation of inadequate teacher preparation, teachers’ low competency in assessment, complexities of assessing large classes, as well as the popularity of multiple-choice questions variety” (p. 14) affects the quality of education at all levels in Nigeria. Teacher candidates’ competence to develop three multiple-choice question types: in-complete sentence, direct-question, and best-answer formed the study’s research question. An example of an in-complete sentence question includes “In the year _____, Nigeria became a republic”. Direct questions include “Which of the following cities was the first capital of Nigeria?” while best-answer questions require students’ understanding, application, and interpretation of knowledge to adequately choose the correct answer from the four options available. For example, “which of the following factors was the main reason for selecting Abuja as the Federal Capital Territory of Nigeria?” (Asim et al., 2013, p. 14).

Results revealed that teacher candidates ranked best-answer questions as the most difficult to develop, followed by in-complete questions, and lastly direct-questions as the easiest multiple choice question type to develop. Asim and colleagues conclude that despite the heavy reliance on multiple choice tests in most Nigerian teacher education programs, teacher candidates still were unable to develop multiple choice test questions that require higher order thinking skills for students. Implementing assessment solely for summative purposes in teacher education may not translate to sound assessment practices when teacher candidates begin their

professional teaching careers (Asim et al., 2013). Similar claims were made regarding Nigerian teacher candidates' and early career teachers' lack of knowledge about critical thinking skills and how to implement such skills in their teaching careers (Olatunji, 2017). Nigerian teacher candidates and “teachers need critical thinking skills to prepare good scheme of work and lesson notes, select appropriate content, methodology and instructional materials, set thought-provoking questions and respond to questions” (Olatunji, 2017, p. 212). However, since critical thinking skills are not modelled in Nigerian teacher education programs nor included in the curriculum, the country may graduate less competent teachers and continue to experience academic failure in K-12 schools (Olatunji, 2017).

The structure of classroom assessment instruction in teacher education may account for differences in assessment practice (Brown, 2021). Brown maintains that assessment instruction in teacher education includes five approaches: (a) no specific assessment course, (b) assessment instruction embedded in a course content, (c) courses that teach psychometrics and testing, (d) courses that teach multiple assessment methods including formative and summative testing, and (e) courses that teach multiple assessment methods but exclude formal testing. An illustration of the impact of assessment instruction on assessment practices in teacher education is evidenced in a study of assessment course syllabi across 180 teacher education programs in the U.S. (Greenberg & Walsh, 2012). These authors reported that although there are some assessment-focused courses in the teacher education programs, the majority of the courses focused on teaching traditional assessment methods to teacher candidates and only 3% of the programs analyzed effectively prepared teacher candidates in terms of sound assessment practices. Assessment methods noticed in the study centered around interpreting standardized assessment information and test design methods rather than sound assessment methods that could improve

teacher candidates' use of assessment data for teaching and learning improvement purposes (Greenberg & Walsh, 2012). Generally, assessment instruction varied across teacher education programs in their explicit focus to address relevant and useful assessment topics required to practice as teachers in schools (Greenberg & Walsh, 2012).

Another study investigated the alignment between accreditation policies, professional standards for assessment practice, and assessment course curriculum in Florida teacher education (DeLuca & Bellara, 2013). An analysis of 10 assessment course syllabi from NCATE (National Council for Accreditation of Teacher Education) - certified teacher education programs in Florida indicate limited provision of in-depth practical and theoretical foundations of assessment education to teacher candidates. Specifically, the 3-hour assessment courses provide inadequate knowledge in the areas of measurement theory assessment, fairness, and assessment processes, “let alone providing adequate coverage of more integrated and complex concepts of assessment for learning, communication of assessment information, and the linkages between classroom environment and assessment” (DeLuca & Bellara, 2013, p. 367).

Whereas there is strong evidence that specific assessment courses assist to develop early career teachers' confidence and skills (Brown, 2021; Greenberg & Walsh, 2012), yet, a single assessment course may not result in significant changes in teacher candidates' conceptual and practical knowledge (MacLellan, 2004; Volante & Fazio, 2007; Xu & Brown, 2016), as well as their engagement in in-depth learning about the complex connections between teaching, learning, and assessment (DeLuca & Bellara, 2013). Notwithstanding research submissions criticizing assessment courses as in-capable of providing teacher candidates with the requisite assessment education that could assist their professional practices, the above studies suggest crucial components for quality assessment courses which includes carefully designing assessment course

content that align with professional standards (DeLuca & Bellara, 2013), excellently-trained TEs who can connect theory with practices and model sound assessment strategies to teacher candidates (Xu & Brown, 2016).

Other influences on assessment practices in teacher education concern the social, cultural, and historical perspectives of stakeholders towards assessment in the context of each teacher education program. Classroom assessment practice in teacher education “is dependent on a combination of cognitive traits, affective and belief systems, and sociocultural and institutional influences, all of which are central to teacher education” (Xu & Brown, p. 155). That is, educators’ assessment practices are often under the influence of the interests and needs of various stakeholders such as colleagues, parents, students, and contextual policies on assessment (Gu, 2014). Contextual factors often establish boundaries for educators’ classroom assessment practices regarding their assessment decisions and actions (Gu, 2014); these contextual boundaries are “socioculturally specific, and, thus, teachers working in different contexts are expected to work towards different goals and outcomes” (Xu & Brown, p. 157). Bearman and colleagues (2017) also argue that academic contexts exert strong influences on promoting or constraining educators’ assessment design and practices. These factors are further elaborated later in this chapter.

Thus, a critical analysis of the studies reviewed above point out that the content of an assessment course and how the course is taught are very crucial areas of focus and worthy of consideration when examining assessment practices in teacher education. Also of importance are the conceptual understanding of TEs regarding assessment (Brown, 2021; Wang, 2020), the sociocultural perspectives including stakeholders’ (school administrators, students, parents, policy makers, and the general public) intrusions on assessment in particular teacher education

contexts (Xu & Brown, 2016). The above literature illustrates Earl's (2013) argument regarding the complexities inherent in research surrounding classroom assessment practices in classrooms as well as recognizing the existence and roles of broader contextual influences in classroom assessment research (Xu & Brown, 2016). It also provides clear insights into the multifarious elements influencing assessment practices in teacher education and the complexity involved in providing quality assessment education to teacher candidates.

The differences reported across studies reviewed above illustrate how different institutional and jurisdictional policies on assessment, TEs' conceptualizations of assessment, and instructional structures for assessment (Brown, 2021) influence classroom assessment in teacher education. In low-stakes assessment contexts, classroom assessment processes often actively involve teacher candidates, expose students to various interactive and informal assessment practices, and encourage students' understanding of concepts (Xu & Brown, 2016). In high-stakes assessment jurisdictions "(i.e., the majority of countries in Asia, Africa, and South America), teaching about assessment is likely to focus on formal testing practices and how best to maximize student preparedness" (Brown, 2021, p. 8). Xu and Brown (2016) and Brown's (2021) submissions are corroborated by strong research evidence that an individual's understanding or conceptualizations of a phenomenon influences their perception, responses to, interaction with, as well as actions taken (Fives & Buehl, 2012).

In summary, inconsistencies in reports around TEs' assessment practices, varied assessment course structures, as well as sociocultural influences on how assessment is practiced point out the need for further research into how TEs' practice assessment in teacher education. Besides, while current dialogues on improving teacher quality have rightly focused on teacher candidates' education and learning, Goodwin and Kosnik (2013) observed a "notable silence" (p.

334) on how TEs prepare for the roles they assume in teacher education programs. One of the preparatory steps to move scholarship forward around TEs' assessment practices includes the views that TEs have regarding assessment (DeLuca & Volante, 2016; Stutchbury, 2014). To better understand the decisions that educators make regarding assessment, there is the need to shed more light on their conceptions, views, and experiences (Looney et al., 2018). Thus, there is a gap to be filled in teacher education by examining TEs' conceptions of assessment alongside the assessment strategies they implement, especially while teaching educational assessment courses to teacher candidates.

Conceptions of Assessment

The substantial changes recorded over the years in education and society at large have also been observed in assessment studies of the views, beliefs, conceptions, and policies influencing assessment principles and methods. For example, Brown (2002; 2004) claims that conceptions of assessment have made the most particular impact on assessment practices. As efforts towards shifting educators' assessment pedagogies continue to rise, researchers should strongly consider how educators conceptualize assessment and the various forms of conceptions of assessment (Deneen & Brown, 2016). Conceptions of assessment “denote the belief systems that teachers have about the nature and purposes of assessment, and that encompass their cognitive and affective responses” (Xu & Brown, 2016, p. 156).

Brown's (2002) seminal publication on conceptions of assessment suggests four distinctive purposes that explain how educators express their conceptions of assessment: improvement of teaching and learning, accountability of schools and teachers, accountability of students, and irrelevance. Assessment for the purpose of improving teaching and learning focuses on educators expressing a constructivist view of learning and a belief that assessment

must facilitate learning improvement for students as well as for guiding teaching and learning (Brown, 2002). Conceptualizing assessment for accountability of teachers and schools refer to when educators think about assessment as a tool whose result is used to determine the performance of educators and schools (Brown, 2002). When educators conceptualize assessment as a process that makes students accountable, they believe assessment is for assigning grades and scores, student appraisal against standards, and for certification purposes (Brown, 2002). Assessment may be conceptualized as irrelevant when educators think that assessment is rigid, imposed, and is bad for students as well as not having any valid connection to teaching and learning processes (Brown, 2002).

More recent studies aggregate educators' conceptions of assessment into two major purposes: transformational (deep-level of understanding) or reproductive (surface-level of understanding) (Postareff et al., 2012), transformational or societal (Remesal, 2011), learner-centred or content-centred (Halinen et al., 2014). Educators that conceptualize assessment as a transformational and learner-centred process think about assessment a process that assist educators to support students' deep understanding and to develop students' higher-order thinking skills, alongside the achievement of in-depth learning of course contents (Halinen et al., 2014; Postareff et al., 2012; Remesal, 2011). Educators who articulate a reproductive, societal, and content-centred conception of assessment think about assessment as a means of evaluating students' memorization of facts, for assessing students against standards, and how much content students have mastered (Halinen et al., 2014; Postareff et al., 2012; Remesal, 2011). Analysis of other categories of conceptions of assessment, specifically concerning TEs' conceptions, which is the focus of this thesis, is further discussed in Chapter 3.

Examining educators' conceptions of assessment is particularly important as Brown points out that

[The] implementation of new standards from professional bodies or state authorities, while well intentioned, may be reduced in effectiveness, if teachers' conceptions of assessment remain unchanged or unchallenged, or if teachers remain unaware of their own conceptions. Simply introducing an assessment innovation ... even if it is accompanied by appropriate teacher professional development, will not necessarily achieve policy objectives unless the differing, interlocked conceptions of teachers are exposed and addressed. Otherwise, quite possibly few teachers will adopt and utilize the innovation in a manner consistent with the intentions of developers of the innovation. (2004, p. 314)

Brown's claim is further supported by other studies detailing the influence that educators' conceptions have on teaching, learning, and assessment of students (Brown et al., 2019; Delandshere & Jones, 1999; Deneen & Brown, 2016; Remesal, 2011; Thompson, 1992).

Whereas the centrality of educators' conceptions of assessment in assessment studies is established, the term "conception" has experienced complexity of use over time. Academic literature comprises a range of commonly interrelating constructs that researchers have equated with, used in place of, or linked to conceptions, including beliefs, perceptions, understandings, views, attitudes, etc. Amongst these terms, "belief" appears as the prominently used term when some researchers refer to conceptions (see Fives & Buehl, 2012; Pajares, 1992). To clarify the terms "beliefs" and "conceptions," Remesal (2011) asserts that beliefs usually refer to "those basic statements about different aspects of reality that any person might take for true at different times of his/her life, although they do not have to constitute an objective truth at all" (p. 474). Remesal argues further that although beliefs are generally resistant to change, they could evolve through the course of human living, and they are easily responsive to influences within an individual's social environment. Remesal goes on to discuss that beliefs do not exist loosely in

an individual's mind; instead, they build up to form conceptions. Thus, conceptions are groups or clusters of beliefs we hold that account for our decisions and actions (Remesal, 2011).

Other attempts to differentiate between beliefs and conceptions contend that beliefs represent how knowledge is acquired, while conceptions refer to the understanding of that knowledge (Chan, 2011). For Yilmaz and Sahin (2011), beliefs are similar to an individual's preference for doing something based on previous experiences. An illustration of Yilmaz and Sahin's argument regarding beliefs is the idea that teachers who believe teaching and assessment to be student-centred were perhaps taught by educators who propagated these same beliefs about teaching and assessment. Thus, Yilmaz and Sahin argue that while beliefs and conceptions are related constructs, conceptions provide a framework for understanding beliefs. The main argument here is further discussed by Samuelowicz and Bain (2002) in their study on higher education instructors' conceptions of assessment. These authors substantiate that conceptions are "the possible ways in which a phenomenon can be construed or experienced" (p. 175). Conceptions better explains an individual's contextual experiences, interpretations, and understandings than beliefs, hence, an individual can express more than one conception due to contextual situations (Samuelowicz & Bain, 2002).

While it is true that beliefs have been used in the literature to refer to educational themes in studies exploring teaching and learning, curricula, and philosophical theories of knowledge, researchers who examine beliefs in relation to classroom assessment endorse using the term "conceptions" when attempting to describe educators' varied interests, views, and notions (Opre, 2015). Aligning with the views of Chan (2011), Yilmaz and Sahin (2011), as well as Samuelowicz and Bain (2002), Opre argues that beliefs are a sub-category of conceptions, and that the terms used by seminal researchers in the field of classroom assessment is "conceptions"

(for example, Brown, 2002; 2004). Following substantive evidence from classroom assessment researchers regarding the use of conceptions, this doctoral study adopts the use “conceptions of assessment”.

The term *conception* was introduced by Thompson (1992, as cited in Aydeniz, 2007) as “a general mental structure defining teachers’ conceptual ecology which encompasses teachers’ beliefs, knowledge and dispositions” (p. 8). Consistent with Aydeniz (2007), the process through which educators scaffold instruction and make assessment decisions are based on their conceptions of teaching, learning, and assessment processes (Opre, 2015). Similarly, Aydeniz (2007) argues that conceptions are mental structures or “frameworks through which a teacher views, interprets, and interacts with various aspects of classroom practice” (2007, p. 8). Comparably, to Pratt, conceptions are a “lens through which a teacher views, interprets and interacts with his/her understanding of the world” (1992, as cited in Azis, 2015, p. 130). Conceptions are the representations, knowledge, and ideas that educators hold regarding how an action, behaviour, or practice ought to be implemented (Opre, 2015). Thus, in line with the accepted construct established in conceptions of assessment studies and models, I define conceptions of assessment as the ideas and representations that TEs have about what classroom assessment is and how and why it should be used in classrooms.

Conceptions of Assessment in Higher and Teacher Education

Conception of assessment is identified as an essential mediating factor in the process of developing assessment literacy (Xu & Brown, 2016). Research studies suggest that conceptions of teaching, learning, and assessment are interrelated (Brown, 2004) and have a strong influence on pedagogical practices and performances (Pajares, 1992). Existing literature related to conceptions of assessment largely focuses on teacher candidates, in-service teachers, and

university instructors (e.g., Cowie, et al., 2014; Reimann & Sadler, 2017; Remesal, 2011), while minimal attention has been paid to TEs' knowledge and understanding of assessment (Wang, 2020). Thus, this section of the literature begins with a review of conceptions of assessment in higher education and later discusses the few studies focused on TEs' conceptions of assessment. In addition, the literature suggests a connection between conceptions of assessment and assessment practices. Therefore, this section includes the review of literature on the nature of the relationship between conceptions and assessment practices especially among university instructors, whereas the minimal studies on the connection of the two concepts in teacher education are also included. A variety of factors that may influence TEs' conceptions and how they practice assessment concludes this section.

Conceptions of Assessment in Higher Education

Educational researchers emphasize the need for studies to continuously seek educators' conceptions especially in the area of classroom assessment in higher education (Davies & Taras, 2018; Taras & Davies, 2014). Educators' conceptions of assessment "refer to the cognitive beliefs about and affective attitudes toward assessment that teachers espouse, presumably in response to the policy and practice environments in which they work" (Brown et al., 2019, p. 1). Brown and colleagues' description of conceptions of assessment does not only position the construct as a mental representation laden with affective attitudes, but that it has contextual underpinnings. That is, even though studies on assessment in higher education span over two decades (for example, Samuelowicz & Bain, 2002), the context of educators' work could offer differential findings. Context includes education level (compulsory to post-compulsory education), disciplines, education jurisdiction, etc. (Brown et al., 2019).

A critical analysis of research on higher education instructors' conceptualizations of assessment suggests some distinctive factors that explain how instructors express their conceptions of assessment. In one of the seminal studies that describe how university instructors conceptualize assessment, Samuelowicz and Bain (2002) exemplify a typology of such factors among a sample of twenty instructors across seven disciplines in three universities in Brisbane, Australia. Results from this study indicate that while some instructors conceptualize assessment as a reproduction of knowledge, other participants emphasized that assessment is for students' construction of knowledge. Drawing on Samuelowicz and Bain's (2002) dual classification of instructors' conceptions of assessment, but focusing on a specific discipline, Postareff and colleagues (2012) sought to examine the conceptions of assessment of 28 Faculty of Pharmacy instructors in a Helsinki University. Helsinki instructors reported conceptions of assessment that were reproductive (surface-level) and transformational (deep-level of understanding) (Postareff et al., 2012). Instructors with a reproductive conception understand assessment as a means of evaluating students' memorization of facts and how much content students have covered. Other instructors conceptualize assessment as a transformational process that assists in the evaluation of students' deep understanding and thinking, alongside the achievement of in-depth learning of content (Postareff et al., 2012).

Another study on higher education instructors (Halinen et al., 2014) examined the conceptions of assessment of 15 life sciences faculties (Biological and Environmental Sciences, Agriculture and Forestry, Veterinary Medicine, and Pharmacy) in a research-intensive university in Helsinki. Although Halinen and colleagues expand on Samuelowicz and Bain as well as Postareff and colleagues' studies by exploring four faculties, results from their study are similar to those from earlier studies (for example, Postareff et al., 2012; Samuelowicz & Bain, 2002).

Instructors across the four faculties discussed their conceptions of assessment as content-centered and learning-centered. This dual classification appears to correspond to the reproductive and transformative conceptions of assessment found in Postareff and colleagues' and Samuelowicz and Bain's studies. Instructors reporting content-centered conceptions understand assessment as the process of determining how much content students assimilated and for grading purposes. Instructors that reported learner-centered conceptions mentioned understanding assessment as a process that makes them co-learners, that engages students, that is embedded in teaching, as well as a process that focuses on improving student learning.

Another seminal study reports educators' conceptions of assessment (Brown, 2002) in a four-factor model that includes: improvement of teaching and learning, accountability of schools and teachers, accountability of students, and irrelevance factors. Brown's (2002) study among New Zealand educators provides a framework which several studies (extensive cultural and jurisdictional research) leverage to explain how educators conceptualize assessment in different contexts. Participants in Brown's (2002) study who conceptualize assessment as an improvement of teaching and learning in most cases, have a constructivist view of learning and assume they must facilitate learning for students. Such educators also understand assessment as a process for obtaining information to assist students in achieving their learning goals (Brown, 2002). Educators who conceptualize that assessment makes schools and teachers accountable, perceive assessment as a means to reward or penalize teachers' practices and also as an activity that requires them to openly defend their classroom teaching and assessment practices to stakeholders (Brown, 2002). Moreover, educators holding the student accountability conception of assessment conceptualize assessment as the responsibility of students: "students are individually accountable for their learning through their performance on assessments" (Brown, 2002, p. 40). The

irrelevance conception of assessment is grounded on educators' conceptualization of assessment as a formal, rigid, imposed, and a testing process that has no valid identity in the teaching and learning of students (Brown, 2002).

Brown's Conceptions of Assessment Inventory (2006) that was developed four years after their seminal (2002) study was used in León and colleagues' (2015) study to investigate 388 Engineering professors' conceptions of assessment in a Cuban University. Participants reported conceptions relating to the improvement of teaching and learning and accountability of students and schools more than the irrelevance factor. León and colleagues reported how Latin American traditionalist approaches to assessment influenced instructors' conceptions of assessment as both for improvement and accountability purposes. By viewing accountability of students and schools as a way to improve teaching and learning, these unique "conceptualizations of assessment held by Cuban professors appeared to arise from policies applied in the past but still affecting in the present. It seems our educational system is still suffering of the inertial effect in the assessment system" (Leon et al., 2015, p. 7). An existing accountability framework and high-stakes assessment approaches in Cuba point to the need for educational policy reforms geared towards more learner-centered approaches to assessment in Cuban higher education (Leon et al., 2015).

Still on examining conceptions of assessment in distinctive higher education disciplines and drawing from Brown's conceptions of assessment model, 18 Biomedical sciences professors in an Australian university completed the Brown's Conceptions of Assessment questionnaire (Hogson & Garvey, 2020). Biomedical sciences professors who participated in this study rated student accountability and institutional accountability higher as the most important role that assessment plays in higher education. Findings from León and colleagues (2015) and Hogson

and Garvey (2020) suggest the need for more studies in other higher education disciplines. In support for extensive research focusing on distinctive disciplines, Yeo and Boman highlight that “having a more nuanced understanding of the epistemological and cultural orientations of the disciplines will help to more productively consider assessment practice in particular disciplinary contexts, rather than universally in post-secondary education as a whole” (2017, p. 483).

Thus, drawing on a sociocultural perspective, Yeo and Boman (2017) sought to understand the conceptions of assessment of 27 full-time and part-time instructors at a western Canadian teaching institution. Yeo and Bowman, who are faculty development consultants, characterized disciplines into soft pure (for example, humanities and social sciences), hard pure (for example, natural sciences), soft applied (for example, education, nursing, and social work), and hard applied (e.g., engineering and medicine). An analysis of interview data revealed differences across the four discipline categories, with instructors expressing a theory to practice orientation to assessment in the soft applied disciplines such as education, nursing, and social work. Instructors in the soft applied disciplines assess students in practical situations, especially because these programs highly emphasize practicum and clinical placements. Specifically, an academic from the Faculty of Education mentioned that:

If a scientist sees the world in really, you know, objective terms then they want to assess that way, whereas we, in education, don't see the world in a way that is so black and white ... Traditionally, assessment was used to sort students. (p. 490)

Yeo and Boman (2017) conclude that variations in instructors' conceptions of assessment in higher education are related to the varied epistemological conceptions of knowledge, the cultural and pragmatic elements, research practices emphasized, as well as the social ideals and norms specific to each discipline.

Similar inconsistent conceptions were found among a sample of 50 Faculty of Education instructors, 50 health and life science-related disciplines instructors in a UK university, and 11 staff developers across the UK (Davies & Taras, 2018). Staff developers as defined in this study are facilitators who on a national level, are involved in the design of teaching and learning programs for new instructors in the professional development of other university instructors (Davies & Taras, 2018). Contrary to how Canadian instructors conceptualize assessment in Yeo and Boman's study, Davies and Taras reported from participants' responses to a questionnaire that there is a consensus in instructors' understanding of summative assessment. Across participant groups, "there seems a recognition among the science instructors and staff developers that summative assessment tasks need not be examinations, whereas education instructors strongly associate summative assessment with examinations, which perhaps reflects practice in the compulsory sector" (2018, p. 483).

Furthermore, even though instructors in education appear to have a better understanding of central assessment terms (formative and summative assessment), generally, there are still discrepancies in their understanding of the interconnections between these terms (Davies & Taras, 2018). Results from this study suggest that within and across the groups examined, there are varied conceptions among higher education instructors. Consequently, there is the need for further studies along the lines of discipline (especially education) in higher education to further understand instructors' conceptual understanding and the connection to their practices and pedagogies (Davies & Taras, 2018).

A fascinating line of thought in studies of higher education instructors' conceptions of assessment is that educator's conceptualizations may be context-dependent (Brown et al., 2019; Postareff et al. 2012; Sadler & Reiman, 2018, Zhou & Deneen, 2016). This affirmation is in line

with Brown and colleagues' (2019) assertion of the crucial role that institutional and jurisdictional policies on assessment, cultural norms, and social values have on conceptions of assessment. Context-dependency of conceptions of assessment means that educators' working contexts may influence how they conceptualize assessment and, therefore, account for some of the variations reported in studies across cultural, discipline, and educational contexts (Barnes et al., 2015; Brown et al., 2019; Davies & Taras, 2016). For instance, in a recent study exploring educators' conceptions of assessment as a global phenomenon or global localism, Brown and colleagues (2019) found that educators in low-stakes assessment environments conceptualize assessment more as an improvement of teaching and learning process. In contrast, a significant percentage of educators in high-stakes assessment environments report conceptions of assessment related to student, school, and teacher accountability (Brown et al., 2019).

Conceptions of Assessment in Teacher Education

Higher education teaching and learning pedagogies have important roles in developing graduates' practices and competencies in their workplaces (Carless, 2019; Yeo & Boman, 2017); teacher education is even more critical since one of the expectations of teacher candidates is to become quality teachers who can impact student learning and their future ambitions (Levy-Vered & Alhija, 2018). While teacher education is central to developing successful teachers, consideration of the factors influencing educators' practices such as conceptions of assessment have been highly encouraged over the past two decades (DeLuca et al., 2021; Levy-Vered & Alhija, 2018; Pajares, 1992; Taber et al., 2011), including shaping teacher candidate's conceptions of teaching, learning and assessment (Beziat & Coleman, 2015).

Consequently, several educational researchers emphasize conceptions of assessment in teacher education as the most important factor influencing teaching, learning, and assessment

practices (e.g., Brown, 2002; Brown & Gao, 2015; Dennen & Brown, 2016; Moiiinvaziri, 2015; Opre, 2015). Despite substantive evidence reporting the critical role that conceptions of assessment play in teacher education, there are limited studies in this research area (Brown, 2021). Among the limited studies are those that examined teacher candidates' conceptions of assessment in Chinese contexts (Chen & Brown, 2013; Xu & He, 2019), New Zealand, (Hill et al., 2017), the UK (Taber et al., 2011), Israel (Levy-Vered & Alhija, 2018), the US (Beziat & Coleman, 2015; Dennen & Brown, 2016; McGee & Colby, 2014), and Canada (DeLuca & Klinger, 2010; DeLuca et al., 2019). A few others have investigated conceptions of assessment among TEs (e. g., Aydin et al., 2009; Parkes & Rawlings, 2021; Wang, 2020)

Of the few studies I located that explored TEs' conceptions of assessment, Aydin and colleagues (2009) examined the conceptions of assessment among five Turkish mathematics TEs through a qualitative case study methodology. The premise for conducting their study developed after a new mathematics curriculum was introduced in Turkish teacher education. Analysis of interview data indicate that three of the TEs reportedly held a conceptual level (assessment as a process that engages both TEs and teacher candidates as well as considers the emotions of all actors in the process) conception of assessment while two TEs were at the independent level (valuing individualized assessment and viewing assessment as a process that provides feedback to TEs and teacher candidates) conception of assessment. Aydin and colleagues (2009) conclude that TEs' conceptions of assessment fairly complied with the new Turkish curriculum on mathematics in teacher education that still emphasizes traditional assessment methods, thus encouraging measurement of learning among teacher candidates rather than assessment for other purposes. Aydin et al. also call for further research into TEs' conceptualizations of assessment from a sociocultural perspective.

A decade after Aydin and colleagues advocated for more studies examining TEs' conceptions of assessment, Wang (2020) observed and interviewed three award-winning TEs in a Hong Kong university, with aims to examine the connection of TEs' conceptions of assessment and their conceptualizations of metacognition. Award-winning TEs are educators that "exhibit high-quality teaching and learning practice; student-centered teaching or teaching strategies that are attractive to students; and innovative or provocative practices" (Wang, 2020, p. 5). TEs in Wang's study demonstrated multiple conceptions of assessment ranging from accountability to learning purposes of assessment. Specifically, one TE mentioned understanding assessment as a tool for improving students' learning through ongoing formative and supportive feedback, another TE mentioned assessment serving to improve student learning and makes students accountable for their learning, the third TE reported understanding assessment as a non-graded participatory process leveraging informal feedback and classroom dialogue to improve student learning. Findings from this study indicate how educators' understanding of teaching, learning and assessment could influence their conceptualizations of assessment and their practices with teacher candidates. Relatedly, educational researchers (e., g., Brown, 2021; Xu & Brown, 2016) also advance a similar proposition that recognizes the need to advance TEs' assessment literacy, their knowledge of the affective dimensions of assessment, as well as the sociocultural circumstances of practicing effective assessment.

Another recent study (Parkes & Rawlings, 2021) investigated the conceptions of assessment of 149 TEs in undergraduate and graduate-level music education programs across the US. Through a mixed-methods convergent parallel research design approach, Parkes and Rawlings sought to understand how music TEs conceptualize assessment in their course and their personal and program efficacy level of assessment pedagogy. Participants TEs held

conceptions of assessment that fall within two themes, process-oriented and product-oriented. For example, a TE who conceptualizes assessment as a process or a series of processes mentioned that “assessment provides data that helps to determine student understanding and learning and provides feedback on the efficacy of material presented, leading to revision on instruction” (Parkes & Rawlings, 2021, p. 42). Another TE reported their conceptualization of assessment as a product, thus mentioned that “assessment is the tool or tools by which students demonstrate their understanding, knowledge, or skills on a particular topic”, while another stated that “when you apply a grade to the activity... as a final activity at the end of class” (Parkes & Rawlings, 2021, pp. 42-43).

Further, Parkes and Rawlings’ (2021) study reported differences in TEs’ conceptualizations and assessment pedagogy efficacy levels between TEs who had teaching experience and those new to teaching in teacher education. Although their findings did not provide reasons for this discrepancy, the authors considered prior assessment literacy training and institutional support for assessment pedagogy as explanations for the observed differences in participants’ assessment pedagogy efficacy levels (Parkes & Rawlings, 2021). That is, TEs with years of experience may have participated in a number of professional development programs geared towards assessment literacy development, which may account for their understanding of assessment as process-oriented as well as their strong competence to implement various assessment strategies. Consequently, the study recommends further research that focuses on TE’s conceptions of assessment in assessment-specific courses in music teacher training programs to analyze the possible relationship between prior assessment education and professional development experiences on assessment and how TEs conceptualize assessment and their efficacy levels.

Whereas studies on conceptions of assessment and assessment practices in higher education and teacher education reviewed above suggest differences along the lines of education contexts, jurisdictional assessment policies, discipline-specific areas, professional levels (teachers in training), one key idea that connects these studies is researchers' consideration of the social, contextual, cultural, and historical factors influencing TEs' conceptions and practices of assessment. Considerations of the sociocultural conditions in contexts is essential towards understanding educators' conceptions and practices of assessment (Brown et al., 2019; Brown, 2021), hence the next section in this thesis discusses this vital aspect of classroom assessment research in teacher education.

Before then, a careful analysis of classroom assessment research suggest considerations of social, contextual, cultural, and historical factors in the relationship between educators' conceptions and assessment practices. For instance, while discussing sociocultural perspectives to teacher education and assessment, Cowie and Cooper (2017) highlight that

It is important to acknowledge that our understanding of learning and our goals for education give shape to the expectations we have, the performances we value and, by implication, the assessment evidence we look for and the criteria that inform our judgements and actions. (p. 3)

From a sociocultural perspective, there is a need for a shift in educators' assessment practices to provide more opportunities to advance student understanding, however, this shift is more complex than as envisioned (Pryor & Crossouard, 2008). In particular, Pryor and Crossouard (2008) advocate for a sociocultural perspective and prioritizing adaptations to broader contextual influences when interpreting educators' efforts towards implementing sound assessment. Broader contextual influences that require consideration when analyzing assessment practices include educators' conceptions and actions as influenced strongly by their instructional

environment and the cultural norms associated with assessment practices (Offerdahl & Tomanek, 2011). These authors proceed to argue that “changing the assessment practices of teachers to promote student learning requires that they not only adopt new teaching strategies, but also that teachers change how they think about and gather evidence of student understanding” (Offerdahl & Tomanek, 2011, p. 782). Hence, Offerdahl and Tomanek’s (2011) and Cowie and Coopers’ (2017) studies imply that researching the complex relationship between educators’ thinking and practice is critical to understanding and promoting changes in educators’ assessment practices.

Other educational assessment authors (e. g., Brown & Gao, 2015; Levy-Vered & Alhija, 2018) shed more light on Cowie and Cooper’s (2017) and Offerdahl & Tomanek’s (2011) stance in their description of the existence of a relationship between educators’ conceptions and practices of assessment. Educators’ understanding of the nature and purpose of examining, assessing, testing, and evaluating student learning (Brown & Gao, 2015) is highly important given that “what people believe, what they intend, the amount of control they have, and the norms of their social environment, interact together and shape the behaviors, practices, or actions they perform (Levy-Vered & Alhija, 2018, p. 85). It follows then that as educators attune to the social conditions related to assessment in their contexts, they often create a mental representation of what assessment should be, which by implication, suggest the assessment practices and other assessment decisions that they prioritize. This evidence calls for a review of possible relationships between conceptualizations of assessment and how assessment is practiced in actual classroom conditions, including in online teaching settings.

Conceptions and Practices of Assessment Relationship

Within classroom assessment contexts, many researchers have studied conceptions of assessment and the influence of these conceptions on educators’ classroom assessment decisions

and practices (Monteiro et al., 2021). Brown argues that “all pedagogical acts, including teachers’ perceptions and evaluations of student behavior and performance (i.e., assessment), are affected by the conceptions teachers have about many educational artifacts, such as teaching, learning, assessment, curriculum, and teacher efficacy” (p. 303). A little less than a decade ago, a similar argument was made by Dawson et al. (2013). Furthermore, Wang (2020) observes that TEs’ conceptions of assessment could in many ways infer their assessment decisions, their purposes for assessing students, as well as the assessment they implement in teacher education programs.

Further to the above, studies in educational research indicate that the importance of studying conceptions is the predictive connection it has with practices (Barnes et al., 2015). In the domain of assessment, several authors such as Brown (2002; 2004; 2008), Opre (2015), Azis (2015) and others are of the view that educators’ conceptions influence their classroom assessment decisions and professional endeavors. Espousing different conceptions of assessment result in different classroom assessment practices (Monteiro et al., 2021). Also of importance is the possibility of educators having multiple conceptions of assessment. In this case, educators’ conceptions have been found to include for example, assessment for the improvement of teaching and learning as well as assessment for accountability purposes such as grading and certification (Gebriel & Brown, 2014). A more complex relation between conceptions and practices of assessment is expected in cases where educators hold multiple conceptions (Brown et al., 2019). That is, educators often interpret improvement of teaching and learning conceptions in different ways depending on the social and cultural perspectives of assessment in their educational contexts (Gebriel & Brown, 2014). Hence, Brown and colleagues established that the

major factor that is responsible for educators' conceptions of assessment (single or multiple), is the education context or environment where educators work (Brown et al., 2019).

Extant literature on the nature of the relationship between conceptions and practices of assessment can be found for K-12 educators (e. g., Brown, 2004, 2006; Gebril & Brown, 2014 etc.), other studies focused on higher education instructors (e.g., Offerdahl & Tomanek, 2011; Postareff et al., 2012; Reimann & Sadler, 2017; Sadler & Reimann, 2018; Zhou & Deneen, 2016) and a few studies concentrated on teacher education (e.g., Elshawa, 2016; Levey-Vered & Alhija, 2018; Mustafa & Manaf, 2019). Whereas substantial evidence signifies a connection between conceptions and practices of assessment in K-12 settings, the majority of recent higher and teacher education studies build upon evidence from K-12 settings to analyze the nature of existing relationships between the two concepts, thus this section of this literature review focuses on studies conducted in higher education and the few reported in teacher education programs.

By way of the nature of connection between conceptions and assessment practices among Helsinki instructors (as discussed in Postareff, 2012 above), similar findings emerged among a sample of three higher education science instructors in a southwestern university in the US (Offerdahl & Tomanek, 2011). The study sought to examine the complex connection between instructors' conceptions and assessment practices by encouraging instructors' experimentation with alternative assessment strategies such as reading questions, clicker questions, and providing useful and timely feedback to students. Initially, all three instructors discussed assessment as primarily a means of gathering information for the assignment of grades (Offerdahl & Tomanek, 2011).

An interpretive analysis of interview data, reflective journals, and classroom observations for a period of 2 years revealed shifts in the three instructors' conceptions of assessment. An

expanded conception of assessment was observed among the instructors who later describe assessment as a process of obtaining information from various sources to diagnose students' prior learning, to support learning, and as a process that involves student participation. By expanding their conceptions of assessment, the three instructors' assessment practices also changed. For example, rather than providing grades as feedback, instructors provided in-the-moment, verbal, and written feedback to students (Offerdahl & Tomanek, 2011).

Nevertheless, changes in instructors' conceptions in Offerdahl and Tomanek's study did not translate to a complete revision of their teaching and assessment practices. For example, participant instructors "continued to use clicker questions after the study, but generally did not use what they learned about student thinking to alter their instruction. They entered the classroom with a prepared lecture and seldom deviated from it" (Offerdahl & Tomanek, 2011, p. 791). In addition, upon concluding data collection, "instructors focussed more on grading and responding to questions than on using the questions to diagnose student understanding" (p. 792). Although findings from this study suggest a link between assessment strategies and conceptual changes, to continue implementing sound assessment strategies in classrooms, the authors propose that "there is a threshold along the spectrum of assessment thinking that must be reached before an instructor will revise his or her practice" (p. 791). Offerdahl and Tomanek conclude that the relationship between conceptions and assessment practices is complex and exist along a conceptual progression from less to more sophisticated conceptions. These authors' viewpoint is similar to those of DeLuca and colleagues (2019) who argue that educators' conceptions of assessment could vary from a 'letter' stage to a 'spirit' stage, which influences the assessment strategies prioritized by educators.

DeLuca and colleagues' (2019) study elucidates the differences in assessment practices between educators holding a novice (following the written requirements or the letter of the policy) and those with more expert (following the spirit of the assessment approach) conceptions of assessment while detailing the developmental shifts in conceptions and practices of Assessment for Learning (AfL) among 88 K-12 educators in two Ontario school boards over a three-year professional learning program. These authors found five themes that explain educators' conceptual understanding and implementation of assessment for learning practices, which they describe as "(a) learning the letter, (b) practicing the letter, (c) responding to the letter, (d) adopting the spirit, and (e) leading the spirit" (p. 274). Educators at the initial stages continue to wrestle with the ideas of AfL, and at times push back on the value of the concepts for supporting student learning" (DeLuca et al., 2019, p. 280). As educators' conceptual understanding moved "toward the 'spirit' stage did they begin to embody notions of a more integrated performance of experience in which new knowledge was seamlessly coupled with other dimensions of their practice" (p. 280). Educators at the spirit stage implemented assessment in more effective ways and "openly invited colleagues into their classroom to observe and discuss their AfL practices. They participated in moving the AfL agenda forward in the school, embedding it within school decision-making activities" (DeLuca et al., 2019, p. 279).

Specific to teacher education but further expanding on the complex nature of the relationship between how educators conceptualize assessment and their assessment practices, a study of fifty TEs in a Malaysian teacher education program revealed a different relationship between conceptions and practices (Mustafa & Manaf, 2019). Participant TEs reported conceptions of assessment that support student learning, whereas TEs practiced assessment mainly for grading and accountability purposes. Hence, there is the need for professional

learning to improve educators' assessment literacy and further studies should broaden data collection and analytic techniques for possibilities of finding reasons behind inconsistency in the relationship between conceptions and practices of assessment as reported in this study (Mustafa & Manaf, 2019). Although Mustafa and Manaf's study connects well with my doctoral research, the study seemed to lack sufficient data to provide an in-depth understanding of the concepts examined in this area of research.

Also in Malaysia, English Language instructors across six teacher education programs participated in a mixed-methods study that explored the nature of the relationship between instructors' conceptions and practices of assessment (Elshawa, 2016). A higher number of participant TEs reported conceptualizing assessment as process-oriented when compared to the few participants who conceived assessment as product-oriented. The study also found that formative assessment strategies were predominantly implemented through a variety of assessment methods embedded in coursework rather than end of term summative examinations. Consequently, language TEs' assessment practices seemed particularly dependent on their assessment conceptions. This is a departure from Mustafa and Manaf's (2019) findings among Malaysian TEs. However, as educational assessment authors (e. g., Barnes et al., 2015; Brown, 2021; Opre, 2015; Munroe et al., 2015; Poth, 2013) insist, in addition to educational contexts, institutional policies and values around assessment, collegial support and culture, pedagogical barriers, and professional development opportunities could account for the nature of the relationships observed between educators' conceptions and practices of assessment. The next section briefly discusses some of the factors that impede or enhance educators' conceptualizations and practices of assessment.

Factors Influencing Educators' Conceptions and Practices of Assessment

Since Willis and colleagues' (2013) study of the influential effect that sociocultural factors have on educators' work and practices, several authors (e. g., Pastore & Andrade, 2019; Xu & Brown, 2016) have advanced substantial evidence pointing towards the value of multi-dimensional perspectives while conducting assessment-related research. These multi-dimensional perspectives include considering how educators conceptualize assessment, their knowledge and practices of assessment, alongside the contextual conditions existing where they work (Adie et al., 2019; Brown et al., 2019).

A variety of factors may influence educators' conceptions and practices of assessment, including the understandings and purposes for assessment as espoused by educational stakeholders in the context where TEs work (Barnes et al., 2015), differing assessment literacy levels of educators, various institutional assessment policies and culture, curricular objectives, accountability frameworks impeding educators' professional roles (Munroe et al., 2015), program and instructional structure (Brown, 2021; Poth, 2013), and educators' teaching experience (Elshawa, 2016). In addition to the above, politics and power in education exert strong influences on assessment practices, thus, the processes used to gather assessment information, what the evidence is used for, and purpose of assessment "are shaped by a country's social organization and culture, including its institutions, legislation, and structure of power" (Ercikan & Solano-Flores, 2016, p. 491). Other factors that may influence educators' assessment practices were discussed in terms of dilemmas (pedagogical, conceptual, political, and cultural) towards navigating innovative assessment practices among mathematics teachers (Suurtamm & Koch, 2014). Also relevant is the influence that the sudden move to an online teaching setting could have on the relationship between conceptualization of assessment and assessment

practices, since assessment practices may differ for an educator in an online teaching setting (Morrison & Sepulveda-Escobar, 2022; Sharadgah & Sa'di, 2020).

In the UK, Wu and Jessop (2018) identified three factors related to educators practicing limited formative assessment: practical, systemic, and cultural. There is less support from higher education institutions to engage higher education instructors in practical professional development programs geared towards advancing their assessment practices (Wu & Jessop, 2018). At the same time, “in the metaphorical ‘assessment arms race’, summative assessment has proliferated, squeezing out the potential of formative tasks, ... these systemic pressures work hand in hand with a cultural orientation to value what is visible and rewarded” (Wu & Jessop, 2018, p. 1027).

While exploring humanities professors’ conceptions of assessment in two state universities in the US, Rohrbacher (2015) mentioned that some professors conceptualize assessment as irrelevant due to the enforcement of assessment standards which often challenge educators’ professionalism. Citing Denecke and colleagues’ (2011) study who suggest that “if standards for content and teaching are defined from outside the institution, department, or classroom, they will result in nothing more than a legitimization of compulsory mediocrity in US higher education curricula” (p. 13), Rohrbacher (2015) recommends that educators should be provided with the autonomy to practice assessment in ways that they deem appropriate for their students. Another proposed reason for educators’ conceptualization of assessment as irrelevant is that less focus is placed on teaching in the promotion of professors and some professors may conceive of assessment as a waste of time and effort (Rohrbacher, 2015). Participants in Rohrbacher’s study shared that “it’s far more important that the research gets done... the percentage in the post-tenure review or going out for tenure would be so minuscule it’s just not

worth it”, therefore professors conceive of assessment as “more busy work than it is meaningful” (2015, p. 129).

Drawing from observed inconsistencies between university instructors’ conceptions and practices of assessment, Bearman and colleagues (2017) sought an understanding of how assessment is designed in typical classrooms as well as the factors that influence instructors’ choice of assessment strategies. Findings from interviews with 33 university instructors across different disciplines in four Australian universities suggest that two broad factors influence assessment practices: professional and environmental factors (Bearman et al., 2017). While professional influences are the factors that educators bring to the assessment design process, environmental influences are the conditions surrounding the assessment design. Professional factors that influenced educators’ assessment practices include educators’ past experiences, prior professional learning, conceptions of assessment, and professional identity while environmental factors reported were unit or program goals for teaching, learning, and assessment, student learning objectives and organizational requirements for assessment, organizational culture (head of departments to the broader institutional administrators), external factors (influence from the community, other universities, and professional bodies), and available resources (e. g., technologies, suitable classroom space, time, funding, etc.) (Bearman et al., 2017).

Qualitative analysis of interview data highlights how these factors presented in forms of affordances and constraints factors (Bearman et al., 2017). Participants shared a constraint about organizational requirements when one educator stated that “policy restrictions stop us from being able to be responsive. If we see something in a unit that’s not really working but [if] it’s in the unit guide and it’s in the handbook [it can’t be changed]” (Bearman et al., 2017, p. 57). Another educator shared a constraint factor regarding resources by mentioning that “we would love to not

have the online assignments and have written stuff for that, but you've got a thousand students and what do you do? ... And that's where our assessments do not meet our learning outcomes" (Bearman et al., 2017, p. 58).

Findings from Bearman and colleagues' study illustrate the interwoven personal and environmental influences on assessment design and the value of an explicit and strategic way of thinking within the constraints and affordances of a local environment. They conclude that the intrinsic complex social structures present in academia are signalled through assessment practices and recommend further educator learning through sustained communities of practice focused on assessment literacy. They propose "it may be that if we value assessment development in the way we value research development with its focus on teams, collegiate exchange and the value of strategic thinking, we may see some striking results" (2017, p. 63).

Literature on factors that influence educators' conception and practices of assessment imply some affordance factors despite reports on constraints. Some opportunities that assisted educators in conceptualizing assessment as improvement of teaching and learning purposes were shared in Rohrbacher's (2015) study. For instance, participants stated how their university administration provided professional development support that assisted their conceptualization of assessment. One professor mentioned that "the university had people coming to talk seriously about assessment...so that we were schooled in doing preassessment or formative assessment baseline and then doing post-assessments with very specific measures and metrics for each class." Another professor shared that "I would say that by far and away working with [that program] taught me so much. It was some of the best times... for what's right about assessment to improve the classroom" (Rohrbacher, 2015, p. 128). Relatedly, but to support educators' assessment practices, university instructors in Bearman et al.'s study emphasized how corridor

discussions with colleagues, colleagues' experiences, and workshop opportunities helped improve their assessment practices.

In a study that explored the influences of moving to online teaching on TEs' conceptions and assessment practices among 46 Chilean educators, Morrison and Sepulveda-Escobar (2022) found that educators' conceptions of assessment remained unchanged, while their assessment practices were modified to fit the online teaching environment. These authors found that the sudden transition to virtual teaching prevented educators from teaching and assessing some fundamental skills and competencies required by teacher candidates in their future careers. Specifically, observing and assessing clinical placements in online classrooms was different for TEs than when teacher candidates engaged in-person placements (Morrison & Sepulveda-Escobar, 2022). Similarly, online assessment has some unique challenges that may influence instructors' practices, especially if the need for online teaching happened as a result of unanticipated circumstances (Sharadgah & Sa'di, 2020).

The factors discussed above cover all discipline and subject areas in higher and teacher education, however, I agree with Trowler (2014) and Yeo and Bowman (2017) that the role of disciplinary approaches to assessment cannot be overemphasized, and that, studies should consider focusing on specific subject areas to provide better understandings of assessment (Bearman et al., 2017). With regards to assessment education within teacher education programs, some programs have specific courses in assessment while others embed assessment instruction with content courses (Brown, 2021; Poth, 2013). Recent evidence suggests that assessment-specific courses in teacher education are preferable because embedding assessment in content courses may not provide sufficient coverage of all the purposes, formats, theoretical foundations application and integration of assessment concepts (Brown, 2021; DeLuca et al., 2021). Also, in

designing the specific assessment courses in teacher education programs, focus should be more on teaching classroom assessment pedagogies than tests, measurement, or large-scale testing techniques (Brown, 2021).

In addition to the need for assessment-specific courses in teacher education programs, pedagogies for assessment education are sometimes at the discretion of individual educators (Brown, 2021; DeLuca & Klinger, 2010), hence TEs' pedagogical approaches to assessment education within a specific assessment course critically determines the assessment education received by teacher candidates during teacher training programs (Brown, 2021). It thus appears necessary to understand, in addition to their conceptions and practices, why TEs understand and practice assessment the way they do as they seek to develop teacher candidates' assessment literacy in an assessment-specific course.

Furthermore, given the recent demands for shifts in conceptions and practices of assessment in teacher education that have implications for improving teaching and learning in K-12 schools, understanding what influences TEs' conceptions and practices of assessment is central to any reform that is targeted at improving assessment practices in K-12 schools (Brown, 2021; Deneen & Brown, 2016; Wang, 2020). Drawing on substantive evidence on TEs' roles in the development of assessment literacy, there is a call for more research on the factors that influence the connection between TEs' conceptions and practices of assessment in teacher education programs (Roscoe, 2013; Wang, 2020). Educational research also emphasizes paying close attention to specific teacher education contexts due to diverse pedagogical, cultural, and social values and ideals placed on assessment. To further substantiate the influences of cultural values on how assessment is understood and practiced, Rogoff (1990) argued that "there are cultural values involved in definitions of intelligence and valued behavior and that these values

affect understandings of assessment. For example, the characteristics of a good narrative vary across cultures” (as cited Gipps, 1999, p. 376).

As stated earlier, overall, there is minimal research that examines the connection between TEs’ conceptions and practices of assessment; a thorough search of the literature also suggests that no study in this area of research has specifically focused on Nigerian TEs who teach assessment courses in teacher education programs. Another point signalled through this section of the review of literature is the influence that broader contextual factors may have on TEs’ conceptions and practices of assessment. Consequently, how Nigerian TEs’ conceptions and approaches to assessment are shaped by the context within which they work must be examined in light of the assessment policies operational in teacher education programs and their specific jurisdictions. Hence, the next section discusses the Nigerian context of education with regards to existing research on conceptions and practices of assessment.

Conceptions and Practices of Assessment in Nigerian Higher and Teacher Education

Notwithstanding the dearth of studies on the connection between TEs’ conceptions and practices of assessment in Nigeria, some studies have examined the assessment practices of university instructors (Anyanwu & Iwuamadi, 2015; Osadebe, 2015) and TEs (Ogidi & Udechukwu, 2020) with a recent focus on conceptions of assessment among elementary school teachers (Ogunjimi & Lawal, 2020).

The assessment practices of 256 TEs in Rivers State, Nigeria, were examined to determine the level at which they utilize assessment to improve student learning outcomes (Ogidi & Udechukwu, 2020) drawing from research reports that suggest low assessment literacy among Nigerian educators (e. g., Anyanwu & Iwuamadi, 2015; Ogidi, 2018; Osadebe, 2015).

Descriptive analysis revealed that TEs in Ogidi and Udechukwu’s study did not provide

opportunities for teacher candidates' active participation in classroom discussions, assessment processes, and self-regulated learning. The study also found that TEs' years of teaching experience and their academic rank did not predict the use of assessment to improve teaching and learning in their teacher education programs. Challenges reported to influence the successful implementation and modelling of sound and effective assessment practices by the TEs include high educator-student ratio, unethical assessment practices among TEs, and Nigerian TEs understanding of the purposes of assessment (Ogidi & Udechukwu, 2020).

Further on assessment in education, the Nigerian Policy on Education (NPE, 2004) recommends continuous assessment in addition to final examinations at all levels of education in Nigeria. The purpose of continuous assessment in the classroom according to the NPE is to improve student learning and to shift educators' assessment practices from one-shot to more cumulative and recurring practices (Omebe, 2014), yet assessment practices in Nigerian schools (including higher and teacher education) is far from satisfying the intended purposes (Osokoya, 2012). For example, Anyanwu and Iwuamadi (2015) observed that Nigerian instructors in higher education prefer final examinations to cumulative assessments as stated in the BMAS assessment guidelines. The continuous assessment (30-40%) before final examinations are usually not implemented and if at all, they are mainly for summative purposes (Anyanwu & Iwuamadi, 2015). For most Nigerian university instructors, assessment is often one-shot, terminal, less formative, and executed at the end of the semester (Osadebe, 2015). Assessment practices that support student learning remain a major challenge in the Nigerian higher education system (Anyanwu & Iwuamadi, 2015).

Although continuous assessment as recommended in Nigerian policy documents is intended to ensure educators gather assessment information from a variety of sources, the

allocated percentage for final examination is still set at 70%, leaving 30 % for continuous assessment. This policy makes gathering assessment information from various sources a challenge for most Nigerian educators (Anyanwu & Iwuamadi, 2015). In addition, Nigerian higher education instructors' understandings of continuous assessment appear to contradict the actual purpose of this assessment. As stated earlier, the purpose of continuous assessment is to gather information on student learning from varied sources (which is one of the features of formative assessment). Instructors, on the contrary, use continuous assessments for summative purposes due to their understanding of the purposes of assessment (Anyanwu & Iwuamadi, 2015).

A misconception of the purposes of assessment is observed in a study that investigated 200 university instructors and students across three Nigerian universities on their perception of the importance of continuous assessment to student learning (Adodo, 2013). Descriptive and inferential statistical analyses showed that instructors indeed followed policy guidelines by implementing continuous assessment, but the only strategy used to assess students were tests and assignments which were given at particular periods in the semester. Most universities have set periods within a semester for continuous assessment tests (Adodo, 2013). This study reports that instructors and students perceive continuous assessment as a relevant mode of student assessment and as a vital "component of the Cumulative Grade Point Average of students' overall academic performance in the university" (p. 259). Findings from Adodo's study suggest how jurisdictional and institutional assessment policies may be misconceived in classrooms, especially when such policies do not translate to actionable practices nor provide opportunities for bottom-up approaches to policy developments.

Similar findings to Adodo's study were found within Nigerian higher education, but among Business management educators (Onuka & Durowoju, 2011). The assessment practices of 10 educators were explored to understand the strategies used to satisfy continuous assessment requirements in their courses. Results showed that generally, tests, assignments, and final examinations were the commonly used assessment strategies to assess student learning in Business management in the two universities that participated in the study. While tests and assignments were used for continuous assessment, observations, group assignments, peer and self assessment and projects were rarely utilized by educators (Onuka & Durowoju, 2011). Other findings showed that some instructors do not mark the continuous assessment tests and assignments, others who mark, only provide grades without feedback to improve student learning, and some instructors who mark tests do not have proper records of students' grades (Onuka & Durowoju, 2011). Given these findings, Onuka and Durowoju recommend professional development training for higher education instructors to develop their assessment literacy. Although the literature provides evidence that participating in professional development helps to improve educators' practices, there is a need to first seek an understanding of educators' conceptions of assessment and the factors influencing those conceptions as well as their assessment practices (Brown, 2021; Wang, 2020; Xu & Brown, 2016) for any notable shifts in practice to occur.

Regarding educators' conceptions of assessment in Nigeria, a recent study documented elementary and middle school teachers' conceptions of assessment (Ogunjimi & Lawal, 2020). So far in the Nigerian context, this study appears to be the first to research classroom assessment from the perspective of educators' understanding of assessment. Among a sample of 300 teachers in Kwara State, Nigeria, who completed a *Conceptions of Assessment Questionnaire*

that was adapted from Brown (2006), descriptive analysis showed that teachers' conceptions of assessment related to improvement of teaching and learning and that there were no differences along the lines of teacher gender and qualifications.

Ogunjimi and Lawal's study further stated that teachers in their study possess very good assessment literacy, hence the higher percentage (60.5%) of teachers' conception of assessment as being for improvement purposes. The study did not provide explanations for the 39.5% of the sample who reported conceiving assessment as not relevant and for accountability purposes. Findings from Ogunjimi and Lawal appear to differ from previous findings (e. g., Anyanwu & Iwuamadi, 2015; Barnes et al., 2019; Ogidi & Udechukwu, 2020; Omebe, 2014) that document limited assessment literacy among educators in Nigeria at all education levels. Although Ogunjimi and Lawal (2020) mentioned that it is possible that findings from their study differ due to methodological approach, study location, and the status of the participating teachers, there were no explanations in the study of the factors that may have influenced teachers' conceptions nor teachers' actual assessment practices.

Other studies on classroom assessment in Nigeria, indicate that educators' assessment practices may be influenced by large class sizes, educators' low assessment literacy levels, and time required to implement formative assessment (Adodo, 2013; Anyanwu & Iwuamadi, 2015). Specific to teacher education, there is a need to reduce educator-student ratios in teacher education in Nigeria to allow for the implementation of sound assessment strategies that have been substantiated in research studies to improve teacher candidates' learning (Barnes et al., 2019; Jekayinfa et al., 2012). In their study of reform recommendations for teacher education in Nigeria, Barnes and colleagues (2019) reported that 95% of TEs in their study mentioned

barriers they experience within their teaching practices, while very few TEs reported receiving support from their institutions.

Some of the barriers to TEs' practices in Nigerian teacher education include educator's conceptualizations of teaching, limited pedagogical content knowledge in teaching subjects as well as in assessment processes, inadequate resources to facilitate sound teaching and assessment, administrative barriers such as admitting unqualified students into teacher education programs, and lack of professional development opportunities for TEs' knowledge advancement and international collaborations (Barnes et al., 2019). Drawing from observations of the state of teacher education in Nigeria, Barnes and colleagues recommend further research into teaching, learning and assessment of teacher candidates drawing from interpretive approaches and broader contextual factors that may uncover TEs' current thinking and practices.

Summary and Concluding Remarks

The studies reviewed above indicate some common themes that suggest classroom assessment as a complex endeavor that researchers need to pay close attention to especially in the current era of accountability frameworks parading the educational space. Also, the studies reviewed indicate that so far, especially in developing countries, there is limited focus on understanding TEs' assessment decisions and what factors frame these decisions. The dearth of studies on TEs' conceptions and practices of assessment, coupled with the contextual dependency noticed in this area of research necessitate further investigation to understand in-depth how and why TEs choose the assessment they implement in Nigerian teacher education programs.

Despite current demands and efforts to improve teachers' assessment literacy at all education levels (Brookhart, 2017; Deneen & Brown, 2016), and the substantive evidence

indicating connections between TEs' and future teachers' attitudes and implementation of useful assessment strategies (Volante & Beckett, 2011; Xu & Brown, 2016), the Nigerian assessment research space is only beginning to focus research lenses into this area. Furthermore, educators' assessment practices in the Nigerian education system appear less encouraging given reports on incessant academic misconduct (Ndubueze et al., 2015), TEs' low assessment literacy, terminologies ascribed to assessment, and assessment policy focused on teacher-centred rather than student-centred assessment (Barnes et al., 2019; FME, 2010).

Given this literature, an interpretive analysis of selected cases of TEs (who teach assessment courses) may contribute valuable insights into understanding Nigerian TEs' conceptions and practices of assessment. An interpretive methodological approach may avail researchers some insights into participant TEs' shared experiences (opportunities and concerns) with assessment within their contexts, which may influence how and why they practice assessment the way they do. Thus, this research explores the conceptions and assessment practices of five Nigerian TEs who teach assessment courses, the nature of the connection between their conceptions and practices of assessment, and the opportunities and constraints they experience as they teach assessment course(s) drawing from a qualitative case study methodology.

CHAPTER 3: THEORETICAL FRAMEWORK

In this chapter, I outline the theoretical framework that guides my research. I begin by discussing my epistemological position: sociocultural theory; I go on to discuss the sociocultural views of assessment and also some sociocultural perspectives on conceptions and assessment practices. I then discuss how my epistemological stance connects to how assessment is conceptualized and practiced in classrooms. Lastly, I discuss how I draw on three conceptual frameworks to address this study's research questions and presentation of findings.

Epistemological Position

Sociocultural theory is largely based on the work of Lev Vygotsky who uses the term 'genetic analysis' to highlight that many aspects of mental processes can be well understood if we first understand the foundation (genesis) and historical shifts that the mental processes have undergone (Vygotsky, 1978). In other words, sociocultural theorists attend to the broader social, cultural, and historical systems when interpreting human learning and development as well as all mental processes. Vygotsky argues that human learning, development, and mental representations must be understood as drawing from their social, cultural, and historical contexts (Rogoff, 2003). Similarly, "the efforts of individuals are not separate from the kinds of activities in which they engage and the kinds of institutions of which they are a part" (Vygotsky, as cited in Rogoff, 2003, p. 50).

Two emerging themes from Vygotsky's sociocultural theory connect with how human learning, mental representations, and actions are viewed in this research: (a) learning and development as a social construct and (b) the fundamental position of mediation in human knowledge development and functioning. Vygotsky's sociocultural theory emphasizes that learning and development are functions of social interaction. Hence an individual's cognitive,

emotional, logical, and conceptual development must be understood from the perspective of the underlying cultural and social ideals in their contexts. To situate this epistemological position, Vygotsky discussed in his *genetic law of cultural development* that:

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. (1978, p. 57)

Vygotsky argues that cultural tools such as symbols, signs, and oral and written language, are essential mediators in the construction and co-construction of knowledge (1978). That is, human conceptual thinking, learning and development, knowledge and understanding, as well as actions are mediated by cultural tools. Vygotsky invites researchers to understand that cultural tools do not only mediate in the creation of internal reality, but also link the internal with the external reality:

Even such comparatively simple operations as tying a knot or marking a stick as a reminder change the psychological structure of the memory process extending the operation of memory beyond the biological dimensions of the human nervous system ... to incorporate artificial, or self-generated, stimuli, which we call signs. (1978, p. 39).

Here, Vygotsky describes how sociocultural theory helps us understand the connection between an individual's thoughts and actions. That is, in accordance with sociocultural views of knowing and of understanding human knowledge and actions, an individual's construction of knowledge is first an outcome of their social interaction, and then an internal interpretation and understanding of their environment's social, historical, and cultural perspectives, which then mediate how they perform actions (Vygotsky, 1978). This epistemological approach serves as a

guiding lens through which I view the key concepts (conceptualizations and practices of assessment) that I examine in this thesis. I now turn to a description of sociocultural views of assessment.

Sociocultural Views of Classroom Assessment

Researchers advanced a sociocultural perspective of assessment more than two decades ago drawing from findings that suggest classroom assessment is more of a social practice (e. g., Brookhart, 2003; Gipps, 1999; Moss, 2003; Shepard, 2000; 2001). A sociocultural perspective to assessment attends to broader human and contextual interactions which can influence classroom assessment decisions and practices (Pryor & Crossouard, 2008). In this view, the social, political, cultural, and ethical aspects of assessment practice are central to the decisions educators make regarding assessment as well as how assessment is practiced (Gipps, 1999). Assessment as a social practice necessitates paying attention to the various actors, systems, and stakeholders involved in the process of assessing student learning (Pryor & Crossouard, 2008). In other words, the process of making assessment decisions occurs at multiple levels and educators' decisions and practices are not only influenced by their expertise, but by their individual and communal identities and assessment values as well as the culture and policies of assessment in their environment. Central to exploring educators' assessment decisions and practices are considerations of the influences of the educators' academic environment (Dawson et al., 2013).

There is also emphasis on the bidirectional relationship between assessment and sociocultural context (Ercikan & Solano-Flores, 2016). In a conceptual framework that discusses the dynamic relationship between assessment and society and culture, Ercikan and Solano-Flores (2016) argue that assessment influences the society (individuals, schools, programs, etc.) and cultural policies through the use of information and evidence gathered from assessment tools. On

the other hand, society and culture connect to assessment because the “culture and characteristics of a society (its history, social structure, priorities, values, technological development, legislation, communication styles, and ways of doing things and viewing the world) shape assessment content, who is to be assessed, how, and to what end” (Ercikan & Solano-Flores 2016, p. 491). In a related view, assessment instruments are the products of, and a contribution to culture (Cole, 1999), because the design and use of assessment instruments as well as the evidence gathered from assessment are “shaped by a country’s social organization and culture, including its institutions, legislation, and structure of power” (Ercikan & Solano-Flores, 2016, p. 491).

Earlier research geared towards sociocultural theorization of classroom assessment include the works of Black and Wiliam (2006); Pryor and Crossouard (2008); Gipps (1999), as well as those emphasizing an understanding of the importance of stakeholders’ participation in assessment processes (e.g., Koch, 2010). In a sociocultural theorization of assessment, individual educators, educational stakeholders, and other group actors may hold different values and interpretations of assessment (Koch, 2010). Leaning on perspectives of Gipps (1999) and Shepard (2000, 2001) of assessment as a social practice, Koch (2010) identifies the possibilities of multiple meanings and practices of assessment considering the involvement of various stakeholders or groups and individuals involved in the practices of assessment.

Expanding on the notion of involvement, sociocultural perspectives to assessment consider teachers and students as collaborators in the process of understanding student learning (Gipps, 1999; Shepard, 2019). In this case, students are active and not passive actors in assessment practices. Examples of engaging students in assessment practices include promoting a self and peer assessment culture among students as well as teachers working collaboratively

with students to create assessment criteria and rubrics. While discussing theoretical views of assessment that can move learning forward, Shepard (2019) mentions that a sociocultural perspective to assessment “involves more attention being paid to codefining emergent learning goals with students – goals that explicitly attend to identity and that support students in navigating between everyday and disciplinary forms of thinking, being, and doing” (p. 193).

Similar to Shepard’s notion regarding collaborations, Gipps (1999) notes that:

[A]ssessment within a social situation can be afforded by assessing students in collaborative group activities in which they contribute to a task and help others. In such assessment, the student can observe how others reason and can receive feedback on his or her own efforts. (p. 377)

Corroborating Gipps, students as active participants in assessment practices from a sociocultural approach involves considering students’ individual identities and prior learning experiences while participating as a member of a classroom community (Penuel & Shepard 2016). Identity formations could arise from experiences that students gather from the home, school, and the community- this links classroom assessment practices to the contextual (social, cultural, and political) priorities and values placed on assessment (Shepard, 2019).

Furthermore, on the notion of involvement from the stakeholders’ views on assessment, Koch (2010) discusses the multiple meanings of assessment that can ensue due to the various educational stakeholders’ interests and values of assessment. Considering stakeholders’ involvement in assessment from a sociocultural view, educational and institutional values on assessment, class sizes, program funding, and context-established assessment practices (Dawson et al., 2013) may influence how assessment is conceptualized and practiced in classrooms. Other aspects related to theorizing assessment as a social practice that consider stakeholders’ involvement relates to the policies and documents provided for educators’ use in the context of

their work, colleagues' perspectives on assessment, and educators' personal and pedagogical understandings of assessment (Suurtamm & Koch, 2014).

Sociocultural Perspectives to Conceptions and Practices of Assessment

The conceptions and practices of assessment espoused by educators are often operationalized within the boundaries of their “immediate workplace community and larger social, political, and cultural contexts. These micro- and macro-contextual variables exert an influence on teachers' assessment practices individually or in concert through policies, norms, rules, regulations, and conventions” (Xu & Brown, 2016, p. 157). In their conceptual framework to better understand TEs' assessment knowledge and their practices, Xu and Brown argue that conceptions of assessment, macro and micro sociocultural boundaries determine educators' assessment knowledge and actions.

Macro sociocultural elements include boundaries set for educators along the lines of national assessment policies, cultural perspectives about assessment, and societal values of assessment. Micro sociocultural boundaries to educators' conceptions and practices of assessment involve influences from institutional policies on assessment, school administrators, colleagues' perspectives to assessment, as well as parents' and students' perspectives (Xu & Brown, 2016). Studies on sociocultural understandings of educators' conceptions and assessment practices suggest that, even though educators are expected to possess sufficient assessment knowledge and skills as stated in various educational contexts, the reality is that educators in high-stakes examination contexts “make professional decisions about assessment in response to various factors that may facilitate or inhibit their practices. Their decision-making is thus a process by which they balance the demands of external factors with their own beliefs and values” (Xu & Brown, 2016, p. 154). The connection among conceptions of assessment, assessment

practices and sociocultural perspectives is thus not static, rather, the relationship is fluid and complex (Xu & Brown, 2016).

Circling back to sociocultural theory and its views of human mental representations, activity, and activity mediation, Donato and McCormick (1994) propose that a social activity or process comprises of four parts: the subject (usually the person performing the action, e.g., TEs), an object (that is, the goal or purpose of the action, for example, conceptions of assessment), the action (the activity that the subject undertakes to achieve the goal such as assessment enactment), and operations (typically the context of the activity). Thus, at the center of TEs' conceptions and practices of assessment are societal and cultural influences that mediate educators' mental assessment representations and knowledge as well as their classroom assessment decisions and actions.

Conceptual Framework for this Study

Having situated this study in the context of my epistemological stance: sociocultural theory, as well as discussing sociocultural views of assessment, I conclude this chapter by presenting my conceptual framework which draws from three models which are: educators' conceptualizations of assessment model (Wang, 2020), formative and summative practices of assessment model (Suurtamm & Arden, 2017), as well as micro, meso, and macro sociocultural factors influencing conceptions and assessment practices (Fulmer et al., 2015).

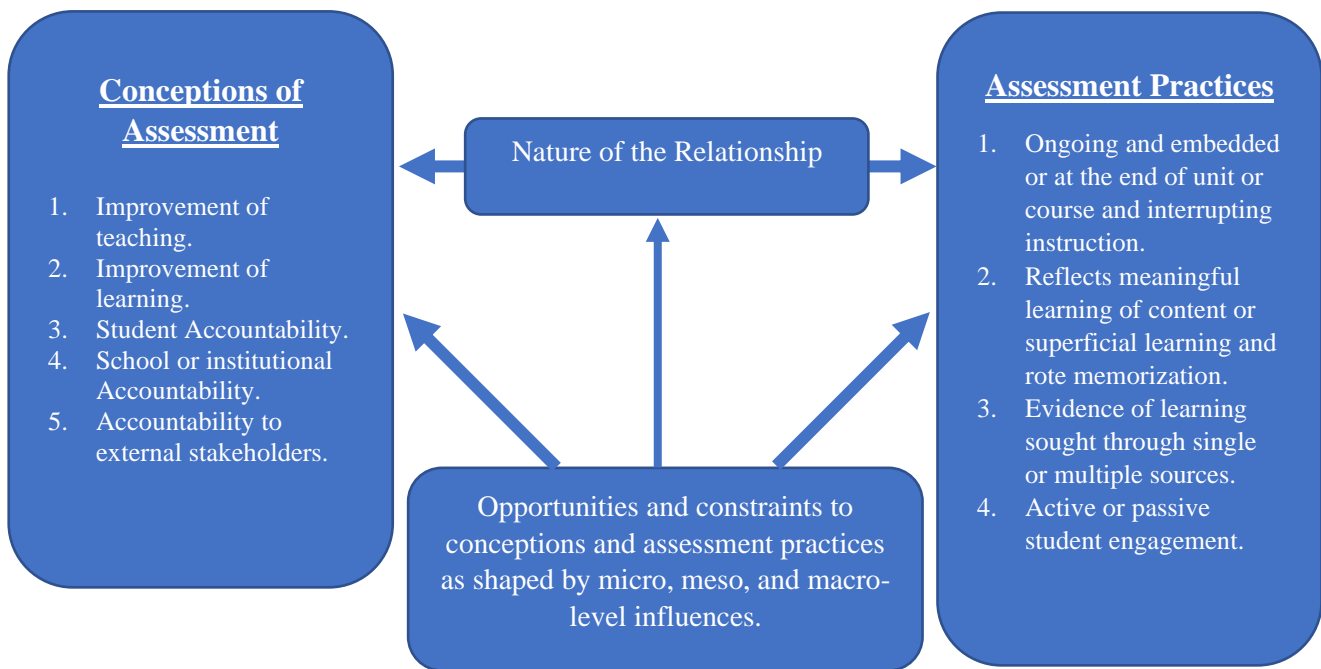


Figure 1: Conceptual Framework (Adapted from Fulmer et al., 2015; Suurtamm & Arden, 2017; Wang, 2020).

Wang’s (2020) model of conceptions of assessment explicitly describes five dimensions based on the meanings and purposes underlying assessment practices in the classroom. The five dimensions of conceptualization of assessment appear to fall within two broad categories: improvement and accountability. In Wang’s model, improvement conceptions include assessment being conceived as a tool or process that improves teaching, as well as improving student learning. Accountability conceptions relate to assessment being driven by school accountability purposes, student accountability purposes, and educators’ accountability to different audiences (Wang, 2020).

Assessment is understood as a tool for the improvement of teaching when TEs describe assessment as an integral part of their teaching and a process that facilitates a confirmation or improvement in their teaching. Assessment as a tool for the improvement of learning relates to TEs’ belief that assessment is central to student learning progression and involves the active

engagement of students in teaching, learning and assessment processes (Wang, 2020).

Assessment as driven by school accountability purposes relate to expectations from institutions regarding holding TEs accountable for student performances and achievement. Assessment as driven by student accountability purposes is when TEs understand assessment as solely a process of using assessment information (e.g., grades only) to make decisions on student promotions and certifications (Wang, 2020).

Assessment may also be understood as a process that makes TEs accountable for their teaching especially to different education stakeholders (e. g., parents, policy makers, program evaluators, institutional administrators, etc.) (Wang, 2020). Although other notable researchers (for example, Brown, 2002) have conducted extensive research on educators' conceptions of assessment, Wang's five-factor model of conceptions of assessment is included in the conceptual framework for this study for three reasons. The first reason is that Brown's model examined K-12 educators while Wang's model specifically focused on TEs which aligns with this study's focus. The second reason is that Wang's model separates the improvement conception into two: improvement of teaching and improvement in learning conceptions. This distinction appears necessary when analyzing TEs' conceptions of assessment as for student learning improvement or for student accountability. The third reason is that Wang's model includes the accountability of TEs' conception to different education stakeholders including parents, students, etc. While Wang's conceptualizations of assessment model explicitly covers both internal and external intentions and purposes for TEs assessments, the model does not include TEs' assessment practices, how conceptions relate to assessment practices, nor sociocultural influences on TE's conceptions and practices.

I examine TEs' assessment practices in this study through the various strategies TEs adopt to seek evidence of student learning, how the evidence gathered is utilized, as well as the inferences made from such evidence in the process of assessing student learning in the assessment course(s) they teach. Specifically, I documented the assessment activities that each TE engages in to assess teacher candidates' learning about assessment in observation notes and reported same in the findings section. Such assessment strategies were analyzed drawing on the assessment practices framework (Suurtamm & Arden, 2017). That is, is assessment practiced as (1) an ongoing process that is embedded within instruction or as an activity that interrupts the instructional process as well as enacted at the end of a unit or course? (2) learner-centered where students are actively engaged in the assessment decision-making process or educator-centered where TEs solely decide on assessment criteria and processes? (3) reflecting meaningful learning and understanding of concepts by supporting students' conceptual and procedural understanding as well as sound reasoning or as rote memorization of content and superficial learning? (4) seeking evidence of learning through various means or seeking evidence from a single source and relying on traditional assessment tasks to make judgement about student learning? (Suurtamm & Arden, 2017).

Analysis of the nature of the connection between TEs' conceptions (improvement of teaching, improvement of learning, student accountability, school accountability, and TE's accountability to educational stakeholders) and their enacted assessment practices in this study followed an exploratory endeavor. That is, I did not draw from an existing model to analyze the connection between conceptions and assessment practices because of the elements of each case which researchers need to pay attention to (Monteiro et al., 2021). Although assessment experts stress a relationship between educators' conceptualization and practices of assessment, the nature

of that relationship is posited to be “very complex; these two elements influence one another depending on individual and contextual factors that interrelate in accordance with each assessment situation” (Monteiro et al., 2021, p. 4). In this study, I organically developed the nature of how TEs’ conceptions of assessment connect to their assessment practices after analyzing the data.

Lastly, I examined TE’s experiences regarding the opportunities and constraints shaping their conceptions and practices of assessment in the context of Nigeria teacher education drawing on sociocultural influences as highlighted in Fulmer et al (2015). In terms of conceptions and assessment, what happens in classrooms is the result of a complex interaction of internal and external factors that is context-specific and requires careful investigation (Fulmer et al., 2015). In a review of studies on teachers’ integration of assessment in classrooms, Fulmer and colleagues highlight a multi-level description of factors that influence educators’ conceptions and practices of assessment: micro, meso, and macro-levels (2015). The micro-level includes a variety of classroom-related factors such as educator’s assessment literacy, class size, educator-student interactions, and educators’ and students’ prior experiences with assessment. The meso-level encompasses factors outside of the classroom that have direct influences on the classroom. Examples of meso-level factors are institutional policies and support for assessment, institutional views of teaching, learning, and assessment, available facilities to support assessment practices. Other non-institutional influences at the meso-level include parental and community requests and expectations on assessment (Fulmer et al., 2015).

At the macro-level are distal factors that do not directly affect the classroom, but due to their possible effect on the meso-level, may have indirect effects on classroom practices. Depending on the educational system and governance, macro-level factors could include

educational and assessment policies at the national, state, and provincial levels. In cases of private and state institutions, educational policies, and statements from the affiliated social institutions (e.g., religious or community organizations funding the institution) may influence how educators conceptualize and practice assessment. Other macro-level factors may include cultural and historical standards around assessment, as well as social and economic demands (Fulmer et al., 2015).

I drew on Fulmer and colleagues' (2015) three levels of influencing factors on educators' conceptions and practices of assessment to analyze the factors that may present as opportunities or as constraints to how TEs' conceptualize and practice assessment. In addition, during data analysis, I paid careful consideration to the emergence of other factors not mentioned by Fulmer and colleagues but that were specific to the research context. Methodologically, I drew on the conceptual framework (Figure 1) of this research to (1) develop interview protocols for interviews with each TE, (2) develop an observation protocol for the assessment strategies adopted by TEs, (3) provide a lens to identify initial codes and organize the data into categories related to the research questions guiding this study.

Summary and Concluding Remarks

In keeping with sociocultural theory, I view assessment as a social process that has at its core, the cultural, historical, and societal perspectives, affordances, and values placed on assessment. Specifically, I draw on the sociocultural theory of assessment to view classroom assessment practices as a social and cultural process that is mediated by existing cultural, social, ethical, and political values of assessment operating in educators' working contexts. This study seeks to understand TEs' conceptions and practices of assessment as well as the mediating

factors, presenting as opportunities and constraints, that shape TEs' conceptions and practices of assessment in the context of Nigerian teacher education.

CHAPTER 4: METHODOLOGY

This chapter details the methodological approach of this study. I begin by re-stating the research questions and characterizing the study within a qualitative research paradigm. I then outline my role as a researcher, followed by a description of the context of the research. Next, I discuss the research design and the data collection techniques. I then describe the approaches that I used to analyze the data. This chapter concludes with a discussion of ethical considerations and procedures adopted during the research process.

Research Questions

The purpose of this study was to explore the conceptualizations and assessment practices of five Nigerian TEs who teach assessment courses, the nature of the connection between their conceptions and practices of assessment, and the opportunities and constraints they experience as they teach assessment course(s). This study adopts a qualitative, multiple case study approach as its methodological framework.

Specifically, this study sought to address the following research questions:

- 1) What are the assessment conceptions and practices of the five Nigerian TEs?
- 2) What is the nature of the connection between the five TEs' conceptions of assessment and their assessment practices?
- 3) What do the five TEs perceive as opportunities and constraints influencing their conceptions of assessment and their assessment practices in the context of Nigerian teacher education?

A Qualitative Research Paradigm

The literature review illustrates classroom assessment as a social practice and as a complex endeavor laden with a range of interconnected components, which educators appear to

approach and value in disparate ways. The interactions between educators and students are considered relevant as they can inform researchers of how assessment is orchestrated with students in everyday classrooms. Moreover, the literature review also emphasizes the need to consider how educators conceptualize assessment and how educators' conceptions may relate or interact with their assessment practices, while paying close attention to broader influences from their specific contexts.

Drawing from the above, in this research, I sought to focus on TEs' classroom assessment practices, their understandings and interpretations of assessment, the nature of how their understandings of assessment interact with the assessment methods they practice, and to consider some of the social, historical, and cultural factors that may influence their approaches to assessment in the context of the Nigerian teacher education program. Furthermore, the literature stresses that for educational changes to occur, there is a need to consider educators' everyday practices alongside their understandings of the phenomenon. I therefore believe that to present a holistic analysis and report of TEs' conceptualizations and assessment practices, the nuances of their everyday classroom interactions with students need to be observed and documented in real-life classroom settings in addition to conducting interviews - two vital components of qualitative studies (Merriam & Tisdell, 2016).

My position synchronizes with Suurtamm's description of qualitative research as providing researchers with "the means to explore what is happening in classrooms and how students and teachers are making sense of their world" (1999, p. 42). Suurtamm's characterization of qualitative research connects with Denzin and Lincoln's (2011) description in terms of 'meaning-making in real-world' contexts, when the authors advanced that "qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative

researchers study phenomena in their natural settings, trying to make sense of, or interpret phenomena in terms of the meanings people bring to them” (p. 3).

In an expanded definition, Creswell and Poth describe qualitative research by placing more emphasis on how the research is designed, the distinctive approaches to analyzing the data gathered, and in reporting findings:

Qualitative research begins with assumptions and the use of interpretive/theoretical frameworks that inform the study of research problems attending to the meaning individuals or groups ascribe to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is both inductive and deductive and establishes patterns or themes. The final written report or presentation includes the voices of participants, the reflexivity of the researcher, a complex description and interpretation of the problem, and its contribution to the literature or a call for change. (2018, p. 8)

These descriptions of qualitative research as a meaning-making, interpretive (inductive) process, with thick descriptions of the context of participants and the observations, explain why I adopted a qualitative research approach to answer the research questions in this study. Similarly, when selecting a research approach, there is a need for consistency with regards to the actual intent of the research (Silverman, 2011). Thus, I was interested in exploring individual TE’s meanings and understandings of classroom assessment and how assessment is orchestrated in their classrooms with considerations for the assessment policies and stakeholder influences in their individual teacher education contexts in Nigeria. As well, the interpretive framework (Creswell & Poth, 2018) that guides this research draws from sociocultural theory that assumes meaning-making and individual TE’s understandings and actions as a social process and practice

that is situated within and influenced by the cultural, historical, and social context where it is accomplished (Cowie & Cooper, 2017; Gipps, 1999; Pryor & Crossouard, 2008).

A strong connection between the sociocultural epistemological stance and the qualitative research approach as adopted in this study is evident when Yin (2016) describes qualitative research as a social practice and interaction that embeds within it, the contextual conditions inherent within participants' environments. Also included within Yin's explanation is the data collection component of qualitative research:

Qualitative research involves studying the meaning of people's lives, as experienced under real-world conditions, is devoted to representing the views and perspectives of a study's participants, and it explicitly embraces the contextual conditions—that is, the social, cultural, institutional, and environmental conditions—within which people's lives take place. In many ways, these contextual conditions may strongly influence all human affairs. Qualitative research is driven by a desire to explain social behavior and thinking, through existing or emerging concepts, and it acknowledges the value of collecting, integrating, and presenting data from a variety of sources of evidence as part of any given study. (pp. 10-11)

At the core of the research question guiding this study was the idea of providing insights into TEs' conceptualizations and practices of assessment, a detailed description of the nature of the relationship between the two, drawing from data sourced from a variety of methods, and reporting the inductive meanings arising out of the data as obtained in contexts. These elements situate this study within a qualitative paradigm.

My Role as A Researcher

Prior to beginning this research project, I have had several experiences with qualitative research in my master's thesis, research article publications, and graduate course work. Through these experiences, I developed strong interview, data transcription, data recording, observation,

and data analysis skills. I honed very good listening and communication skills having also participated in research projects both during my master's and doctoral programs. I also have over ten years experience as a classroom teacher and higher education training administrator in Nigeria which gives me an understanding of teaching, learning, and assessment in higher education as well as considerable familiarity with the Nigerian education system. As a university student and teacher candidate at a time in my educational journey in Nigeria, I have first-hand experiences of assessment pedagogies which provide me with further understanding of the Nigerian education context.

I am committed to firstly understanding the reasons behind thoughts and actions and then ensuring that people's voices are heard from their own accounts and stories. I carry this personal attitude as a researcher towards seeking an in-depth understanding of a phenomenon, while considering the situations that could interact with participants' thoughts and actions. I also strive to not allow my biases to interfere with participants' narratives and actions and to foster participants' voices by providing a safe space for interviews, observations, and by reporting the actual words of participants in my study.

Research Design

Case studies afford researchers the opportunity to investigate both simple and complex situations (Stake, 2006), to answer the "how" and "why" questions, and to consider the influence of contextual factors on the phenomenon under study (Yin, 2018). To justify the suitability of case study research, Gay et al. (2009) contend that the research needs to focus on exploring a phenomenon or situation; providing insights into a situation; describing any existing relationships amongst participants; as well as being "particularistic, descriptive and heuristic" (p. 427). Furthermore, "what makes a case study a case study is the unit of analysis; that is, a case

study is an in-depth description and analysis of a bounded system” (Merriam, 2009, p. 40). Consequently, for a study to qualify as a case study, the researcher needs to consider the particularity, uniqueness, and typicality of the unit of analysis, which must be bounded within certain parameters (Merriam, 2009). I chose a case study research design in this study to describe how TEs conceptualize and practice assessment, to get a sense of the nature of the connection between their conceptions and assessment practices, as well as any opportunities and constraints that influence their conceptions and assessment practices.

Stake (2006) recommends conducting multiple case studies to deeply understand the complexity of a phenomenon across locations. Like Stake, Merriam (2009) invites case study researchers to focus on the unit of analysis (the case), drawing on the idea that a case study is exemplified through the unit of analysis, not the topic or method of inquiry. Furthermore, Merriam identifies with Stake on establishing the boundaries around what is to be studied (the case). Merriam describes the bounding of a case as ‘fencing in’ (2009); this corresponds to Thomas and Myer’s idea of putting edges (or frames) around the case (2015), which also relates to Stake’s remark that a case or cases need to be bounded by time, place, or people (2006). Thus, a “case” refers to the unit of analysis (what is to be studied) that is bounded (defined) within the parameters of time, place, participants, or process (Creswell & Poth, 2018; Stake, 2006; Yin, 2018). Cases may include individuals, programs, small groups, projects etc. (Merriam & Tisdell, 2016; Yin, 2018). In this study, one TE represents a case, and the case is bounded by time, place, and the course that they teach. Each case (TE) in this study must have been teaching an assessment course in a Bachelor of Education program for a minimum of two years in the North-western region of Nigeria to be considered as a participant. These inclusion criteria are further elaborated later in this chapter.

This study employed a qualitative case study methodological approach. Researchers employing a qualitative methodological approach seek textual data through “direct quotations from people about their experiences, opinions, feelings, and knowledge obtained through interviews; detailed descriptions of people’s activities, behaviors, actions recorded in observations; and excerpts, quotations, or entire passages extracted from various types of documents” (Patton, 2015, as cited in Merriam & Tisdell, 2016, p. 105). Thus, Creswell and Poth (2018) define a qualitative case study as an “approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information, and reports a case description and case themes” (p. 185). A distinctive feature of qualitative case studies highlighted by Creswell and Poth concerns the opportunity of collecting data from multiple sources and the convergence of the data to better explain the case (Merriam & Tisdell, 2016; Yin, 2018). In qualitative case studies, multiple data sources allow for data triangulation which enhances data validity as well as assisting researchers to present a holistic illustration of the phenomenon being studied (Creswell, 2014; Merriam, 2009).

Qualitative case study researchers are likely to conduct “observations, to conduct interviews, to get observations of things we cannot see ourselves, and to review documents” (Stake, 2006, p. vi) as data sources. On a similar account, the most prominent data collection methods in qualitative case studies include interviews, observations, documents (Patton, 2015), and artifacts (Merriam, 2009; Merriam & Tisdell, 2016). Consistent with Creswell’s (2014) idea regarding triangulation of data, multiple data sources complement each other in case studies by providing information that assist in a detailed analysis of cases (Merriam & Tisdell, 2016). For example,

[W]hat someone tells you in an interview can be checked against what you observe on site or what you read about in documents relevant to the phenomenon of interest. You have thus employed triangulation by using three methods of data collection—interviews, observations, and documents. (Merriam & Tisdell, 2016, p. 245)

Drawing from educational researchers' suggestions for gathering data in qualitative case studies, data for this study were sourced through multiple methods in each case: interviews, online classroom observations, artefacts (assessment samples), and course syllabi. National policy documents on assessment in teacher education were also reviewed to provide some context to TE's assessment practices.

A multiple case study design (Creswell & Poth, 2018; Merriam 2009; Stake, 2006; Yin, 2014, 2018) was adopted in this study to describe how five TEs from three different teacher education sites conceptualize and practice assessment in classrooms, and the opportunities and constraints they experience as they practice assessment with teacher candidates in their individual teacher education programs in North-western Nigeria. Consistent with Stake (2006), conducting multiple case studies allows researchers to deeply understand the complexity of a phenomenon across cases. On a similar account, Creswell and Poth (2018) identify that a multiple case study approach involves the recruitment of more than one participant to express the perspectives they have of an issue and to illustrate the interactions within and across cases (Yin, 2018). Thus, in this research, each TE's data represents a single case, and data collected for each case was analyzed on a case-by-case basis before presenting a cross-case analysis of commonalities and differences across cases.

Participants' Context

Requirements to teach at any education level in Nigeria in most cases does not include the attainment of a teaching qualification. Thus, most early and mid-career teachers in Nigeria do

not possess a teaching degree or qualification and there is no difference in remuneration whether teachers have a teaching degree or not- one of the major issues affecting student learning across education levels in Nigeria (Anyanwu & Iwuamadi, 2015; Ogidi & Udechukwu, 2020). Nigerian teachers possess different content and pedagogical understandings since political influences drive teachers' appointments to teach in schools rather than academic qualifications (Barnes et al., 2019). Therefore, at some points in their teaching careers, Nigerian educators may choose to enrol in an after-degree teacher education program.

The Nigerian teacher education program is thus offered as a four-year degree and as an after-degree program. The after-degree teacher education program is designed for teachers who previously graduated from any discipline and have been teaching but chose to obtain a teaching qualification. This study focused on TEs who teach in the four-year degree program because teacher candidates at this level most likely have not had any teaching and assessment experience other than a 6-week practicum in their second year. This study included TEs who teach the *Tests and Measurement* course (a compulsory two-credit course in the four-year teacher education program) (BMAS, 2007).

Whereas *Tests and Measurement* is a compulsory course for all teacher candidates across Nigerian teacher education programs and the same curriculum is taught across programs, notable differences were observed across participant TE's programs in my observations, especially in the course title and the year that students enrol in the course. Furthermore, higher education institutions in Nigeria may be federal-funded, state-funded, or private-funded and teacher education programs are offered in each type of institution. Participant TEs in this study came from each of the three types of institutions which provided the opportunity to examine if there

were differences in TEs' conceptions, assessment practices, and experiences based on the type of institution where they work.

Participant Recruitment

Participant recruitment in this study followed a purposeful sampling method by recruiting TEs who have been teaching and assessing teacher candidates in the compulsory course (*Tests and Measurement*), exclusively or with other subjects, in a Bachelor of Education program in Nigeria. TEs recruited for this study were required to have at least two years of experience teaching an assessment course in a Nigerian teacher education program to share the requisite information (e. g., assessment artifacts and their teaching and assessment pedagogy experiences) related to the research purpose. In keeping with Yin's (2014) view on the number of cases appropriate for a multiple case study, I recruited five TEs for this study. The decision to recruit five TEs was to allow for manageability and limit the expanse of data collected (Yin, 2014).

The process of recruiting participants commenced by seeking and obtaining approval from the University of Ottawa Research Ethics Board to conduct this research. Upon gaining approval, I proceeded to seek approval from university ethics boards in Nigerian universities. In most Nigerian universities, Faculties are responsible for reviewing and providing approval to conduct research with human participants. Faculty representatives sit on the broader institutional ethics committee and approve applications to involve staff and students as participants in any research project and also inform the institutional board of such approvals. Monthly reports are sent to the institutional board through Faculty representatives detailing all approvals granted. I sent an "invitation to participate" letter (Appendix A) to the Faculty of Education ethics board representative (usually the Director of Teacher Education) of the fifteen teacher education programs in North-Western region of Nigeria. I received responses from three teacher education

directors stating their approval to proceed with my research if any TE in their programs was interested in participating in my study.

Each teacher education director was asked to share the “invitation to participate” letter with TEs who teach the compulsory assessment course in the institution. Any TE interested in participating in this project was asked to email the researcher. At first, I was only able to recruit two participants, but after a few weeks, I received emails from two other prospective participants. While realizing that most universities were beginning to resume after periods of labour disruption (i.e., strikes), and the need for one more participant in my project, I contacted one of the participants to assist in reaching out to more TEs. This effort resulted in one additional participant.

Upon recruiting the five TEs, I received a few more emails from interested individuals. I sent them an email to explain that the study had reached participant capacity. However, in case of attrition from any of the recruited participants, I mentioned that they might be contacted. None of the participant TEs withdrew from the research. The table below highlights recruited TEs’ institution type based on the three types of higher education institutions in Nigeria.

Table 1: An Overview of Participating Institutions (Names in Pseudonyms)

S/No.	Participant TEs’ University	Institution Type
1.	University of Ambitions	Federal university
2.	University of Ambitions	Federal university
3.	University of Motivations	Private university
4.	University of Motivations	Private university
5.	University of Aspirations	State university

The table above indicates that two participant TEs work in a federal-funded university, two work in a private-funded university, and one works in a state-funded university. For each participant, I replied to emails with an invitation to a first meeting to confirm each participant’s fit with the inclusion criteria before I sent the information sheets and consent forms to them. The

first meeting also helped to clarify any questions that participants had regarding this study. I sent information sheets (see Appendix B) and consent forms (see Appendix C) to each participant via email and mentioned my availability to address further questions through any medium of communication that participants were comfortable with. Upon signing and returning consent forms, I proceeded with the data collection process.

Data Collection

One of the characteristics of a good qualitative case study is the collection and integration of more than one form of qualitative data collection method (Creswell & Poth, 2018). Data for this study was sought through multiple methods for each TE (see Appendix D for the type of method and the rounds for each method): interviews, online classroom observations, artefacts (assessment samples), and analysis of course syllabi. Multiple data sources allow for the triangulation of data and can add to the validity of the data; various data sources also assist in presenting a holistic picture of the phenomenon under study (Creswell, 2014). Due to travel restrictions from COVID-19, I collected data for this study through virtual platforms such as Zoom meeting interviews, observing classroom lessons by attending online classes, and receiving artifacts and documents (course syllabi and assessment policy documents) from participants by email. Collecting data through online platforms can be advantageous to researchers in terms of time and cost efficiency, such as saving travel time and costs. It can also offer participants the flexibility of space and time to respond to information requests, thereby providing the opportunity for deeper reflection on topics (Creswell & Poth, 2018). Online data collection most importantly offers alternative solutions in situations of practical, environmental, and health constraints (Creswell & Poth, 2018) such as the health conditions and travel restrictions existing in most countries during the time of collecting data for this study.

The data collection period for this study was an entire semester, which varied among the participants. The data collection period varied principally because of different semester start dates related to school closures due to COVID-19 as well as university instructors' strike actions. In May 2020, schools were closed due to the pandemic and as restrictions began to ease, Nigerian university instructors, while reacting to demands for salary increment, started a strike stating that until their salaries and other demands were met, there would be no teaching activities in universities. Hence, the usual semester start dates were disorganized, leaving universities beginning their semesters at different dates and at unusual times in the year.

Interviews

Some qualitative researchers consider interviews as social interactions which have at their core deep conversations between the interviewer and the interviewee (Brinkmann & Kvale, 2015; Creswell & Poth, 2018). Qualitative interviews seek an understanding of the world through participants' views in attempts to uncover the meanings of their lived experiences and of their world (Creswell & Poth, 2018). During a qualitative interview, "knowledge is constructed in the interaction between the interviewer and the interviewee" (Brinkmann & Kvale, 2015, p. 4). Prior to conducting interviews, researchers must: ensure that research questions are open-ended, and focused on providing insights into a phenomenon; purposefully recruit participants who can provide answers to the research questions; adopt an interview format that will assist participants to provide useful answers to the research questions (for example, one-on-one or focus group interviews); design and utilize an interview guide or protocol; review interview questions to limit researcher bias in the design of interview questions; obtain consent to participate in the research from participants; and arrange a conducive location or platform for the interview (Brinkmann & Kvale, 2015; Creswell & Poth, 2018).

Drawing from the considerations above, I adopted Brinkmann and Kvale's (2015) and Creswell and Poth (2018)'s approaches to conducting successful interviews in this study. Two one-on-one, unstructured interviews (one at the beginning of the course and another at the end of the course) were conducted with each TE to understand how they conceptualize assessment and how they implement assessment as well as any opportunities and constraints that influence their conceptions and assessment practices based on their individual work contexts. For qualitative studies aimed at exploring specific practices and views, "fieldwork in these instances might extend over a period of several months, and the fieldworker might only be present sporadically and not constantly throughout this period" (Yin, 2018, p. 121). Thus, the aim for conducting interviews at two different times in a semester (12 weeks) arose from an intent to capture possible changes in TE's assessment practices as the semester progressed from the beginning to the end. Also, the two interview points allowed participants to share possible opportunities and constraints that influence their conceptions and assessment practices at different times within a semester. Specifically, TEs may implement some assessment strategies and some influencing factors may become more apparent in TEs' discussions at different points in the semester.

Each interview lasted about 60 minutes (Table 2 details actual interview duration for each round) via Zoom conferencing at the most convenient time for each TE. I commenced the first interview by gathering contextual and background information about each participant's institution, the course(s) taught during the data collection period, years of teaching in a teacher education program, educational qualification(s) and specialization, and the approximate number of students in the assessment course that was the focus of this study. The interview prompt is available in Appendix E. The questions in the second interview helped to enrich the data and to further clarify participants' assessment practices as observed during classroom observations.

Interviews were digitally audio-recorded with a handheld recording device and recorded using the Zoom cloud tool, with the permission of the interviewee. Unstructured interviews allowed participants to freely discuss their experiences of the research problem without being confined within the boundaries of set questions (Merriam & Tisdell, 2016). Participants were allowed to have control on the flow of information and did most of the talking, while I was flexible in my involvement and kept the overall focus of the discussion on the research problem being explored.

Observation of Online Classes

The observation of online classes phase of data collection probed TEs' assessment practices in classroom settings, for example, exploring actions in natural situations (Merriam & Tisdell, 2016; Silverman, 2011). Observation involves note-taking actions about a phenomenon in real life settings through the observer's auditory and visual senses, and usually recorded with an observation note or protocol (Creswell & Poth, 2018). Similarly, Yin (2016) contends that "observational procedures typically use a formal observational instrument" and involves "the identification of a precise set of occasions for making the observations" (p. 151), for example, observation of classroom teaching and practices. Observation is useful in obtaining a comprehensive picture and a deeper sense of the research setting, which may not be achieved by the sole use of other data collection tools, such as interviews (Merriam & Tisdell, 2016). Consequently, classroom observation was considered crucial in this study to obtain the nuances that might not be verbalized by TEs during interviews.

In the context of this study, classroom observations aimed at documenting occurrences or instances in which TEs assessed student learning and understanding of content as well as the assessment tool, tasks, or methods adopted in those instances. Also, the interaction between TEs and teacher candidates was observed in order to provide further evidence for the assessment

strategies that TEs discussed during interviews. Furthermore, there is strong research evidence suggesting that educators' actions such as classroom practices depend on the conceptions that educators hold about teaching, learning and assessment (Brown et al., 2019; Opre, 2015; Xu & Brown, 2016). As such, observing TEs' classroom practices was also aimed at confirming the nature of possible alignments between their conceptions and the assessment strategies that they implement in classrooms.

Drawing from how assessment is practiced within the framework of formative and summative purposes of assessment, I developed an observation protocol (see Appendix F) to assist to focus my observation of assessment strategies as outlined in the conceptual framework guiding this study (fully discussed in Chapter 3 above). Although the criteria for assessment practices (conceptual framework) was developed at the time of in-person classroom interactions, the framework was still useful in observing online classroom assessments given that formative and summative assessment tasks can be enacted in both situations. Nevertheless, I paid close attention to how assessment practices may unfold in different ways in an online setting, especially given the sudden move to online teaching. I was able to observe TEs' interactions (i.e., occurrence of in-the-moment assessment techniques, questioning style, engagement of students in the assessment process, clarifying criteria with students, time during the lesson when assessment tasks are enacted, etc.) with teacher candidates in each lesson that I observed. In addition to the assessment activities of the participants in their teaching sessions, observations enable me to experience and describe the classroom setting for each TE. I conducted three classroom observations, one at the beginning, another in the middle, and last at the end of the semester in each TE's assessment course.

The use of an observation protocol is necessary to adequately document field notes during observation (Creswell & Poth, 2018; Merriam & Tisdell, 2016). Field notes contain descriptive and reflective notes that provide complete information about the participants observed, their physical settings, all the interactions observed, researcher's reflections, reactions, and learnings (Creswell & Poth, 2018; Merriam & Tisdell, 2016). Thus, I documented a description of each TE's online classroom setting, the number of students present in each lesson, and the assessment strategies observed during each lesson into the observation protocol. I also documented my personal reflections and initial interpretations of the online classroom setting, interactions, and participants in the observation notes (these were noted as *Observer's comments: OC*). However, I expanded on the observation notes that I documented in each lesson after completing each observation session into a researcher journal that I kept for each TE. I found this journal necessary to explicitly document my thoughts, reactions, and other assessment strategies not included in the observation notes, but that were implemented in each lesson. The idea of a journal corresponds with Creswell and Poth's recommendation that following an observation, there is a need for researchers to "prepare timely notes that are thick and rich in narrative description after the observation. Give full description of the people and events under observation" (2018, p. 168).

Although the observation protocol assisted me to focus on educator-student interactions in terms of the assessment methods adopted in each lesson, I found it less useful to extensively document the online classroom setting as well as to deeply describe and document other assessment strategies not included in the observation protocol but that were important to document in each lesson. For example, there were instances when educators and students experienced internet interruptions which affected the flow of instruction and interaction in some

lessons. Other times, TEs conducted impromptu tests (graded and ungraded) due to students' obtrusive behavior in lessons or in some cases, low student attendance in lessons. As these instances were not included in the observation protocol, I documented these occasions in the researcher journal. For future research endeavours, I recommend the use of an observation protocol and a researcher journal to record any unforeseen instances that were not envisaged while designing an observation protocol. To document rich data through observations, Merriam and Tisdell (2016) recommend that qualitative researchers should keep both field notes and field journals. The former documents the interactions, participants, and their setting and the latter provides "an introspective record of their experience in the field. It includes his or her ideas, fears, mistakes, confusion, and reactions to the experience" (p. 152).

Evidence of all descriptive and reflective field notes and journals specific to each TE were password-coded to preserve participants' anonymity and confidentiality. The three online classroom observations took place over a period of about three months (highlighted in the table below). Each round of the online classroom observation depended upon the course schedule and on the lesson period as granted by each TE.

Table 2: An Overview of the Online Classroom Observation and Interview Period with Duration

TE	Institution	Observation and Interview Period	Number and Duration of Online Classes Observed	Number and Duration of Interviews Conducted
1	University of Ambitions	Mid-July to Mid-October, 2021	First: 1 hr. 55 mins. Second: 2 hrs. 3 mins. Third: 1 hr. 26 mins.	First: 1 hr. 21 mins. Second: 53 mins.
2	University of Ambitions	Mid-July to Mid-October, 2021	First: 2 hrs. 21 mins. Second: 2 hrs. 17 mins. Third: 1 hr. 50 mins	First: 1 hr. 5 mins. Second: 42 mins.
3	University of Motivations	End of July to End of October, 2021	First: 2 hrs. 32 mins Second: 2 hrs. 2 mins Third: 2 hrs. 5 mins	First: 56 mins. Second: 59 mins.
4	University of Motivations	End of July to End of October, 2021	First: 2 hrs. 14 mins Second: 1 hr. 54 mins Third: 2 hrs. 22 mins	First: 1 hr. 4 mins. Second: 51 mins.

5	University of Aspirations	August to October, 2021	First: 1 hr. 49 mins Second: 2 hrs. 11 mins Third: 2 hrs. 18 mins	First: 58 mins. Second: 1 hr. 2 mins.
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Assessment Documents and Artifacts

Documents and artifacts can be very useful data sources to compliment interviews and observations because they may “include the spelling of names, titles, and organizations, the affixing of specific dates to events, and the specific language used in mottos, slogans, mission statements, and other communications” (Yin, 2016, p. 156). Aside complementing interviews and observations, documents and artifacts are crucial data collection methods that provide important contextual and historical details useful for reporting case studies findings (Creswell & Poth, 2018; Merriam & Tisdell, 2016). Thus, for this study, course syllabi used in teaching the assessment course in individual TE’s institution and teacher education documents on assessment were requested from participant TEs. The course syllabi shared by TEs were designed for in-person teaching but given the sudden move to online teaching due to the pandemic, TEs continued to use the same course syllabi. Collected course syllabi and policy documents on assessment were useful in providing information about the standards, guidelines, and expectations for teaching, learning, and assessment in each TE’s context. Also, artifacts (sample assessment instruments) were requested from each participant to satisfy two purposes. First, to further portray how each TE seeks evidence of learning and how such evidence is utilized in the context of each classroom and institution. Secondly, sample assessment instruments assisted to prompt solid conversations regarding TE’s assessment practices, especially during the second round of interviews. TEs shared artifacts and documents via email and the documents were securely saved on the uOttawa one-drive account.

Data Analysis

The process of data collection and analysis in this study were both dynamic and recursive (Merriam & Tisdell, 2016) because, as I was collecting the data, I was organizing the data and conducting some preliminary analysis, especially after the first round of interviews and classroom observations. This preliminary analysis assisted me to revise and include some other interview questions and to focus better on other classroom interactions between TEs and teacher candidates that I previously did not emphasize. The process of analyzing data in qualitative research involves “classification and interpretation of linguistic (or visual) material to make statements about implicit and explicit dimensions and structures of meaning-making in the material and what is represented in it” (Flick, 2014, p. 5). Having collected data through four sources, I ended up with large volumes of data that required some systematic amalgamation (Merriam & Tisdell, 2016). Thus, rather than expanding and sometimes adding to the volume of data collected like other qualitative data analytic methods, content analysis assists researchers to reduce data volume (Prasad, 2019).

Qualitative content analysis seeks to provide a reflection of participants’ statements about a topic and presents data in themes and categories, which allows the researcher to draw in-depth meanings and interpretations from the data collected (Bengtsson, 2016; Bos & Tarnai, 1999). Qualitative content analysis “reduces data, it is systematic, and it is flexible... it requires the researcher to focus on selected aspects of meaning, namely those aspects that relate to the overall research question” (Schreier, 2014, p. 170).

Qualitative content analysis is an analytic and systematic process that adapts strictly to the study’s research questions, it is category-based, reliable, learnable, and limits researchers’ influence on the data (Bengtsson, 2016; Mayring, 2019). Several authors (e.g., Bengtsson, 2016;

Mayring, 2019; Prasad, 2019; Schreier, 2014) describe techniques for analyzing qualitative data through content analysis. To reduce ambiguity in the analytic process, I adopted the qualitative content analysis framework by Bengtsson (2016) as the analytic procedure for analyzing data in this study.

Bengtsson (2016) describes two analytic procedures involved in qualitative content analysis: latent and manifest. Manifest analysis permits researchers to use and express participants' actual words and to communicate with readers, all visible and apparent data in the text. Latent analysis enables the researcher to analyze data on an interpretive level and to find underlying meanings to the textual data. Both manifest and latent analysis can be used together in the analytic process, with the latter providing more inductive and interpretive meanings to the data (Bengtsson, 2016).

Bengtsson's two-stage analytic process corresponds to Merriam and Tisdell's (2016) illustration of analyzing qualitative multiple case study data:

In a multiple case study, there are two stages of analysis—the *within-case analysis* and the *cross-case analysis*. For the within-case analysis, each case is first treated as a comprehensive case in and of itself. Data are gathered so the researcher can learn as much as possible about the contextual variables that might have a bearing on the case. Once the analysis of each case is completed, cross-case analysis begins. A qualitative, inductive, multi-case study seeks to build abstractions across cases. (p. 234)

Thus, in this study, individual case (within-case) analysis was described alongside discussions of the final categories drawn from data sources for each case. Then, a latent (cross-case) analysis is presented to provide a general explanation and to illustrate similarities and differences across the five cases examined. Each case study (data for each TE) is presented in similar sub-headings: background information of the participant and a description of their

setting/context, participants' conceptions of assessment, the assessment strategies that they implement in the course, as well as opportunities and constraint experiences influencing their conceptions and practice of assessment. Presentation of findings from textual data includes extensively quoting participant's words. To present clear and readable quotations, I edited the pauses, but this does not affect the meanings of phrases and sentences.

Qualitative content analysis involves a continuous process of data coding and categorization and follows four analytic and iterative stages: Decontextualization, recontextualization, categorization, and compilation (Bengtsson, 2016). At the first (decontextualization) stage, researchers familiarize themselves with the data and create "meaning units" (Bengtsson, 2016, p. 11) or engage in the process of open coding. During the second (recontextualization) phase, researchers re-engage with the text to identify consonance between the meaning units and the text and to identify unmarked texts. The third stage (process of categorization) follows by condensing the meaning units or codes to form sub-categories and categories; then the fourth (compilation) phase follows, where the researcher provides in-depth meanings to the texts and across the cases (Bengtsson, 2016).

Analysis of Interviews

I listened to the audio recordings of interviews repeatedly as I produced written transcripts of the data in the early stage of data analysis to gain a better understanding of the data. As defined earlier in this chapter, each TE represents a case and so for each case, at the decontextualization stage, I familiarized myself with the interview transcripts through repeated reading and a series of open coding (Bengtsson, 2016). I engaged in a deductive analytic process to organize the textual data and to assist me in staying focused on the study's research questions.

For example, I created sub-categories and categories based on my research questions and drawing from the conceptual framework.

To deeply understand what is happening in the data so as not to create codes and force data into what I contemplated seeing, I made several efforts to get a sense of the text as a whole, as I searched for meaning units (Bengtsson, 2016). Consistent with Bengtsson, a meaning unit is the “smallest unit that contains some of the insights the researcher needs, and it is the constellation of sentences or paragraphs containing aspects related to each other, answering the question set out in the aim” (Bengtsson, 2016, p. 11). After I got immersed in the transcript data, I engaged in an inductive analytic process. Through this process, I created a list of emergent codes and an explanation or meaning of each code to minimize changes in my reasoning of the codes (Bengtsson, 2016), following an iterative process to increase the reliability and stability of the codes.

I then engaged in a recontextualization process to condense the codes for each interview datum while trying to ensure that the meanings were kept intact. Also, I endeavoured to ensure that all the texts were adequately analyzed, and non-relevant texts were kept for further analysis to minimize data loss. A continuous process of code development, checking and cohesion was adopted to sort the data and I organized the codes as they emerged from the data in those sub-categories and categories. Interview data for each case study was analyzed following this technique. A sample of codes from interview transcripts and how they were merged to form sub-categories and categories is presented in Appendix G. Because extensive research has been conducted (in contexts other than Nigeria) in the area of conceptions of assessment, assessment practices and the factors that influence these two concepts, the conceptual framework (described above) inspired the creation of codes both at the decontextualization and recontextualization

stages as related to each TE's conceptions and assessment practices as well as influencing factors. However, I paid close attention to other emerging codes that were not included in the conceptual framework, but that are peculiar to each case's interview transcripts.

Analysis of Observation Notes

Evidence from online classroom observations informed me of how assessment strategies were orchestrated mainly within a lecture. This permitted me, throughout an iterative process of analysis, to identify episodes that exemplify TE's intent for assessment. Qualitative content analysis "takes into account data from observations in such a way that the resulting texts are analyzed as systematically as possible" (Mayring, 2019, p. 12). I draw on the assessment practices conceptual framework (Suurtamm & Arden, 2017) as well as Bengtsson' (2016) qualitative content analysis process to organize and analyze observation records for each TE.

Drawing on the assessment practices conceptual framework that I used to design the observation protocol, I recorded TE's assessment tasks and activities, frequency of use, and the time of use of specific assessment strategies in the observation notes. Other recordings include TE's reactions to and comments on assessment tasks during lessons. Therefore, in the first stage of analyzing observation notes, I paid close attention to identifying and organizing the data drawing from the conceptual framework, as well as any other assessment strategy not apparent in the framework that emerged and was specific to the context of each TE's classroom. I agree with educational researchers' emphasis that online pedagogy is essentially different from in-person teaching. Thus, in the analysis of observation notes, I was mindful of TE's familiarity with digital technologies for teaching and assessing students, as this may impact how assessment is orchestrated in their lessons. For example, prior to the need to move teaching to the virtual space due to the pandemic, TE's skill or limited familiarity with virtual teaching tools may be reflected

in the assessment tasks that they enact, which may unfold in different ways depending on their prior experience with online teaching.

Specifically, I looked through the observation notes for instances when assessment was implemented as (1) an ongoing process that is embedded within instruction or as an activity that interrupts the instructional process as well as enacted at the end of a unit, (2) learner-centered where students are actively engaged in the assessment decision-making process or educator-centered where TEs solely decide on assessment criteria and processes, (3) reflecting meaningful learning and understanding of concepts by supporting students' conceptual and procedural understanding as well as sound reasoning or rote memorization of content and superficial learning, for example, assessing content that is easy to assess but not necessarily reflecting meaningful learning, and (4) using various means to seek evidence of learning or seeking evidence from a single source and relying on traditional assessment tasks to make judgement about student learning (Suurtamm & Arden, 2017). I was also committed to paying attention to how TEs' technological skills and sudden change to online teaching may influence these assessment strategies as I analyzed the observation notes.

I also coded the assessment strategies drawing on (1) *time of use* and (2) *frequency of use* of assessment tasks. Hence, for each online classroom observation that lasted a period of two hours, I coded TE's assessment practices into: *time of use* (introduction, content, closing) and *frequency of use* (always, often and rarely). Introduction code represents assessments implemented at the start of the lecture to introduce students to the lecture topic, including clarifying criteria for success in any given assignments, consultation with the last lecture in efforts to clarify any questions for students, and seeking students' prior knowledge of the present topic. The content code includes TEs' implementation of in-the-moment assessment acts,

engaging students in assessment activities as well as clarifying student's questions during lectures, and group or whole class discussions. The closing codes involves wrapping up of the lecture period which entails informing students of the next lecture topic, assignments, and discussion of the criteria for success in course assignments, or any other acts and tasks utilized to assess students' understanding of the lecture topic towards the end of the class. Also, I analyzed observation notes to illustrate how often TEs practiced specific assessment strategies. That is, I organized codes for always, often, and rarely that assessment acts and tasks were implemented in each classroom.

Document and Artifact Analysis

The main policy documents related to teacher education in Nigeria are the Benchmark Minimum Academic Standards (BMAS) (NUC, 2007), the National Policy on Education (NPE, 2014), and the National Teacher Education Policy (NTEP, 2014). The BMAS “enunciates the learning outcomes and competencies expected of graduates of each academic programme without being overly prescriptive while at the same time, providing the requisite flexibility and innovativeness consistent with a milieu of increased institutional autonomy” (BMAS, NUC, 2007, p. 2). The BMAS document also specifies the allocation of course credits and includes guidelines for assessment practices for all university programs (including teacher education) in Nigeria. The NPE indicates the philosophy and goals for education in Nigeria including guidelines for teacher education, as well as some policies related to assessment across all education levels. The NTEP offers guiding principles towards improving teaching and learning processes in teacher education and among in-service teachers in Nigeria.

In analyzing these three documents, I paid particular attention to assessment-related course descriptions and guidelines and the intent of the Nigerian education system for teacher

education. I included the national intent for teacher education to explore the possibility of connections between the national values placed on education and TEs' assessment practices. Thus, I looked for assessment-related guidelines and course titles as well as statements that emphasize how teacher candidates' learning should be assessed in the program, scoring and grading system, and objectives and expectations for teacher education. Consequently, I focused on the following sections to provide an analysis of assessment-related guidelines in the BMAS for teacher education: Philosophy and Objectives of Education (section 1.2), Scoring and Grading System (section 1.4.5), Evaluation (section 1.5), Core Courses in Education (*Tests and Measurement*, section 2.0). In the NPE, I focused on section 5b: teacher education and section 9c: assessment. In the NTEP, I focused on section 5.0: conditions for success and section 8.0: Principle 4 (curriculum and instruction in teacher education). Since the BMAS, NPE, and NTEP are guiding documents common to the three universities, I present the analyses of these three documents at the beginning of the findings section.

Other documents shared by TEs are course syllabi and assessment artifacts. I analyzed each course syllabus to (1) illustrate the content topics covered in the assessment course and how assessment is referred to in the course, (2) identify possible assessment tasks and grades attached to each task, and (3) explore the assessment education mostly valued as vital to teacher candidates' learning. Assessment artifacts were analyzed using the assessment strategies mentioned in the conceptual framework as well as identifying other assessment tasks not mentioned in the framework, but that TEs implemented. As stated earlier in the literature review, both formative and summative assessment practices are central to teaching and learning and can be used in the classroom, however, the purpose for which assessment results are utilized (Black & Wiliam, 2018), the inferences made from assessment evidence (Wiliam & Leahy, 2015), and

the provision of useful feedback targeted at improving learning and instruction (Winstone & Boud, 2020) makes an assessment practice formative or summative. Accordingly, artifacts were categorized into *formative practices* and *summative practices* of assessment. Artifacts were analyzed to explore participants' means of seeking evidence of student learning, the content, format, and type of each assessment task, as well as the purpose of implementation (for grading or not). Beyond a classification of the artifacts based on their purpose and type, this data source also allowed me to validate descriptions of assessment practices that TEs provided during interviews.

I integrated data from interview transcripts, classroom observation notes, course syllabi, and assessment artifacts to present, on a case-by-case basis, an illustration of each TE's conceptions of assessment, assessment practices, and influences on their conceptions and assessment practices in the findings chapter. A constellation of analysis of the four data sources also assisted me to describe the nature of the connection between conceptions and assessment practices in each TE's case (also illustrated in the findings chapter).

Trustworthiness Measures Adopted in this Study

Trustworthiness in research helps to ensure that appropriate measures have been followed while providing answers to the study's research questions (Bengtsson, 2016). In qualitative research, some concepts are regarded as evaluative criteria of trustworthiness. While some researchers consider these criteria as validity, reliability, generalizability, and objectivity (e.g., Yin, 2018); others refer to them as credibility, dependability, transferability, and confirmability (e. g., Merriam & Tisdell, 2016). According to Creswell and Poth (2018), these terms have similar meanings but differ in use, depending on a study's methodological approach.

The ability of a study to explore what it was designed for and to explicitly discuss data collection and analytic procedures is the focus of the research *credibility* criteria (Bengtsson, 2016). Also, “triangulation—whether you make use of more than one data collection method, multiple sources of data, multiple investigators, or multiple theories—is a powerful strategy for increasing the credibility of your research” (Merriam & Tisdell, 2016, p. 245). In this study, I collected data from four different sources: interviews, online classroom observations, documents (course syllabi), and artifacts (assessment samples), and I clearly describe each source (including the process used to collect data from each source) to enhance the credibility of the data collected. Member checking or respondent validation (Merriam & Tisdell, 2016) are other means of ensuring credibility in a study. Thus, I sent follow-up emails to each TE to confirm/clarify some of the discussions that we had during interviews, as well as a summary of their specific case interpretations. All participant TEs responded to clarify information as required. Through peer-debriefing, my thesis supervisor reviewed this study’s data collection methods, the analytic procedures and techniques employed and provided a second view of these processes.

Dependability criterion in qualitative research entails determining the reliability, consistency, and stability of research processes and procedures (Creswell & Poth, 2018; Merriam & Tisdell, 2016). To ensure studies are dependable, reliable, and consistent, qualitative researchers can utilize triangulation, audit trail, peer examination, and discuss their position (reflexivity) in their studies (Merriam & Tisdell, 2016). In previous paragraphs, I explicitly discuss the four data collection methods adopted in this study and I provided a step-by-step description of the analytic techniques used to analyze each data source and to arrive at the study’s results (an audit trail). Furthermore, a description of each case’s context is presented in the next chapter. A reflexive account of my involvement in this research is also highlighted

earlier in this chapter; I engaged in a peer examination of the data sources and analysis processes with my thesis supervisor.

Research *confirmability* refers to auditing the research process and procedures by an external member to confirm trustworthiness of the process (Creswell & Poth, 2018). This criterion was ensured through the participation of my thesis supervisor in carefully and repeatedly reading and discussing several versions of my thesis. To further ensure confirmability, the researcher's neutrality or objectivity in the process is also an important criterion (Bengtsson, 2016). In my role as a researcher, an observer, and an interviewer, I ensured I did not know any of the participants prior to their involvement in this research, which contributed to my neutrality in analyzing the data. Furthermore, even though I am a Nigerian, I do not hold any other role or position that may conflict with my role as a researcher in this study. I also shared with participants, the purpose of this research and the definitions of terms I was using in this study, hoping to establish a common ground for our conversations and to ensure transparency. The use of direct quotes from the data also adds to the transparency of research procedures (including the data collected and analyzed) in this study.

Applying research findings to other groups or contexts is the emphasis of the *transferability* criterion (Merriam & Tisdell, 2016). Also known as generalizability, some authors (e.g., Bengtsson, 2016; McMillan, 2016) posit that this criterion results in weak claims in qualitative research where the emphasis is on finding an in-depth understanding of a small sample, which affects the ability to generalize findings. Other educational authors (e.g., Eisenhart, 2009; Merriam & Tisdell, 2016; Simon, 2015) offer opposing discussions regarding transferability/generalizability of qualitative research findings. In the views of Merriam and Tisdell, "although generalizability in the statistical sense (from a random sample to the

population) cannot occur in qualitative research, that's not to say that nothing can be learned from a qualitative study" because "the general resides in the particular" (2016, pp. 254-256).

Relatedly, Eisenhart (2009) posits that generalization offers the tendency to infer conclusions beyond the research participants and their contexts; however, the approach towards generalizing in qualitative research involves careful consideration of the sampling design and the applicability of results to other settings. Furthermore, Eisenhart (2009) argues on the need for researchers to carefully choose a site that can be described and explored in detail, as this feature will afford future studies to identify similarities and possible generalizability of research conclusions to other settings. Similar propositions were made by Lincoln and Guba (1985) who suggested the notion of *transferability*. In their discussion of possible ways that findings of qualitative studies can be transferrable, the authors contend that:

The burden of proof lies less with the original investigator than with the person seeking to make an application elsewhere. The original inquirer cannot know the sites to which transferability might be sought, but the appliers can and do. The investigator needs to provide "sufficient descriptive data" to make transferability possible. (Lincoln & Guba, 1985, as cited in Merriam & Tisdell, 2016, p. 254)

Specific to qualitative case study research, Simon (2015) advances the possibility of making generalizable inferences by arguing that:

If we study a singular case in sufficient depth and are able to capture its essence – what makes it unique – in all its particularity, I believe we will also discover something of universal significance...seeing the universal in the particular is a powerful way of generalizing. (p. 181)

In support of educational researchers' positions regarding the possibility of inferring, transferring, or generalizing from qualitative studies, and drawing on their suggestions to ensure this criterion, research participants in this study cut across the three higher education institution types in Nigeria which provides the chance for detailed and rich description of the variety of

research sites in this study. For researchers who may want to assess the similarity of this study's context to theirs, a detailed description and background of each participant's context and a rich description of the findings is in the next chapter. Findings are presented with sufficient evidence in terms of participant's quotes to further enhance the chance for readers to infer or generalize from this study's findings.

Ethical Considerations

Maintaining ethical appropriateness is essential in all research studies (Creswell & Poth, 2018). I applied for and was subsequently granted approval by the University of Ottawa Ethics Board (with approval number: S-04-21-6347) on June 15th, 2021, before proceeding with participant recruitment and data collection. I followed ethical recommendations for recruiting participants by first seeking approval from directors of teacher education programs across North-western Nigeria. In addition to providing approval to conduct research with TEs in their programs, directors of teacher education assisted in sharing the letter of invitation with prospective TEs. A written consent was obtained from each TE prior to beginning data collection and I offered each participant the opportunity to clarify any questions they had regarding the study with me as they arose and also discussed their right to withdraw from the research at any time without any consequences to them.

Another ethical consideration that occurred in this study relates to the procedures adopted in observing TEs' assessment practices during online teaching sessions. Merriam and Tisdell warn that "participant observation raises questions for both the researcher and those being studied,... the act of observation itself may bring about changes in the activity, rendering it somewhat atypical" (2016, p. 263). Prior to observing teaching sessions, I informed each TE that my presence in their classroom was not to evaluate their teaching and assessment practices,

rather, that I was interested in documenting instances of classroom assessment interactions between TEs and teacher candidates. I also informed participants that classroom observations will not be video- or audio-recorded, but that assessment instances will be documented in a researcher journal which will not be accessible to other participants or anyone outside of my research. I did not seek consent from teacher candidates during classroom observations since I was only interested in documenting specific interactions initiated by the TEs and not the students' information or thoughts. Furthermore, given my experience and knowledge of classroom assessment practices in Nigeria and in Canada, I had planned to be sensitive to my personal judgement of TEs' assessment practices. In this case, I tried to ensure that my personal biases did not intrude in the interpretation of the data, and I ensured to maintain the utmost level of professionalism throughout the conduct of the research.

In addition to ethical issues that may arise from data collection and analysis, researchers need to consider data dissemination concerns as another means by which ethical issues may arise in the research process (Creswell & Poth, 2018; Merriam & Tisdell, 2016). To protect participants' anonymity and confidentiality, I used pseudonyms rather than actual participants' and institutions' names, I password-coded participant's personal information and redacted participants' and institutions' details from all data sets. Furthermore, I protected all participant information and the data collected for my research from unauthorized access by anyone outside of this study.

CHAPTER 5: FINDINGS

This chapter presents findings from the five TEs' cases that constitute the data corpus for this study. I begin this section by describing the main components of the Nigerian policy documents on assessment in teacher education with the intent of contextualizing TEs' teaching and assessment practices. In keeping with methodological parameters in case studies, according to which findings should reflect a description of the case and its context, issues found in the case, and an interpretation of the case[s] (Creswell & Poth, 2018), in this chapter, I present insights into each case beginning with context descriptions. Next, I highlight each case by illustrating individual TE's conceptions of assessment, their assessment practices, as well as influencing factors that shape their conceptions and practices of assessment. I then proceed to further discuss and draw connections among the five cases in the next chapter.

Analysis of Policy Documents

Generally, the aim of this section is to highlight (1) the goals for and situation of teacher education in Nigeria, (2) guidelines for assessment in Nigerian teacher education, and (3) guidelines for scoring and grading students in teacher education. It is important to note that the three policy guidelines discussed below are common to all Faculties of Education in Nigeria. The Benchmark Minimum Academic Standards (BMAS, NUC, 2007) is a 353-page document aimed at providing minimum requirements for graduation from Bachelor of Education programs including the number of pre-requisite, core, and elective courses per program year, course descriptions, credit weightings, and suggestions for assessing and grading student learning. It is stated in the BMAS that the goals for teaching the compulsory *Tests and Measurement* course are to develop students' expertise in test design and administration, as well as analyzing and interpreting test scores. For instance, the course description states that the *Tests and*

Measurement course offers students “an experience in test construction, administration, analysis and interpretation” (BMAS, NUC, 2007, p.19).

Again, the BMAS states that any teacher education course curriculum “should as much as possible take into consideration the needs of the society and job opportunities” (p. 10). This statement may imply a connection between societal goals for assessment and how assessment is taught in classrooms. Studies (e.g., Adodo, 2013; Asim et al., 2013; Barnes et al., 2015) confirm the heavy reliance on high stakes testing techniques and scores as a common practice to assessing learning in Nigeria. A jurisdiction’s societal and cultural perspective to assessment influences how assessment is taught and implemented in schools (Ercikan & Solano-Flores, 2016). The policy and researchers’ statements discussed in this paragraph may indicate why the compulsory assessment course is focused on testing and measurement than classroom assessment.

The National Teacher Education Policy (NTEP, 2014), a 23-page document provides guidelines for enriching the Nigerian teacher education program, as well as for ensuring quality student learning while in teacher education. The goals of the NTEP guideline are to:

Produce highly knowledgeable, skilled, and creative teachers who are capable of producing learners who can compete globally, while its goal is to ensure that teachers are adequately catered for and made adaptable to our changing world. It is also to ensure that teachers are trained and recruited based on explicit performance standards (NTEP, 2014, p. 4).

The NTEP also discusses the situation of teacher education in Nigeria, guiding principles for effective teaching and learning in pre-service teacher education, monitoring and evaluation strategies used in accrediting teacher education programs, as well as guidelines regarding in-service teacher education plans and procedures.

The National Policy on Education (NPE, 2014), a 72-page document provides national guidelines and requirements for the effective management, administration, and implementation of policies at all education levels in Nigeria. It also includes specific statements on the goals, standards, and expectations for teacher education in Nigeria, including a few statements on the purpose of assessing student learning.

Goals for and Situation of Teacher Education in Nigeria

The National Universities Commission through the BMAS policy, details ten goals for teacher education programs through the Faculty of Education as inclusive of the following:

(1) To produce prospective teachers with proper leadership qualities (2) To produce teachers with the knowledge, skills and attitudes which will enable them to contribute to the growth and development of their communities in particular and their nation in general (3) To produce teachers who have sound mastery of their subject areas and the ability to impart such knowledge to their students (4) To equip teachers with a mastery of problem solving skills (5) To produce highly motivated, conscientious and efficient classroom teachers for all levels of our educational system (6) To help teachers to fit into the social life of the community and society at large and enhance their commitment to national objectives (7) To provide teachers with the intellectual and professional background, adequate for their alignment and to make them adaptable to any changing situation, not only in the life of their country but in the wide world. (8) To encourage the spirit of enquiry, creativity, and entrepreneurship in teachers. (9) To enhance teachers' commitment to the teaching profession. (10) To enhance the skills of teachers in the use of new technologies (BMAS, NUC, 2007, p. 6).

These goals suggest the need for TEs to model effective teaching and learning strategies for teacher candidates so that they will possess the knowledge required to adequately facilitate learning for students. Similarly, the NPE mentioned steps towards improving teaching and

learning across all education levels and these include: “setting professional standards for TEs who train new teachers; and revamping teacher education curricular and training” (NPE, 2014, p. 45). On a related account, the NTEP states one of the objectives of the policy document for teacher education as ensuring “the availability in sufficient numbers of quality TEs who can serve as master models in terms of knowledge, values, attitudes and pedagogical competence” (NTEP, 2014, p. 12). Thus, the value of TEs serving as models is suggested in the BMAS document and made explicit in the NTEP document.

Despite these principles for improving teacher education and for ensuring TEs are effectively recruited and supported to fulfil their professional roles, NTEP reports some contrary evidence from research findings conducted in real-life teacher education classroom situations. NTEP section 2.0: “*Situation of teacher education in Nigeria*” suggests several concerns requiring attention if teacher education programs were to achieve the goals stated in the NPE and the BMAS. These concerns include:

- (a) the need for up-dating of recruitment, admissions, and graduation requirements.
- (b) incentives and measures for attracting talents into the teaching profession.
- (c) pre-service teacher education (PSTE) course content in university undergraduate programmes that fall below the requirements of today’s knowledge economy.
- (d) inadequate coverage and inadequate mastery of content knowledge in teaching subjects especially in languages, science, mathematics, and technology.
- (e) the prevalence of memorization-regurgitation due to the predominance of the lecture method of teaching.
- (f) inadequacy and inappropriateness of teaching and learning materials, and
- (g) low level of IT penetration and utilization in an IT-dominated area. (NTEP, 2014, pp. 8-9)

The above statements indicate policy makers’ awareness of the inadequacies inherent in the preparation of teacher candidates and concerns related to ineffective teaching and learning strategies such as memorization of course content, inadequate course content that is in-sufficient

to cater to current job requirements for teachers, as well as limited teaching and learning resources including low technological knowledge. Despite the awareness of these concerns, no other policy document has been published since 2014 to indicate support for TEs and teacher education generally. Further analysis of the NTEP document reveals that most TEs do not have the requisite knowledge to teach the courses assigned to them to teach and there are limited opportunities for professional development where TEs may improve their knowledge of effective teaching, learning, and assessment pedagogies. For example, “instructors were found to be inadequately prepared to teach in the areas to which they are assigned. Worse still, instructors have very limited opportunities for continuous professional and academic development” (NTEP, 2014, p. 9).

Other issues of concern in terms of the real situation in teacher education relates to the very large classes, little to no infrastructure and resources that TEs can utilize to facilitate learning for teacher candidates, inadequate funding for education at all levels in Nigeria, and issues related to program monitoring and accreditation practices. For instance, the NTEP reports that:

A good number of institutions for teacher education operate with dilapidated infrastructure and furniture; overcrowded lecture halls and insufficient equipment and materials (e. g., library and laboratory materials, computer). There is also little or no student support in terms of scholarships, medical care, and counselling services. Funding has remained a perpetual challenge, while monitoring and evaluation of teacher education programmes are not what they ought to be. (2014, p. 9)

Although there are specific goals for teacher education in Nigeria, findings from document analysis suggest that these goals are far from being met given reports on the situation of teacher education in Nigeria as stated in the NTEP. For example, whereas the BMAS stated

that the “staff: student ratio shall be 1:30 for all programmes” (BMAS, NUC, 2007, p. 12), the issue of large class sizes has been constantly reported across Nigerian teacher education programs and in research studies. Conflicting policy goals and implementation strategies in Nigerian teacher education may have implications for TEs’ facilitation of learning including the assessment strategies that they implement, the points in the semester and course when assessment is implemented, as well as how TEs conceptualize assessment in teacher education.

Guidelines for Assessment in Teacher Education

Findings indicate that whereas the three policy documents in teacher education include guidelines for assessment, these guidelines are presented in varying degrees of depth of information. For example, the NPE states that “assessment shall encompass the broad areas of: (a) assessment for learning and (b) assessment of learning” (2014, p. 69), but it did not provide definitions nor examples of these purposes of assessment. Also, the NPE listed assessment for and of learning as the two purposes for assessment but, there was no evidence in the policy document of assessment processes to engage students and improve students’ metacognition and critical thinking skills (often referred to as ‘assessment as learning’). Moreover, recent studies (including Nigerian studies) highlight the importance of assessment for and as learning in higher education students’ learning (for example, Carless, 2015; Olutola & Olatoye, 2020) and towards improving teacher candidates’ knowledge (for instance, Olatunji, 2017; Wang, 2020).

In the National Policy on Education (NPE), there was no mention of specific guidelines in terms of assessment strategies that educators can leverage to support student learning. The NPE only mentioned that the goals for assessment shall be to: “accurately measure the abilities of students; enhance the global competitiveness of products of the Nigerian education system; improve the credibility of examinations conducted in Nigeria; eliminate the intractable problems

associated with traditional Pencil Paper Tests (PPT); and improve learning” (NPE, 2014, p. 69). Similarly, the NTEP mentioned that part of the conditions for success of the policy documents in classrooms is for TEs to implement “authentic assessment of teacher learning” (NTEP, 2014, p. 11). Still, assessment guidelines in the NPE and NTEP appear as general statements intended for TEs to implement while assessing teacher candidates’ learning and suggests that specific assessment practices to be implemented in teacher education are more of TEs’ personal intentions, decisions, and interests.

As mentioned above, assessment guidelines vary in the depth of information provided in the three teacher education policy guidelines. Section 1.5 in the BMAS with the heading, “*Evaluation*”, and a sub-heading, “*techniques of student assessment*” (Section 1.5.1) specifically states that:

The assessment of students’ progress can be done through a combination of the following methods: (a) written essay examination (b) written objectives examination (c) individual and group projects (d) term paper/presentation (e) seminar presentation (f) oral examination (g) field experience assessments (h) open book examination (i) laboratory performance and (j) take-home examination (BMAS, NUC, 2007, p. 9).

The BMAS document adds that TEs may choose to implement peer assessment but that “in all techniques mentioned above, the tradition is that the teacher is the assessor” (BMAS, NUC, 2007, p. 9). It is interesting to note that whereas specific assessment techniques are mentioned in the BMAS, there are indications of limited active student involvement in assessment processes from statements suggesting that “the teacher is the assessor”. This finding further indicates mainly, teacher-centered assessment approaches, with limited suggestions for teacher candidates’ engagement in the assessment process.

Scoring and Grading Guidelines

The NPE and NTEP policy guidelines do not contain recommendations for grading in teacher education programs. However, sections 1.5.1 (*techniques of student assessment*) and 1.5.6. (*Performance Evaluation Criteria*) in the BMAS provides guidelines for grading and grading components. Under the *techniques of student assessment* section, the BMAS document mentions continuous assessment and final examinations as the two components that make up students' final grades:

The weighting of continuous assessment should be between 30% and 40% of the final grade, course by course. The final grade of a student in a semester consists of two parts: (a) final assessment grade and (b) all assessments prior to final examination. These will include term papers, occasional test, laboratory work and assignment. (BMAS, NUC, 2007, p. 9)

The above grading guidelines imply that a student's final examination grade forms a high portion of their overall grades (i.e., 60-70%) while all grades from assessments prior to the final examination totals 30-40%. This finding suggests that in a case when a student does not have high scores in their final examination for whatever reason, it is likely that their overall grade will be significantly affected. This finding also imply that TEs are provided with limited opportunities to obtain evidence of student learning from a variety of assessment sources given that the total grades allocated for an ongoing grading component is 30-40% of the total student grade.

Continuous assessment according to the Nigerian Policy on Education is expected to be ongoing with varied assessment tasks (which are graded), but in reality, and in practice, due to the historical and cultural high-stakes perspective on classroom assessment in Nigeria, continuous assessment in this context appears to serve only a summative function (Anyanwu &

Iwuamadi, 2015; Olutola & Olatoye, 2020). For example, one of the problems reported in Nigerian teacher education programs is the “prevalence of memorization-regurgitation practices” (NTEP, 2014, p. 9); university instructors prefer to conduct a test and an examination as their complete array of assessment in a course (Olutola & Olatoye, 2020; Osadebe, 2015). Continuous assessment practices in Nigerian higher education are far from ongoing practices as stated in policy documents; most university instructors enact one or two assessment tasks in a semester (Faremi & Faremi, 2020).

In addition, the *performance evaluation criteria* states that “a student who scores below 45 in any given course is deemed to have failed the course. The grading system is as thus: A:70+; B:60-69; C:50-59; D:45-49; F:0-44. For students to obtain a passing grade, they must focus more on passing their final exams since final examinations carry the highest percentage of their grades in the course (60-70%). Allocating more marks to the final examination component seems to also have implications for the types of assessment that TEs can implement with the heavy reliance on examinations rather than ongoing and engaging classroom assessment strategies.

Analyses of the three policy guidelines for teacher education suggest the need for explicit guidelines for TEs’ teaching and assessment roles as well as clearly stated professional role expectations. Particularly, I see a need for specific guidelines detailing innovative assessment strategies for assessing teacher candidates’ learning. Providing detailed strategies through policy guidelines would assist TEs to model sound assessment practices that teacher candidates can use when they begin their teaching careers in schools. For example, there was no indication regarding feedback practices in the document analysis conducted on each of the policy guidelines analyzed. The lack of sufficient information regarding assessment for improvement of

teaching and learning purposes may cause confusion for TEs who may resort to assessment strategies that suit their personal experiences and efficacy of development and implementation. Furthermore, the contextual conditions (e.g., large class sizes, lack of facilities for teaching and assessment, limited professional development, etc.) in which Nigerian TEs work may not provide them with opportunities to implement assessment in ways that can develop teacher candidates' learning and skills which they need in their future careers. By implication, just as Olatunji (2017) argues, graduating incompetent teachers will further exacerbate the academic failures experienced in Nigerian K-12 schools.

It appears crucial then, to explore the conceptions and practices of TEs regarding assessment implementation in Nigerian teacher education, specifically in the only compulsory assessment course (*Tests and Measurement*). The analysis presented above is intended to situate the five TEs' discussions and experiences (described below) regarding how assessment is conceptualized and practiced in the compulsory assessment course in Nigerian teacher education programs across the three institution types (federal, state, and private).

The Case Studies

In this section, I present first a description of each category drawing from the conceptual framework, the sub-categories, and their meanings, as well as how the subcategories were derived from analysis of data sources. Then, I begin to discuss each case by describing first, the individual TE in the context of the assessment course that they teach, as well as their school context; I then present findings from my analysis of interviews, online classroom observations, course syllabi, and assessment samples through the lens of the conceptual framework categories.

The names of TEs and the schools where they work have been replaced with pseudonyms. The pseudonyms given to the five TEs and their schools are presented in Table 3.

Table 3: An Overview of Participants' Names and Institutions (in Pseudonyms)

Case No.	TE's Name	Participant TEs' University	Institution Type
1.	Tracy	University of Ambitions	Federal university
2.	David	University of Ambitions	Federal university
3.	Hamzah	University of Motivations	Private university
4.	Alli	University of Motivations	Private university
5.	Awwal	University of Aspirations	State university

Defining Categories and Sub-categories

Conceptions of assessment as espoused by Xu and Brown (2016) and Brown (2004) suggest that educators' articulation of the purposes and descriptions of assessment, and their beliefs of what is important to teach regarding assessment, play a central role in framing their conceptions of assessment (Wang, 2020). Thus, for each TE (i.e., each case), findings are derived from analyses of interview transcripts and course syllabus. The conceptions of assessment section is organized using three sub-categories: *purposes of assessment, descriptions of assessment, and beliefs regarding assessment education*. TEs' purposes of assessment in teacher education are illustrated through accounts of their beliefs regarding what assessment is useful for as well as how assessment information is utilized (Wang, 2020). TE's conceptualization of assessment can also be reflected through their characterization of assessment (Xu & Brown, 2016) and how they describe assessment (Wang, 2020). Educators' descriptions of assessment encompass their beliefs and accounts of what assessment is, how assessment is depicted, or represented in teacher education (Wang, 2020). To deeply understand TEs' conceptions of assessment, researchers also need to focus on their beliefs about how assessment education should be taught, for instance, what they consider as assessment knowledge to teach to teacher candidates (Wang, 2020).

I draw on Suurtamm and Arden's (2017) assessment practices model that emphasizes several aspects of classroom assessment to analyze TEs' assessment practices. Specifically,

Suurtamm and Arden highlight four components of classroom assessment practices as described in Chapter 3. Analyses of interview transcripts, course syllabi, observation notes, and assessment samples in the assessment practices section is organized using four sub-categories: *ongoing assessment embedded in instruction, assessment reflecting meaningful learning, assessing through a variety of sources, involving students in the assessment process.*

In terms of examining influences on assessment conceptions and practices, I draw upon the conceptual framework by Fulmer et al. (2015) who identified three levels of influences that shape educators' conceptions and assessment practices from a review of pertinent literature. Specifically, three sub-categories represented as *micro, meso, and macro* influence how assessment is conceptualized and practiced in classrooms (Fulmer et al., 2015) as described in Chapter 3. Analysis of data from interviews reflect what TEs feel as supporting factors and impediments to their conceptions and assessment practices. In addition, given the unexpected transition from in-person to online teaching, I agree with researchers' submissions that educators' prior experiences with virtual teaching tools may influence their assessment practices in online environments (Lowenthal et al., 2019; Sharadgah & Sa'di, 2020).

Indeed, sociocultural views of assessment underscore that contextual factors in teaching matter in how assessment is orchestrated, hence I share a similar opinion with Baleni (2015) that online teaching is a very different context than in-person teaching. It is important to also highlight my awareness that educators' experiences with online teaching tools is different from their online teaching pedagogy. While analyzing contextual influences on assessment practices, I included TEs' experiences using online teaching tools and not their online teaching pedagogy since I do not have data evidence to support the latter. Therefore, in analyzing interview data related to influences on TE's assessment practices, I paid close attention to (1) the online

environment being a different teaching context and that there is more to online teaching than simply knowing how to use virtual teaching tools (2) how the sudden change to online teaching may influence TEs' assessment practices depending on each TE's prior familiarity with virtual teaching tools.

Table 4: Organization of Categories and Sub-categories

Categories	Sub-categories
Conceptions of Assessment	<ul style="list-style-type: none"> - <i>Purposes of assessment</i> - <i>Descriptions of assessment</i> - <i>Beliefs regarding assessment education</i>
Assessment Practices	<ul style="list-style-type: none"> - <i>Ongoing assessment embedded in instruction</i> - <i>Assessment reflecting meaningful learning</i> - <i>Assessing through a variety of sources</i> - <i>Involving students in the assessment process.</i>
Influences on Conceptions and Assessment practices	<ul style="list-style-type: none"> - <i>Micro-level</i> - <i>Meso-level</i> - <i>Macro-level</i>

Case 1: Tracy

Tracy was in her seventh year of teaching in the Bachelor of Education program when this research began. Specifically, she had been teaching the compulsory assessment course for seven academic years. Her teaching experience also includes 8 years of teaching in high schools. Tracy holds a teaching qualification, a Master of Education, and a doctoral degree from the same university where she currently works. Tracy completed her doctoral degree in the research, measurement, and evaluation concentration. She continuously referred to her educational specialization in the doctoral program as responsible for her teaching and assessment literacy as well as pedagogy. For example, she once mentioned that “this [her educational background] has actually helped to improve my knowledge regarding how I teach assessment courses”.

Tracy currently teaches in the Faculty of Education at the University of Ambitions, a federal university located in one of the cities in the North-western region of Nigeria. Ambitions

University has approximately 48,000 undergraduate students and over 5,000 graduate students across fifteen academic faculties. The nearly five-decade old university prides itself in excellent teaching and learning, as well as a strong connection with the community where it is located. An aerial view of the university reveals the beautiful layout of buildings with the administrative buildings and university hall visible as you enter the university premises.

Tracy teaches the compulsory two-credit, Tests and Measurement course in the second year of the four-year program. Because the Tests and Measurement course is compulsory for graduation, Tracy shared that every year in the second semester when the course is usually offered, the average number of students enrolled in the course is approximately 2,000 to 2,500. Regarding the number of TEs that teach the assessment course, Tracy shared that “since the seven years ago that I've been teaching here, initially we were just three, at a point, another two [TEs] joined us, presently one is not around. So, we are four teaching it now”. Tracy mentioned that about four to five TEs co-teach this course. However, on average, she teaches about 500 to 600 students in her course without a teaching assistant. Tracy is an active member of several professional teaching and assessment-related organizations.

Due to the large class size, Tracy conducts computer-based final examinations in her course through her university's Computer Testing Centre. I observed that Tracy and her students possessed limited technological skills even though the class was synchronous and asynchronous. There were also instances when students were unable to log into the Learning Management System (Google Classroom) and the virtual learning platform (Zoom). In other instances, students lost some instruction time due to unstable internet connections. Prior to the pandemic, Tracy had taught only in-person classes, so the sudden move to online teaching meant that she had to learn how to use online tools for teaching and assessment: “using technology to teach and

doing online assessment is a new thing for me, I am still learning.” Also, the course syllabus was designed for in-person teaching, Tracy used the same syllabus to teach in an online setting probably because of the unexpected move to online teaching during the pandemic.

Tracy’s Conceptions of Assessment

Tracy’s conception of assessment was analyzed through data from interviews and course syllabus and discussed by exploring how she expresses the purposes of assessment, her descriptions of assessment, as well as what she values as assessment education to teach to teacher candidates.

Tracy’s Purposes of Assessment

Analysis of data suggests that Tracy understands the purposes of assessment in teacher education as providing feedback to stakeholders in terms of reporting students’ grades to parents and the government, as well as using assessment information for program improvement, for student placement, and for certification of students. Analysis of interviews illustrates one of Tracy’s purposes of assessment as providing evidence of student learning to stakeholders (including to students themselves) in education. For instance, she mentioned that “so, assessment is essential to get feedback to all educational stakeholders, the learner; the teacher; the parents also need feedback of their wards; and the government needs feedback too”. Regarding providing assessment reports to the government, Tracy said that “I mean, giving money to the educational sector and they [the government] need feedback about what they put in place”.

Furthermore, findings also suggest that assessment reports are useful for program improvement, as indicated by Tracy: “report on assessment is essentially needed; without it, I don’t think education at any level be it at faculty of education or anywhere will actually have progress”. In addition, the findings suggest that Tracy sees the placement of students as another

purpose of assessment. For instance, she shared that “if not for assessment, how will you be able to place, like someone is classified as an average student and another one above average and things like that”. Tracy further added that assessment information may be useful for diagnosis: “then it is also needed for diagnosis, you can diagnose and like okay, this is who this person is, and here is where they belong”. Although this may imply placement of students into categories based on the diagnostic assessment, it may also suggest diagnosing to enable or provide appropriate learning support to improve student learning.

Another purpose for conducting assessment in teacher education evident in my analysis in Tracy’s case concerns certification. To her, assessment provides opportunities for certification which in turn allow universities to admit students into different programs that suit their certificates. Here, Tracy extends the purpose of assessment outside of the classroom to the program level as she shared:

So, for certification, if there is no knowledge of assessments, how will you certificate? At the end of the day, students come to institutions with one certificate or the other. The certificate is not given as proxy, they must have written so many assessments and measurement will have taken place, and this will help to us to admit such an individual to a particular program in the institution.

The purposes of assessment as highlighted under this sub-category suggest assessment as being useful for improvement, placement, diagnosis, and accountability purposes. These purposes shine through Tracy’s mention of assessment serving to provide feedback to learners, a diagnosis for proper placement of students in a course, and that assessment serves student certification and reporting functions.

Tracy's Descriptions of Assessment

Analysis of data illustrates Tracy's description of assessment as an activity for certification and the quantification of student learning through tests and grades. Additionally, Tracy describes assessment as a process that ensures educators' re-teaching of concepts, as well as a process that involves obtaining evidence from multiple sources.

Tracy's description of assessment as an activity leading to student certification is illustrated from interview data as she characterizes assessment as more of mastery. Notwithstanding, Tracy's description of assessment as mastery still had some inclinations towards certification of students: "from my own perspective it [assessment] shouldn't just be meant for certification, we should not celebrate assessment for certification only. Assessment is more of mastery; that is, assessment should be purposely meant for mastery". To Tracy, mastery means understanding: "have students actually understood the particular concept that we are talking about?" Tracy puts emphasis on tests as quantifying learning. Her emphasis on quantifying learning through tests by applying grades shines through as she seems to see grades as evidence of student learning.

The best assessment instrument to elicit response on what has been taught is tests. That is, to elicit information from the testee who happens to be your learner. The information is useless until a quantification of the elicited response given to me is done.

On the other hand, findings suggest Tracy describes assessment as a process. For instance, Tracy articulated how educators need to re-teach aspects of the course after assessing students and finding some misconceptions in their learning. The act of re-teaching content upon gathering assessment information suggests limited beliefs about assessment as a one-time activity, but a recurring process useful for adapting instruction with aims of enhancing student

learning. Also, the quote below implies that Tracy pays attention to students' understanding of concepts, albeit through grades: "by the time you assess them, and the score shows that some students do not understand, you need a kind of reteach for them to understand". In addition, whereas analysis of data implies Tracy's belief that assessment is a process of seeking evidence of student learning from multiple sources, she added that any source of assessment tool used to gather evidence of student learning must be graded: "assessment is more comprehensive in that it is not just one instrument. Aside from a test, I can also give assignments, projects... and the score in all of these will form what is called assessment".

Findings under this sub-category illustrate Tracy's dual beliefs about assessment being an activity that has tests at its core, as well as a process that ensures effective teaching adaptations through re-teaching and seeking evidence of student learning in multiple ways. This section also highlights Tracy's beliefs regarding testing and grading as important activities in assessment and that indicates students' level of understanding of concepts.

Tracy's Beliefs Regarding Assessment Education

The sub-category, *beliefs regarding assessment education* describes Tracy's valuing and modelling of assessment topics and pedagogies while teaching her course to further highlight her conceptions of assessment. Drawing from the course syllabus and interview data, findings indicate Tracy's autonomy in designing the course syllabus and including topics to teach in the course, which helps to indicate areas she finds important. Findings also reveal the assessment pedagogy she considers as important to model for assessing teacher candidates' learning.

The course that Tracy teaches is the only course whereby teacher candidates in Nigerian teacher education programs learn about assessment pedagogies. Also, through this course, TEs have the opportunity to model assessment pedagogies (through the topics included in the course

and through their assessment practices) that will be useful to teacher candidates' future careers. For example, Tracy mentioned that “this course is important because it is the only assessment course where our students learn how to conduct assessment when they start teaching”. Nevertheless, the assessment course is more aligned with a Tests and Measurement course than a classroom assessment course, drawing from the course title and description, which align with the recommendation in the BMAS policy document. Due to brief course descriptions in the BMAS (described under the document analysis section) and lack of recommendations for specific topics to include and teach in a course, individual TEs possess the autonomy of teaching topics that they regard as assessment education in the course.

Although Tracy must teach the Tests and Measurement course as prescribed in the BMAS, she can include other topics depending on what she values as important topics to teach based on her conceptualizations of assessment: “because we co-teach the course, we jointly decide on the topics to put in the outline based on our personal understanding and expertise”. Earlier on, Tracy described how her educational background as a research, measurement, and evaluation specialist was partly responsible for how she teaches the assessment course (highlighted under Tracy’s context description).

Tracy’s course syllabus includes topics on statistics which is not part of the Tests and Measurement course description. A copy of the compulsory assessment course outline, Tests and Measurement, is provided below as shared by Tracy.

Table 5: EDU 212: Tests and Measurement Course Outline

Weeks	Concepts/Topics
1 st & 2 nd	Basic Concepts in Measurement and Evaluation: Meaning of Assessment, Measurement (Scale of measurement) and Evaluation
3 rd	Purpose/Role of Evaluation
4 th & 5 th	Measurement Techniques: Meaning and uses of the following assessment tools: Test, Questionnaire, Observation, Checklist, Interview, rating scale, Projective techniques, Inventory.

6 th & 7 th	Test Development Techniques: Types of tests, characteristics, uses and methods of construction. Comparison of standardized and teacher made tests, essay and objectives tests as well as their strengths and weaknesses.
8 th & 9 th	Qualities of a Good Measuring Instruments: Validity, Reliability and Usability (Meaning, nature, types/methods of estimating and factors affecting each.
10 th	Test Administration and Interpretation: Assembling, administering, and appraising classroom tests, Norm and criterion referenced interpretation of test scores.
11 th	Basic Statistical Concepts: Meaning of statistics, inferential statistics (parametric and non-parametric statistics) variable and types of variables, population, sample, sampling techniques.
12 th	Descriptive statistics in Education: Data Representation, Measures of Central Tendency, Mean, Median and Mode. (Both grouped and ungrouped data).
13 th	Measures of Variability/Dispersion: Range, Standard Deviation, Variance, Coefficient of Variation and Quartile Deviation. (Both grouped and ungrouped data).
14 th	Correlation Coefficients: Pearson and Rank

The course syllabus above shows that, out of fourteen weeks in the semester, Tracy spends four weeks teaching topics on statistics, three weeks are spent on teaching concepts and purposes of assessment, measurement, and evaluation, while seven weeks are spent on teaching measurement and test techniques. Specifically, the course syllabus indicates that 50% of the weeks in the semester, students learn topics related to test construction, administration, and interpretation as prescribed in the BMAS and the remaining 50% is spent teaching topics that Tracy values as important to include (e.g., 21% on assessment, measurement, and evaluation concepts and 29% on statistics). The inclusion of other topics in addition to tests and measurement techniques suggest that (1) Tracy can include topics to teach in the course even though course descriptions were briefly stated in policy document (2) topics included in the course are dependent on those that Tracy values for teacher candidates to learn in the course regarding assessment education.

In addition to the above, interview data highlights Tracy's understanding regarding the need to grade students' work which further indicates what she values as assessment education necessary to model to teacher candidates through her practices. Findings point out Tracy's beliefs that all assessments should be graded, otherwise students may not take educators seriously when they give assessment tasks: "as a good teacher, you don't assess for fun otherwise your integrity as a teacher will be questionable and the moment students realize that she won't mark, you will not be taken seriously". Also, Tracy shared during interviews that grades provide her with information to make decisions and judgement about student learning: "having elicited the information, the information is not useful until I move forward from test to a quantification of the elicited response given to me".

Findings from this sub-category suggest Tracy's belief that tests and measurement techniques, as well as statistics are valuable assessment topics to teach to teacher candidates, as well as grades being an important consideration while assessing students' learning of course contents. Overall, data triangulation showcases Tracy's conceptions of assessment drawing from her beliefs that assessment is useful for: providing feedback to learners; diagnosing student learning abilities; engaging in re-teaching based on assessment results; reporting student progress to parents, the institution, and the government; assisting to certify students; and to place students into programs based on the reports from assessment. Furthermore, Tracy appears to believe that assessment is a process that helps to ensure teaching adaptations, she also believes that tests and grades are important activities to source evidence of student learning.

Drawing on the conceptions of assessment model (Wang, 2020), the findings above illustrate improvement of teaching and learning as well as accountability as prominent in Tracy's conceptions of assessment. Improvement of teaching and learning conceptions shine through

Tracy's mention of the purposes of assessment as providing feedback to students, for adapting teaching, and for diagnosing and placement of students. Tracy also described assessment as a process of seeking evidence of student learning through multiple tasks. According to Wang (2020), assessment is conceived as student accountability when TEs describe assessment as a process of using assessment information (e.g., grades only) to make decisions on student promotions and certifications, for reporting student success or failure to parents, and that grades are important for making decisions and judgement about student learning (Wang, 2020). Thus, Tracy appears to conceptualize assessment in multiple ways: the improvement of teaching and student learning as well as student accountability.

Tracy's Assessment Practices

This section addresses Tracy's assessment practices in the assessment course that she teaches; her practices were probed through interview discussions, sample assessment instruments, and classroom observations.

Ongoing Assessment Embedded in Instruction

Findings under this sub-category illustrate Tracy's practices of assessment as a separate activity and at certain points in the lesson and semester. Specifically, data analysis reveals how Tracy implements tests after rounds of instruction and gives assignments at certain points in the semester for syllabus completion. Data analysis also illustrates Tracy's limited opportunities to ask questions during instruction and responding to students' questions, due in part to class size, the online teaching format, as well as disruptions due to internet facilities.

Analysis of interview data reflects that Tracy implements assessment as a separate activity by following the set times for a test and examination as obtained through her university's policy on assessment. Tracy conducted other assessments in addition to the compulsory test and

examination, however, these assessments were also implemented at certain times in the semester: “there is a period scheduled for one test before the exam, but we do more than that in our course, for example, I give assignments, presentations, and I give tests at times before the time for the compulsory test”. Although findings suggest that Tracy implements assignments at certain points in the semester, it appears that the few instances of projects or presentations in Tracy’s class were mostly to complete teaching her syllabus:

It’s not weekly, it’s not as if it’s every week or every month that I will give assignments. If am able to teach 4 topics, the fifth one I’m giving it as assignment or project where students present. And the assignments will be graded and part of the assessment for the total or the final mark.

Classroom observation notes also substantiate how assessment is practiced at certain points during the lesson and semester which indicate limited opportunities for ongoing assessment that can move learning forward. For example, there were very few instances when students’ prior knowledge and present understanding of the course content were probed during instruction. Rather, assessment of students’ understanding comes after instruction has occurred whereby Tracy asked if students understood the day’s lesson. Often, Tracy was unable to respond to the students’ questions which she posed at the end of instruction due to time constraints, as well as the high student number in her class: “their number is not helping matters too. There is no time to ask all of them, so I just leave questions till after the class”. Observation notes and interview data indicate students’ limited internet connections as another reason for Tracy’s limited opportunity to ask questions during instruction or to respond to students’ questions:

There are several issues why we cannot waste time to ask students questions. One is that most students do not have the financial capacity to buy enough internet data

to attend the full class, for others, there is the issue of bad internet connection in their locations, we cannot waste time in the class by asking questions.

The above quote is corroborated by several scenarios experienced during online classroom observations where students and the TE were consistently logged out of the Zoom class due to internet service disruptions. Observation notes also reveal how Tracy announced the test date to students, which implies that she implements tests by informing students, so that the whole class will be aware that there is test: “but when you tell them there is test on this date, they will get ready by reading, and you will see almost all of them.” This quote implies that students consulted learning resources when there is a test, or a graded course component and it further indicates how assessment is practiced as a separate activity in Tracy’s course. It could also indicate that students are being strategic with their internet resources due to the cost and stability of internet facilities.

Assessment Reflecting Meaningful Learning

To meaningfully assess learning, educational researchers advocate for assessment tasks that supports students’ conceptual and procedural understanding as well as sound reasoning rather than rote memorization of content and superficial learning. Findings under this sub-category suggest that assessment samples in Tracy’s case, especially the examination questions, are mostly multiple-choice, yet Tracy endeavours to introduce teacher candidates to formative assessment terms. Interview data also indicate that Tracy relied on grades to understand what students have learned. Although data analysis suggests limited meaningful learning opportunities as teacher candidates’ learning appeared to be assessed superficially, the contextual situations in Tracy’s course may account for these practices.

Below are sample assessment questions used in the course that Tracy teaches. The questions shared suggest that Tracy uses mostly multiple-choice questions to assess learning in tests and examination and also indicate what she values as important to model in terms of assessment pedagogy in an assessment course. Assessing mainly through multiple-choice formats may not present a complete picture of sound assessment processes to teacher candidates, however, their use may be necessitated by the number of students taking the course as well as the sudden shift to online teaching and assessment.

Table 6: Sample Assessment Questions

<p>Which of the following is NOT a role of evaluation?</p> <p>A. Guidance and counselling</p> <p>B. Motivation of students</p> <p>C. For students' placement</p> <p>D. For providing data in a manageable form for use in evaluation</p> <p>A form of evaluation that is carried out periodically while instruction on a unit of course is still in progress is evaluation</p> <p>A diagnostic</p> <p>B prognostic</p> <p>C summative</p> <p>D formative</p> <p>Which of these is NOT a characteristic of formative evaluation</p> <p>A It covers unit of instructional content</p> <p>B It is usually in detailed</p> <p>C It is process-oriented</p> <p>D It is product-oriented</p> <p>Summative evaluation is geared mainly towards the -----of students.</p> <p>A. certification</p> <p>B. guidance</p> <p>C. placement</p> <p>D. selection</p>
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Similarly, although modelling of what is important to know and do regarding assessment as needed by teacher candidates in their future careers appears to be less emphasized through implementing multiple-choice tasks, Tracy included questions about formative, diagnostic, and prognostic assessments in the sample assessment questions (Table 6 and 7). Including these

questions indicates that she values content on formative assessment as needed by teacher candidates even though she is in a situation where she may feel compelled to use multiple-choice questions. Answers to the multiple-choice examination sample are in red as shared by Tracy.

Table 7: Sample Examination Questions.

<p>An assessment designed to measure the degree of learning that has taken place after a person has been exposed to a specific learning experience is called.....test.</p> <ul style="list-style-type: none">a. achievementb. performancec. masteryd. power <p>The process of judging the worth a programme, subject etc. is referred to as.....</p> <ul style="list-style-type: none">a. measurementb. assessmentc. evaluationd. test. <p>The main purpose of formative evaluation is to.....</p> <ul style="list-style-type: none">a. attain total growth and development of the student.b. determine extent of achievement of objectives of education.c. plan the types of traits and behaviours to be assessed.d. provide feedback about the progress being made in school <p>At the beginning of instructional programme,..... is given to find out the learners' entry behaviour.</p> <ul style="list-style-type: none">a prognostic evaluationb diagnostic evaluationc formative evaluationd summative evaluation <p>Assessment plays the following roles in each phase of instruction EXCEPT</p> <ul style="list-style-type: none">a Classification of instructional objectivesb Emigration of studentsc Determination of students' entry behaviord Assessment of students' performance <p>Summative evaluation is given to the learners</p> <ul style="list-style-type: none">a throughout the instructional process.b at the end of the instructional process.c at the middle of the instructional process.d at the beginning of the instructional process. <p>A type of evaluation that aims at providing guidance and adjustment towards remediation of any deficiency on the teaching learning process is_____.</p> <ul style="list-style-type: none">a. Summativeb. Formativec. Prognosticd. Diagnostic
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In addition to implementing multiple-choice tasks as important assessment strategies, interview data suggest that Tracy relied on grades to understand what students have learned in the course. The quote below indicates how Tracy linked grades to understanding what students have learned in her course.

The moment students submit their test response to me, I will follow my predetermined rule for scoring. The test response is not useful until I move forward to a quantification of the response given to me, then, I can say this is what the student knows about a topic. So, student will be graded, so I will be able to speak more about them [students] than just looking at the response on the paper.

Assessing Through a Variety of Sources

Findings through the analysis of assessment samples, observation notes, and interview transcripts suggests that Tracy implements a presentation, one assignment, two multiple-choice tests, and a final examination (also in multiple-choice format) as her full complement of assessment strategies in the course.

Presentations were mentioned earlier by Tracy as a form of involving students in teaching so that she could completely teach all the course topics. Interview data also indicate that Tracy gave one assignment with the intent to extend students' learning about measurement topics in actual practice.

Taught in the class are measuring instruments that we [the class] have talked about. So, giving them an assignment to construct a questionnaire and administering it in the field is like I want them to have understanding beyond construction of a questionnaire.

The quote above suggests that the only assignment given to students as an assessment task was on data gathering and descriptive statistics which further indicates how the assessment

task may assist students to further their learning on measurement rather than seeking evidence of meaningful learning.

Below is an example of the questionnaire assignment given to students in Tracy's class:

Table 8: Questionnaire Assignment

<p>Visit a mixed secondary school close to your residence and obtain permission from the principal to obtain information as part of your exercise on measurement course. Choose a class and obtain the following information on the class:</p> <ol style="list-style-type: none">1. List of the students2. Date of Birth of each student3. Gender of each student4. Last term's score of each student in Maths and English Language <p>The information obtained should be entered on an Excel Spreadsheet in the following order: Serial Number, Name, Age (in completed years), Gender (Female 1, Male 2), Maths Score and English Language Score</p> <p>From the information obtained, calculate the following:</p> <ol style="list-style-type: none">1. Mean, Median and Mode for age2. Percentage of Female and Male Students in the class3. Mean, Median and Mode scores for Maths4. Mean, Median and Mode scores for English Language <p>Please keep an electronic copy of this assignment in a folder.</p>

For the tests and final examination, findings from interviews indicate that multiple-choice question formats are commonly implemented in the assessment course that Tracy teaches: "I set tests and exam questions per semester... although I re-word the questions I set every year".

There were no instances in her course as illustrated from data sources that Tracy gave projects, self-assessments, reflective journals, portfolios, or other opportunities to seek evidence of student learning, possibly due to the sudden move to online teaching as well as the large class that Tracy teaches. Although Tracy sought evidence of student learning through four tasks, the format of two of the assessment tasks (multiple-choice questions in tests and final examination) most often measure knowledge recall (Shepard, 2001). Again, one of the assessment tasks (student presentations) was used for the purpose of completing the syllabus.

Involving Students in the Assessment Process

This sub-category focuses on the extent to which Tracy involves students in decisions regarding assessment processes in the course she teaches. No evidence suggest that students were involved in the assessment process. Monologic feedback was occasionally verbal, and other feedback occurred mostly in the form of grades. There was no data evidence to show instances of dialogic feedback between Tracy and her teacher candidates nor were there opportunities to involve students in self-regulating their learning through self- and peer assessment. Again, findings on student involvement in assessment as observed in Tracy's course may perhaps draw from the sudden change to online teaching and the high number of students in her course.

Data analysis reveals co-construction of questions between TEs and administrative heads, who were responsible for decisions regarding assessment strategies to implement in Tracy's course. That is, the four TEs who teach the course decide on the test and examination questions and the decisions to take regarding students' grades. Data further indicate that after deciding on the test and examination questions as individual TEs, questions are collated and forwarded to the Head of the Department for vetting/checking. This also implies that even though TEs set test and examination questions, the final questions used in the assessment course are subject to administrative approval. For example, Tracy shared that:

When we [TEs] teach-each one will set questions and it will be given to the head of the unit [dept head name], to edit finally, he will go through it again, and rework things that need to be adjusted. We do not have a final say on those questions.

Involving students in the assessment process can also be illustrated in the type of feedback that students receive (Suurtamm & Arden, 2017). Feedback practices in Tracy's course were mostly in the form of grades. For example, Tracy mentioned during an interview that "the test, exam, and assignment will be graded as part of the assessment for the final mark. It is also

to give students feedback”. Tracy mentioned earlier how she grades all assessment tasks that she implements, which further indicates that mainly, students receive feedback in the form of grades.

There was no evidence of Tracy providing in-the-moment feedback through assessment during instructional periods to assist student learning or to adapt her teaching. Notwithstanding, in the student presentations which Tracy uses for completing the syllabus, observation notes suggest how Tracy provided verbal feedback to students on the course topics that they presented. Although Tracy provided verbal feedback after student presentations, the feedback was mainly to clarify some areas on the topic that students presented to the class: “after the presentation on a topic in the course, I will speak to it. Like what students have said rightly, and what they are yet to add”. It is important to note that although the presentation was not used as an assessment tool, but as a syllabus completion strategy, the feedback may be considered as formative assessment, since it was intended to clarify concepts for students.

Findings suggest that the number of students in Tracy’s course and the sudden transition online teaching environment may limit opportunities to engage students in assessment practices: “students are too much in the course, and there is little you can do in terms of assessment. And with this shift to online class, how do you properly engage them”?

The findings above reflect assessment practices mainly used for summative purposes with limited formative practices in Tracy’s classroom. This finding may be necessitated by the number of students in the course and the unexpected shift to online teaching as indicated through Tracy’s conversations. Specifically, there was limited evidence of assessment practiced as an ongoing process embedded in instruction, except the verbal feedback provided after the presentation. There were also some indications suggesting that assessment was practiced providing teacher candidates with meaningful learning of classroom assessment concepts

through Tracy's inclusion of formative assessment terms in the multiple-choice questions. Furthermore, students were not involved in assessment processes, rather they were involved in teaching some course topics through presentations. All assessment decisions were made by TEs and departmental administrators, with no input from teacher candidates. Evidence of student learning was sought through four sources (two tests, one assignment, a presentation, and an examination) and feedback was provided on the presentations. The above findings and grading of major student submissions as well as implementing multiple-choice question format, which mostly assesses knowledge recall further suggest mainly summative assessment and limited formative assessment practices.

Influences on Conceptions and Assessment Practices

This section focuses on the support and constraints experienced by Tracy that shape her conceptualization and practices of assessment drawing upon Fulmer and colleagues' model and analyzed through interview data. Two sub-categories (*micro-, meso-level influences*) explain the impediments towards how Tracy conceptualizes and practices assessment in her assessment course.

Micro-level Influences

Data analysis of interviews in Tracy's case particularly indicates students' views of assessment practices, large class size, limited staffing, and sudden move to online teaching as constraints to Tracy's conceptions and practices of assessment. Interview data suggest negative students' views of how assessment is practiced in Tracy's course because she noticed that students experience assessment practices differently in other courses: "A lot of students do not actually like my assessment. They feel assessment is not obtainable or not intact with other

courses that they take. They feel I should not give assignments, that test and examination are enough”.

Another micro-level influence on Tracy’s conceptions and assessment practices also concerns the very large class that she teaches. Tracy mentioned how high student numbers in her assessment course are beginning to shape how she thinks about assessment and how she is able to assess students.

The population is so much that even when you think of giving them paper and pencil tests, marking becomes a problem. You may have about 500-600 scripts to mark. I begin to re-think assessment and how to assess these number of students.

The issue of large class sizes appears as the most influencing factor to Tracy’s assessment practices. Having shared her belief that assessment involves multiple tools, and how her expertise is assessment-related, findings suggest Tracy’s intent to implement more assessment tasks, but she is constrained due to the high number of students in her course: “the main problem is, how do you do different assessment with the high student population, even though I am a measurement and evaluation specialist. Other micro-level influences that relate directly to the classroom as mentioned by Fulmer et al. (2015) include shortage of staff to assist with invigilation during Computer-Based Test (CBT) examinations. This issue connects with the high educator-student ratio as seen in Tracy’s class: “who will supervise that large number of students in the CBT hall? We do not have enough instructors”.

Again, Tracy seemed constrained in the assessment tasks that she is opportune to enact due to the sudden transition from in-person to online teaching because of the pandemic. Having shared her limited technological skill and online teaching experience, Tracy struggled with suddenly having to teach students using the Zoom platform as well as conducting assessment during online lessons: “the unexpected move to online teaching is affecting how I teach and

assess them [students]. I am just learning how to use the different tools for teaching and assessing online, so how can I help the students?”

Meso-level Influences

Under this sub-category, findings indicate meso-level influences arising through institutional policies and support for assessment practices (especially online assessment), limited staff employment due to institutional funding policies, short semester duration, internet connection issues, and university culture regarding syllabus coverage.

Interview data suggest that Tracy feels supported in her assessment practice by her university enforcing that a test is implemented in addition to the final examination. This assessment policy in Tracy’s view implies that she must implement assessment at certain scheduled times in the semester, rather than not being able to give tests due to the high student number.

My university provides me with a scheduled time to conduct a test aside the ones that I have been doing on my own. I see this as an opportunity to assess students in addition to exams only, since the students are many.

Another influencing factor to Tracy’s assessment practice relates to her university’s subscription to a Learning Management System, especially during the pandemic whereby teaching and assessment were virtually conducted. She shared that her university’s provision of online assessment facilities assisted her in some ways to manage the high student number in the assessment course:

Due to the large number of students in my course, there is the opportunity to assess students through CBT. The Google Classroom is another one where the university is subscribed, that provides educators with online assessment opportunities, especially during this pandemic that we have to do everything online.

Another meso-level influence that impedes Tracy's assessment practices is the limited teaching staff, which she sees as an issue that her university is failing to address due to funding policies: "we need more staff with the number of students and the authorities are not employing more. It is hard to assess all the 500-600 students effectively". Specifically, Tracy identified how university policies on funding to increase staff numbers affect her ability to mark the large number of students' scripts, which in-turn affects her assessment practices. Findings suggest that Tracy expects to be supported by her university in terms of increasing the number of TEs teaching the course to effectively conduct sound assessment in her course.

Marking is an issue for the four us in a class of 2500+, and you know we should be more. So, if I have this large number of scripts to mark at the same time, I have to continue teaching, there is no way I will be effective with assessment.

Furthermore, program duration falls under meso-level factors since Tracy's university often compresses semester duration from 14 to 11 weeks, which she shared as another limiting factor to her assessment practices: "instead of allowing 14 weeks to run a semester, we usually conclude a semester in about 11 weeks, and I have to assess within this period, and it is not easy given the short semesters". Network connection issues also fall within meso-level influence as Tracy shared that her university is yet to provide sufficient internet connections for educators' use for online assessments. In addition to influencing how she practices assessment, Tracy mentioned how she is beginning to conceptualize assessment differently due to limited resources for online assessment implementation:

It is hard for an educator not to rethink what assessment is. Although I mentioned the online assessment as an opportunity, but here in this area, there is usually issues of network. At times, the network will be so bad that students will not be able to take tests, this hinders the free flow of assessment.

Data analysis indicates an institutional culture that influences Tracy's assessment practices. In this case, it appears that her university prioritizes syllabus coverage by instructors. Tracy shared that if her university could focus less on educators' syllabus coverage, she may have more time to implement assessment in ways that supports student learning.

Another issue is about curriculum coverage. We are always told this is what must be covered. But when we look at this, it is not essentially giving space for formative assessment practices because you will be targeting, ahhh, I have a lot of topics to cover. So, you will be struggling to cover the syllabus, and you think, if I actually use this period for assessment, it will slow the pace of covering the topics.

Summary of Findings from Tracy's Case

The discussions highlighted above begin by describing Tracy's conceptualizations of assessment which appear as multiple: improvement of teaching, improvement of learning, and student accountability, using Wang's (2020) terminology. Tracy's conceptions of assessment appear evident through her beliefs about the purposes of assessment, description, and assessment education in the course that she teaches. For example, findings highlight Tracy's beliefs that the purpose of assessing students is for diagnosis, feedback to improve learning, re-teaching, certification, placement, and reporting results to stakeholders. Her description and beliefs regarding assessment education are apparent in her mention that assessment is not only a product but a process that encourages mastery, a process of seeking evidence of student learning through multiple tasks and that tests and grades are important activities to source evidence of student learning and for making decisions and judgement about student learning, student promotions and certifications.

Drawing on the assessment practices characterized by Suurtamm and Arden (2017), assessment practices implemented in Tracy's course appear to mostly serve summative purposes

with a few instances of formative purposes. Findings indicate limited opportunities to practice assessment as an ongoing process or embedded in instruction and little evidence that assessment was supporting meaningful learning for teacher candidates was found. Findings also illustrate how assessment evidence is collected mainly through multiple-choice tests and examination, and also suggest a lack of student involvement in the assessment process. Results further highlight that Tracy mainly provides feedback to students in the form of grades with very few instances of verbal feedback, which further implies a focus on summative assessment practices with limited formative assessment opportunities.

An aggregate of findings drawn from analysis of interview transcripts, classroom observation notes, course syllabus, and assessment samples suggest complexity in the nature of the connection (connection and disconnect) between Tracy's conceptions and practices of assessment. The connection finding shines through Tracy's beliefs about assessment being useful for certification, reporting, placement, by conceptualizing grades as how teaching and learning improves and her main assessment tasks which appears mostly as summative. Thus, Tracy's conception of assessment as student accountability appears to connect with the several instances of summative assessment practices implemented in her course. Also, Tracy's improvement conceptions connect with the few instances available for practicing assessment for formative purposes. Although Tracy expresses improvement of teaching and learning conceptions, these conceptions were not fully enacted in her practices, perhaps due to the circumstances of her teaching context. Arguably, a disconnection is observed between her improvement of teaching and learning conceptions and the assessment tasks that she is opportune to implement which appeared as mainly summative with a few formative assessment opportunities. Even though Tracy mentioned being a measurement and evaluation specialist, she shared how the high student

numbers in her course as well as limited support from her institution act as a major impediment to her assessment practices, as well as influencing her conceptions of assessment.

Other influences as analyzed following Fulmer et al.'s (2015) framework suggest micro- and meso-level factors which broadly describes the support and impediments to Tracy's conceptualization and practices of assessment. Findings illustrate micro-level influences, which include, students' views on assessment practices, large class size, limited staffing, and Tracy's limited familiarity with online teaching tools. Additionally, findings reveal that meso-level influences involve institutional policies and support for assessment practices (especially online assessment), limited staff employment due to institutional funding policies, short semester duration, internet connection issues, and university culture regarding syllabus coverage.

Case 2: David

David had been teaching in his current role for about five years when this study began. Specifically, he has been teaching the compulsory assessment course since he joined the University of Ambitions five years ago. Prior to teaching at the University of Ambitions, David was a College of Education instructor for nineteen years where he taught assessment-related courses and research methodology. David holds a Bachelor of Education in elementary education, Master of Education in measurement and evaluation, and a doctoral degree from the university where he currently works in measurement and evaluation.

David teaches in the Faculty of Education at the University of Ambitions (a description of the University of Ambitions is presented under Tracy's case). David and Tracy are colleagues, and both teach the compulsory Tests and Measurement course in the full-time, Bachelor of Education program. David also shared that the number of students in the Tests and Measurement course is approximately 2000 every year. During interviews, David mentioned that the course is

taught in groups due to the large number of students: “presently, we conduct what is called teamed teaching; we also team up to set questions in the course”. David teaches about five courses a year in the teacher education program. David is an active member of several professional bodies both in Nigeria and internationally. He demonstrated some technological skills while teaching students online by assisting them to navigate the Zoom platform as well as accessing course materials on Google Classroom. However, there were repeated instances of internet access constraints experienced by students in his online classes.

Prior to the pandemic, David shared that he had taught a few online courses using Google Meet and that he uploaded resources into Google Classroom, but that the Zoom platform was new to him. David’s prior experience with the Google platform for online teaching appears to assist in the sudden transition to online teaching as well as his navigation of the Zoom teaching platform. Despite his experience using technological tools for teaching, the class size that he teaches in the assessment course may have affected his online teaching and assessment practices as reflected in the analysis of data presented below. David only shared his level of skill in using online teaching tools, the extent of his online teaching pedagogy is not evident in the data.

David’s Conceptions of Assessment

Findings in this section describes David’s conceptions of assessment by exploring how he expresses the purposes of assessment, his descriptions of assessment, as well as the assessment knowledge that he values in the assessment course that he teaches.

David’s Purposes of Assessment

Analysis of data suggests David’s beliefs regarding the purposes of assessment in teacher education as a means for providing evidence on student learning to educators, assisting to

improve students' learning, and providing evidence of educator's teaching and assessment implementation to stakeholders.

To David, assessment provides evidence to educators that learning has occurred: "if we don't assess, then we won't have the information of whether learning has taken place". In addition to providing evidence of student learning, findings suggest David believes that assessment is useful for measuring the level of students' content knowledge and learning. This purpose of assessment appears as the main purpose for assessing students, according to findings illustrated through interview transcripts: "the purpose of assessment per se, is for educators to actually determine whether students have learned and the extent of that learning".

Another purpose of assessment for David is improving student learning. During interviews, David stated that he believes assessment is a process that assists to improve student learning and not just to evaluate their learning. Analysis of data indicate that David values assessing for the purpose of improving students' learning of concepts above assessment of student learning only. The quote below implies David's description of assessment as an improvement of student learning process as he differentiates assessment from grading and certification; rather, he describes assessment as a process that fosters and translates to meaningful learning for students.

Personally, I see assessment as assisting learning, rather than assessing learning. That is, assessing to know whether students have mastered the concept, and that they can transfer the learning into meaningful practice. It's better than assessing them for grading or for certification purpose. What aspect of learning they transfer into use becomes much more important, and that learning lasts longer than if you're assessing only for certification.

A third purpose for assessing in teacher education as drawn from data analysis concerns David's belief that assessment provides evidence to stakeholders that educators have taught and

assessed students. Specifically, findings illustrate David's belief that through assessment, educators can prove that assessment was implemented as recommended by the policy makers, as well as using assessment for the purpose of reporting students' learning through their results.

Assessment gives a picture to the system that teachers have taught and then the students too have learned. So, I see assessment as part of teaching and learning process that has to be done as recommended, and to report to the authorities.

David's Descriptions of Assessment

David describes assessment as more of a process, than an event. Specifically, findings point out two descriptions of assessment according to David's beliefs, which include, assessment as a process that helps to decide what, and how to teach, and a procedure that provides information to report student learning to institutions. As David stated: "I personally believe that assessment is a process for knowing what and how to teach, and at the same time, for me to ensure I report results to my university".

Regarding characterizing assessment as an important process in his teaching practices, David believes that assessment provides him with an understanding of where students are at prior to beginning lessons which serves as feedback to adapt his teaching. Data also illustrate David's belief that the process of assessing student learning begins with a diagnosis of where his students are at regarding the topic, so as to know where to begin his teaching: "you need knowledge of the entry point that your students are coming in with, we cannot get that knowledge without assessing students' entry knowledge of the topic".

Relatedly, for David, assessment is a process that continues during teaching, after diagnosing his students' entry knowledge level at the start of each lesson. Data suggest it includes probing students' knowledge during teaching, to understand their engagement with his teaching and to indicate his achievement of the lesson's objectives.

I see assessment as part of teaching and learning process. There is no way you will be in the class and not know whether students are following you or not. Without assessment, gathering information about students' knowledge of the concept, will not be possible. You need to be able to determine whether you have actually achieved the objective of the lesson.

Assessment, as described by David, also involves assessing students' learning after concluding instruction. Findings indicate that David believes assessment provides information needed to know the next steps in teaching course concepts, and where to begin his next topic in the course:

If you have assessed students' entry point level, and asked questions during lessons, after presenting your concept, there is need for you to evaluate at the end of the teaching process. This is to know if students have actually learned the concept, so, you know how to proceed next time you are teaching.

David also described assessment as a confirmation that assessment was implemented by reporting students' results to his university. Interview data suggest that David believes assessment confirms to his university that he has taught and assessed students in his course. This finding implies that David understands assessment as a process to ratify his classroom practices, by providing evidence that assessment was implemented in his course: "assessment for me, is to be accountable to my university that I have done my job. There is a need for institutions to check if teachers have taught and assessed. So, through assessment, I am accountable for my practices".

David's Beliefs Regarding Assessment Education

This sub-category, *beliefs regarding assessment education* describes David's valuing of assessment topics to teach as well as assessment practices to model while teaching his course, which further highlights his conceptions of assessment. Drawing from the course syllabus (below) and interview data, findings indicate that David believes in teaching other topics in

addition to tests and measurement (like Tracy since they both teach in the same program). This section also reveals David’s autonomy in designing the course syllabus, as well as the assessment pedagogy he considers as important to model for assessing teacher candidates’ learning.

As is in Tracy’s case, the course that David teaches is focused on Tests and Measurement rather than classroom assessment based on the course title and description. The course syllabus (below) indicates that, out of fourteen weeks in the semester, four weeks are devoted to teaching topics on statistics, three weeks on teaching concepts and purposes of assessment, measurement, and evaluation, while seven weeks are spent on teaching measurement and test techniques. Specifically, the course syllabus indicates that 50% of the weeks in the semester, students learn topics related to test construction, administration, and interpretation as prescribed in the BMAS and the remaining 50% is spent teaching topics that David value as important to include (e.g., 21% on assessment, measurement, and evaluation concepts and 29% on statistics). A copy of the compulsory assessment course outline, Tests and Measurement, is provided below as shared by David:

Table 9: EDU 212: Tests and Measurement Course Outline

Weeks	Concepts/Topics
1 st & 2 nd	Basic Concepts in Measurement and Evaluation: Meaning of Assessment, Measurement (Scale of measurement) and Evaluation
3 rd	Purpose/Role of Evaluation
4 th & 5 th	Measurement Techniques: Meaning and uses of the following assessment tools: Test, Questionnaire, Observation, Checklist, Interview, rating scale, Projective techniques, Inventory.
6 th & 7 th	Test Development Techniques: Types of tests, characteristics, uses and methods of construction. Comparison of standardized and teacher made tests, essay and objectives tests as well as their strengths and weaknesses.
8 th & 9 th	Qualities of a Good Measuring Instruments: Validity, Reliability and Usability (Meaning, nature, types/methods of estimating and factors affecting each.

10 th	Test Administration and Interpretation: Assembling, administering, and appraising classroom tests, Norm and criterion referenced interpretation of test scores.
11 th	Basic Statistical Concepts: Meaning of statistics, inferential statistics (parametric and non-parametric statistics) variable and types of variables, population, sample, sampling techniques.
12 th	Descriptive statistics in Education: Data Representation, Measures of Central Tendency, Mean, Median and Mode. (Both grouped and ungrouped data).
13 th	Measures of Variability/Dispersion: Range, Standard Deviation, Variance, Coefficient of Variation and Quartile Deviation. (Both grouped and ungrouped data).
14 th	Correlation Coefficients: Pearson and Rank

David’s course syllabus includes other topics which are not part of the Tests and Measurement course description. Analysis of interviews indicate that David can design the course syllabus based on the topics that he believes would contribute to teacher candidates’ learning regarding assessment education: “the BMAS only describes, we are allowed to develop the course syllabus the way we deem fit”. Furthermore, findings suggest that David and his colleagues determine the topics to teach since they co-teach the course. Although pedagogical acts may differ among the TEs co-teaching the course, findings reveal that the course syllabus reflects the TEs’ beliefs of what is important to teach in the course: “we decide on the topics based on our understanding of what the students need to learn. The four of us teaching the course make this decision, but the way we teach the topics sometimes differ”.

Further analysis illustrates David’s belief that grading is an important part of assessment which assists educators with evidence to make judgements about student learning: “grading is part of assessment, if you don’t grade, what information are you gathering? By the time you grade, you have an information upon which you have assessed, so the two goes together”. Again, David implies that through tests and grades, educators are able to know students’ level of understanding of concepts, especially after teaching the concept(s): “grading tests gives me

information about how much my students know after teaching them. If students know it, they get the mark, if they don't, they don't get the mark. So, tests and grading are essential parts of assessment". Findings thus suggest David's belief regarding the assessment pedagogy that is important to model to teacher candidates while assessing their learning.

Data triangulation illustrates dual conceptions of assessment in David's case. Findings reveal David's conceptualization of assessment as supporting student improvement and educators' teaching through his understanding of the purposes of assessment as providing feedback that helps to improve teaching and student learning and describing assessment as a process of improving teaching and learning (in an ongoing manner during instruction). Other sources of data emphasize David's conception of assessment as accountability drawing from his beliefs about the purposes, descriptions, and what he values as assessment education in his course. Instances of accountability beliefs shine through David's reliance on grades to provide evidence of student learning to authorities and his constant mention of reporting students' grades to his institution for accountability purposes. Thus, David appears to conceptualize assessment in multiple ways: educator's accountability to institutions and the improvement of teaching and learning conceptions.

David's Assessment Practices

In this section, analyses of data from interview transcripts, class observation notes, and assessment samples describes David's assessment practices as implemented in his course.

Ongoing Assessment Embedded in Instruction

Findings under this sub-category illustrate how David practiced assessment as a separate activity and at certain points in the lesson and semester, as well as engaging students through impromptu tests. Specifically, data analysis reveals David's implementation of tests after rounds

of instruction, giving assignments at certain points in the semester, and some questioning opportunities to probe students' understanding of concepts during a lesson.

Analysis of interview data reflects David's implementation of assessment as a separate activity by following the set time for a test and examination as obtained in his university's policy on assessment. For example, David mentioned that: "the school sets a time for tests and exams. I can only do one or sometimes two tests and an exam". David gave students an assignment in addition to the compulsory test and examination, however, the assignment was also implemented at certain times in the semester: "within a semester, I'll give one assignment at the beginning of the semester. And then ask them [students] to submit the assignment at the end of the semester in groups". Findings from interview transcripts illustrate limited opportunities for continuously seeking students' understanding of concepts nor was assessment embedded in instruction, due to the high student number in the course: "it is very difficult for me to pause and ask questions, I will rather teach first and then respond to questions after, since the students are too many". Observation notes also indicate very few instances when students' prior knowledge and present understanding of the course content were probed during lessons, rather, David probed students' understanding after concluding instruction by asking generally, if students understood the day's lesson: "Okay, do you have questions for me after all that I said today?" David's technological skills are indicated through the opportunities that he provided for students to use the chat box to ask questions, however, there were a substantial number of questions in the chat box based on the class size. For instance, students mentioned that they dropped questions in the chat box, but David was able to respond to only a few of the questions, probably due to the number of questions posted in the chat box.

In addition to the group assignment, a test, and a final examination, David gave impromptu tests to students at different points in the semester, although he never graded any. David used impromptu tests to encourage student attendance in classes, which also appears to connect with the high number of students in his course from his mention of time to utilize the impromptu tests for measuring learning: “I told them from the beginning that I would do some impromptu tests; to me, it is so they would not skip classes. I do not have time to grade them [impromptu tests]”.

Assessment Reflecting Meaningful Learning

This sub-category draws from analysis of interview transcripts, assessment samples, and lesson observation notes to explore David’s assessment implementation regarding providing students with meaningful learning opportunities. Although David provides opportunities for developing critical thinking skills for student through the only assignment that he gives to students and by introducing them to formative assessment techniques, he implements other assessment tasks (which are the major ones) with limited opportunities for deep learning.

A sample assessment shared by David was one assignment in the course. This was more of a group project where students demonstrated their knowledge of designing a questionnaire and considering the ethical procedures involved in data collection processes. David gives this assignment at the beginning of the semester and students submit it towards the end of the semester. David suggested that the long submission period provides students more time to interact with the assignment and thus learn the goals of the assignment prior to the submission date: “the group assignment, students have time to work on it, learn from one another, and submit at the end of the semester”. The sample assignment (shown below) also illustrates how he probes students’ critical thinking and knowledge application skills by allowing students to

identify ethical issues in the assignment question. David included the question in bold to probe students' thinking regarding obtaining details such as students' date of birth and their names as these were personal participant information: "I wanted to see if students actually understood ethical data collection, in addition to us telling them to seek the principal's approval. And you see... they noticed it! They have learned through the assignment, how to collect ethical data".

The table below shows the question (in bold) that David used to prompt students' deep thinking about ethical data collection processes in the assignment.

Table 10: Questionnaire Assignment in David's class

<p>Visit a mixed secondary school close to your residence and obtain permission from the principal to obtain information as part of your exercise on measurement course. Choose a class and obtain the following information on the class:</p> <ol style="list-style-type: none">1. List of the students2. Date of Birth of each student3. Gender of each student4. Last term's score of each student in Maths and English Language <p>The information obtained should be entered on an Excel Spreadsheet in the following order: Serial Number, Name, Age (in completed years), Gender (Female 1, Male 2), Maths Score and English Language Score. Do you need to collect all the above information?</p> <p>From the information obtained, calculate the following:</p> <ol style="list-style-type: none">1. Mean, Median and Mode for age2. Percentage of Female and Male Students in the class3. Mean, Median and Mode scores for Maths4. Mean, Median and Mode scores for English Language <p>Please keep an electronic copy of this assignment in a folder.</p>

Notwithstanding the above meaningful learning opportunity that David provided through the assignment, test and examination questions were in multiple-choice format as shown in tables 11 and 12 below. Relying on multiple-choice question formats, especially in the final examination with the highest portion of students' grade (70%), may indicate TE's modelling of recall and memorization assessment strategies rather than assessing higher-order and critical thinking designed to provide teacher candidates with meaningful learning opportunities. Below

are test examination questions in the assessment course that David teaches. Answers to the multiple-choice test and examination samples are in red as shared by David.

Table 11: Sample Test Questions

<p>A teacher made test is best defined as.....</p> <ul style="list-style-type: none">a. An instrument for measuring a pupil's performance in his classroom workb. A set of stimuli systematically presented to obtain a representative sample of behaviour.c. A set of response given to standardized instrumentsd. A standardized set of questions to determine human ability <p>The test that provides a basis for objective collection of information on psychomotor domain of learning is.....</p> <ul style="list-style-type: none">a. Oral testb. Performance testc. Diagnostic testd. Achievement test <p>Essay tests are considered to be of low validity because</p> <ul style="list-style-type: none">a. It does not test all that it purports to testb. Students spend too much time in answering itc. Its scoring could be subjectived. Its inter scorer reliability is low <p>Which of the following statements best describes the relationship between test, measurement, assessment and evaluation?</p> <ul style="list-style-type: none">a. Evaluation is to test as measurement is to assessment.b. Test, measurement and assessment are aids to judicious evaluation.c. Evaluation can take place independent of test, measurement and assessment.d. Assessment is a form of measurement and evaluation. <p>One of the advantages of the teacher made test is that</p> <ul style="list-style-type: none">a. Items in the test are usually good.b. It is satisfactory in quality.c. It is administered once in a term.d. It makes evaluation of students' progress possible. <p>Summative evaluation is given to the learners</p> <ul style="list-style-type: none">a throughout the instructional process.b at the end of the instructional process.c at the middle of the instructional process.d at the beginning of the instructional process. <p>A type of evaluation that aims at providing guidance and adjustment towards remediation of any deficiency on the teaching learning process is_____.</p> <ul style="list-style-type: none">a. Summativeb. Formativec. Prognosticd. Diagnostic

Table 12: Sample Examination Questions

<p>An assessment designed to measure the degree of learning that has taken place after a person has been exposed to a specific learning experience is called.....test.</p> <ul style="list-style-type: none">a. achievementb. performancec. masteryd. power <p>The process of judging the worth a programme, subject etc. is referred to as.....</p> <ul style="list-style-type: none">a. measurementb. assessmentc. evaluationd. test. <p>The main purpose of formative evaluation is to.....</p> <ul style="list-style-type: none">a. attain total growth and development of the student.b. determine extent of achievement of objectives of education.c. plan the types of traits and behaviours to be assessed.d. provide feedback about the progress being made in school <p>At the beginning of instructional programme,..... is given to find out the learners' entry behaviour.</p> <ul style="list-style-type: none">a prognostic evaluationb diagnostic evaluationc formative evaluationd summative evaluation <p>Summative evaluation is given to the learners</p> <ul style="list-style-type: none">a throughout the instructional process.b at the end of the instructional process.c at the middle of the instructional process.d at the beginning of the instructional process. <p>Which of these is NOT a type of evaluation?</p> <ul style="list-style-type: none">a Formative evaluationb Summative evaluationc Programme evaluationd Robustic evaluation <p>A type of evaluation that aims at providing guidance and adjustment towards remediation of any deficiency on the teaching learning process is_____.</p> <ul style="list-style-type: none">a. Summativeb. Formativec. Prognosticd. Diagnostic
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Assessing learning through multiple-choice formats may not present a complete picture of what sound assessment processes really are for teacher candidates, however, like Tracy, David introduced teacher candidates to formative assessment terms in the test and examination

questions. Modelling of meaningful assessment tasks that encourages deep learning as needed by teacher candidates in their future careers appears to be less emphasized by implementing more summative than formative assessment practices as seen in David's course. Also, grades were used to judge the content that students have learned: "it is when I mark those tests and exams that I can say this is what students know or don't know". Notwithstanding, contextual factors such as the high number of students in David's course appear to affect his assessment practices: "with the number of students in the course, I can only do the little I can, to know what they have learned in the course".

Assessing Through a Variety of Sources

Analyzing assessment samples, observation notes, and interview transcripts, findings suggest that David implements one assignment, one multiple-choice test, and a final examination (also in multiple-choice format) as assessment strategies in the course. A deeper look into these three assessment tasks illustrate practicing assessment more for summative than formative purposes in David's case.

Although findings indicate that David assesses students' critical thinking through the one assignment given to students, the topic of focus in the assignment (designing a questionnaire) leans more towards statistics than to classroom assessment. Focusing the one assignment on questionnaire design and statistics may not provide the requisite learning that teacher candidates need in their future teaching careers. Despite research support for assessment course content to be useful to teacher candidates' future careers, it appears difficult for David to change the course content since policy documents align the course to focus more on Tests and Measurement.

Regarding the other two assessment tasks (test and examination) implemented in David's course, findings from interview conversations indicate that the questions are drawn from a test

bank: “I set test and exam questions from the bank of questions I already compiled over the years”. There was no evidence from data that David implemented self assessment, reflective journal, portfolios to seek evidence of student learning in the course. Although data pointed out that evidence of student learning is sourced through three tasks, the format of two of the assessment tasks (multiple-choice questions in test and final examination) might imply knowledge recall of course content (Shepard, 2001).

Involving Students in the Assessment Process

Findings under this sub-category suggest that there was no evidence that students were involved in the assessment process such as co-developing test and examination questions. Data analysis also reflects that feedback occurred mostly in the form of grades, with occasional verbal feedback.

Data revealed that David and other TEs as well as administrative heads are responsible for decisions regarding assessment strategies to implement. Specifically, David shared how he designs test and examination questions from a question bank before sending the questions for administrative approval: “a lot of the questions in my question bank forms what I use for tests and exams. Although I have to send test and exam questions to the head of the department for approval before I use them”, which is also evident in Tracy’s case as they both teach in the same program.

Involving students in the assessment process can also be illustrated in the type of feedback that students receive (Suurtamm & Arden, 2017). Feedback practices in David’s course were mostly in the form of grades with occasional verbal feedback to students on the assignment task. Analysis indicates that there is limited opportunity to provide early feedback (in the form of grades) for the test, the assignment, and the final examination until the end of the semester.

Providing grades only at the end of the semester implies that students in David's class are unable to use the limited feedback (in the form of grades), to know where they stand in the course, nor to decide on improvement strategies if needed: "because of their [student] number, I normally grade the group assignment, test, and exam towards the end of the semester. So, students may not be able to have the feedback on time".

Findings also indicate another form of feedback in David's case, verbal feedback. This verbal feedback is provided prior to the final examination period towards the end of the semester. The quote below also signifies that David has limited opportunities to provide more verbal feedback to individual students throughout the course, probably due to the high number of students in his course so he tends to provide general feedback to all students.

The kind of verbal feedback from me is on the assignment that they have submitted, like, "some of you have done well. Some of you are having this problem." So that's just the kind of verbal feedback I have time to give since students are many, and it is around the end of the semester.

Analysis of observation notes indicate that David provides the in-class verbal feedback as a general comment to students on the overall performance of the class on the assignment: "some of you did not participate in the group assignment. For those of you that did it, some were good, but others not so good". This general feedback to students seems to serve a 'for your information only' purpose perhaps due to the large number of students that David needed to provide individual feedback to.

Drawing on Suurtamm and Arden (2017), the findings above reflect David's assessment practices as including mainly summative practices with limited formative assessment opportunities. Although both summative and formative assessment practices are useful in the classroom, embedding assessment within instruction, the use of assessment to provide deep

learning opportunities, as well as educators' provision of useful feedback are robust assessment practices that indicate more formative assessment implementation. Also, analysis of data sources provided limited evidence that students were engaged in the assessment process, rather they were engaged as test takers. Although evidence of student learning was sought through three sources (test, assignment, and an examination), the high reliance on grading of student submissions, as well as implementing multiple-choice question formats, with limited higher-order thinking and formative assessment opportunities, further suggest that David practices more summative assessment in his course. Despite David's familiarity with online teaching prior to the shift to virtual teaching platforms, the number of students in his course appears to have major influence on his assessment practices.

Influences on Conceptions and Assessment Practices

This section discusses the supports and impediments to David's conceptualization and practices of assessment, drawing on the three levels of influences mentioned in Fulmer et al. (2015).

Micro-level Influences

Analysis of interview transcripts reveals student lecture engagement and attendance, limited facilities, as well as the high number of students in his course as classroom-level influences on how David conceptualizes and practices assessment. Findings from interviews suggest that some teacher candidates in David's course often do not attend classes but only show up for tests, which limits the assessment tasks he could implement. This finding implies that students' engagement with his course and the limited assessment tasks he implements have begun to shift David's thinking about assessment practices generally.

When students don't attend classes, you want to think of other ways to practice your work. In some instances, many students may not even attend classes; they will only come for the test. And that's affecting the notion that I am having about assessment lately. Is it really worth it to do more than I am doing right now?

Another micro-level factor that appears to influence David's assessment practice relates to limited computer and internet facilities for students to access online assessment tasks especially during the pandemic. Findings reveal that students pay for internet access and often use their phones to connect to Google Meets and Zoom classes. There is no indication from the data that David's university is able to provide computers and internet facilities to students, even when on campus. Hence, David shared that more computers and internet connection facilities would assist students to access assessment tasks and increase attendance, which in turn would assist his assessment practices.

We need more of internet facilities and computers for the use of students. Then, we can have computer-assisted tests and exams and you just upload the assessment instruction, and students get the instruction from the available faculty computers. This will help students to attend classes and more frequently access online teaching and assessment instructions.

Findings suggest that the high number of students in David's course seem to influence his assessment practices. David shared during interviews that he strongly considers student numbers when choosing assessment tasks to implement: "the number of students in fact, is very, very paramount. Because if I am having a large number of students, the assessment strategies that I will use will have to change to something that I can manage". This finding implies that even though David possesses skills to use online teaching tools as well as his prior online teaching experience, the class size remains a major factor influencing his ability to utilize his technological skill when teaching and assessing students online.

Meso-level Influences

Whereas meso-level factors are outside of the classroom, they contribute to shaping educators' conceptions and practices (Fulmer et al., 2015). Analysis of data indicate meso-level supports and constraints influencing David's conceptions and assessment practices, which include, collegial support, colleagues' approaches to assessment, available and limited institutional facilities, and provision of funding for professional development program attendance.

Interview data reveals that David feels supported in his assessment practice by his colleagues including academic advisors who assist to supervise students during computer-based examination in the CBT hall. As indicated above through data, the number of students in David's class is about 600, hence, the need for colleagues' support when it comes to assessing the large class during tests and examinations: "I've been receiving support from colleagues and level advisors when it comes to supervision in the CBT exam. And they [level advisors and colleagues] are always happy to help". The issue of high student numbers in David's course appears as central to the assessment he is able to implement, drawing from his repeated comments regarding his very large class which again came through under his assessment practices section.

However, findings suggest that David feels concerned about his colleagues' approaches to assessment, which appear as a constraining factor to how he conceptualizes assessment. He mentioned during interviews that some of his colleagues do not seek to improve their assessment practices, rather, they prefer to implement assessment in ways that suits their personal experiences and assessment efficacy; "my colleagues would say, 'policy makers asked me to assess, let me just assess'. So, rather than learning better ways to assess, they just want to cut

corners. They assess based on the knowledge that they have of it”. Findings also indicate that David’s colleagues sometimes do not agree with how he conceptualizes assessment as improving learning, and he feels the need for systemic changes regarding how assessment is conceptualized by some of his colleagues: “most of my colleagues think assessment is useful only for reporting student results. So, they assess for that reason alone”. David further shared how pressure from colleagues’ conceptualization of assessment as an accountability mechanism has begun to affect his conceptualization of assessment: “they [colleagues] always say I am not supposed to see assessment the way I see it, with this, you want to rethink assessment and ask yourself, am I the one that is right”?

Another meso-level support illustrated through data analysis in David’s case pertains to institutional support in the form of provision of facilities for online assessment, such as Google Classroom and Zoom. Specifically, findings indicate that David is able to post assignment questions and conduct impromptu tests via online platforms subscribed to by his university: “due to the COVID experience, I give some tests and send assignment questions to students online through Google Meets and Zoom. I appreciate the university for providing the online opportunity and support”. Other institutionally provided facilities that support David’s assessment practice concerns the provision of stable electricity to assess students during CBT examinations. This institutional support appears as a great opportunity that supports David’s assessment practices given that in Nigeria, electricity supply is not stable, therefore some university departments rely on personal funding to purchase and use generators to supply electric power when needed: “when it comes to power supply, the university has tried to provide it for CBT exams, then I can conduct exams without looking towards departmental funding for generators. It makes the exams easy to conduct”.

Relatedly, findings illustrate how limited institutional funding to attend seminars and conferences shape David's conception and assessment practice. Particularly, David shared that limited funding from his university inadvertently affects his professional advancement, which has ripple effects on the understanding, knowledge, and expertise that he has regarding assessment: "the management will tell you that the fund is not available; the thing comes back to the kind of knowledge and experience that I have and how I can practice". It appears that even though there are several opportunities to advance his assessment practices and his understanding about assessment, David has to self-sponsor his attendance and participation: "sponsorship is a problem; there are lots of opportunities [PD programs], but to go to, I must sponsor myself, which is expensive".

Summary of Findings from David's Case

The discussions highlighted above begin by describing David's conceptualizations of assessment which appear more as multiple, particularly, improvement of teaching and learning, as well as educators' accountability to institutions conceptions, using Wang's (2020) terminologies. Findings subtly reveal David's conceptualization of assessment as improvement through his understanding of the purposes of assessment as providing feedback that helps to improve teaching and student learning and describing assessment as a process of improving teaching (in an ongoing manner during instruction). Notwithstanding, other sources of data emphasize David's conception of assessment as accountability drawing from his beliefs about the purposes, descriptions, and the assessment education that he values for teacher candidates in his course. Instances of accountability beliefs are evident through David's reliance on grades to provide evidence of student learning and his constant mention of reporting students' grades to his institution for accountability purposes.

Data analysis suggests that assessment practices implemented in David's course appear as primarily summative with few formative assessment opportunities, which was mainly influenced by the number of students in his course, despite his familiarity with online teaching tools. There was no evidence from data suggesting that assessment was practiced as an ongoing process nor embedded in instruction. Findings also illustrate how assessment evidence is collected mainly through a multiple-choice test and examination, as well as through an assignment. Results further highlight that David mainly provides feedback to students in the form of grades, which further implies more focus on summative assessment practices.

Data analyzed from a variety of sources in this study suggest that the nature of the connection between David's conceptions and practices of assessment is complex and nuanced. The clear connection between David's conceptions and practices of assessment shine through the several instances where he appears to conceptualize assessment more as teacher-centered and through accountability-laden beliefs. Findings also illustrate more summative assessment practices through tests and examination, limited student engagement in the assessment process, and grading of assessment tasks with limited feedback opportunities. There were also instances reflecting complexity in the nature of the connection between David's conceptions of assessment as improvement of teaching and learning and the lack of opportunity for him to practice assessment as improvement. For example, one of the purposes of assessment according to David, is providing feedback that helps to improve teaching and student learning and he also described assessment as a process of improving teaching (in an ongoing manner during instruction). Nevertheless, David was only able to practice assessment for improvement of teaching and learning through the few times that he fostered critical thinking for students, introduced students to formative assessment terms through the multiple-choice test and examination, and helped

students to clarify some of their questions. The disconnection between David's improvement conceptions and his assessment practices which appears more as summative may have been due to the large class size which he mentioned as a major factor influencing his practices as well as the limited institutional support for professional growth.

Influences on David's conceptualization and practices of assessment as analyzed through data analysis, illustrates micro-level influences, which include, student class attendance, high student number, as well as limited internet and computer facilities for students' use. Additionally, findings reveal meso-level influences as collegial support and approaches to assessment, institutional support for online assessment, provision of stable electricity, and limited funding to attend professional development programs.

Case 3: Hamzah

Hamzah was in his fourth year of teaching in the Bachelor of Education program at his present university when this research began. He had taught assessment courses in a Nigerian Bachelor of Education program for three years and for two years at a West African university outside Nigeria prior to joining his current place of work. Overall, Hamzah has about nine year's experience teaching tests, measurement, and assessment courses in Bachelor of Education programs. Hamzah's area of research is Counselling Psychology and Educational Evaluation; he holds a Bachelor of Education degree (Guidance and Counselling/Mathematics) and a master's degree (Counselling Psychology and Educational Evaluation) prior to completing a doctoral degree in Counselling Psychology and Educational Evaluation with specialization in assessment and testing.

Hamzah currently teaches in the Faculty of Education at the University of Motivations, a private university located in the North-western region of Nigeria. Motivations University is

owned by a consortium of two faith-based organizations located in Nigeria and outside of Nigeria. The number of students, inclusive of graduate students, in the University of Motivations is approximately 7000 across seven Faculties. The nearly two-decade old university is located in the heart of the city and provides privacy by constructing a wall around its campus with the entrances secured by guards.

Although, Hamzah teaches other courses in his faculty, the assessment course that he teaches in the Bachelor of Education program was the focus of this research. The compulsory two-credit Tests and Measurement course as stated in the teacher education policy document (BMAS) is called Tests and Assessment in Hamzah's university. Rather than being offered in the second year as stated in the BMAS, students in his university take the course in their final (fourth) year. The average student number in the compulsory Tests and Assessment course is about 70 and one TE teaches the course every year. Hamzah belongs to several professional associations in Nigeria and outside Nigeria covering counselling, evaluation, and classroom assessment specialities. His research has been published in several articles and in books; at the time of this research, Hamzah had supervised tens of undergraduate and master's thesis as well as five Ph.D. studies. Hamzah shared that he had taught several online courses prior to the transition to online teaching due to the pandemic. He mentioned utilizing Google Classroom, Google Meet, Skype, and other Learning Management Systems in teaching courses online. Although Hamzah did not rate his technological skills, his strong experience in online teaching tools is apparent as he easily navigates the Zoom platform during lessons and enacts assessment tasks despite the sudden move to online teaching.

Hamzah's Conceptions of Assessment

This section describes Hamzah's conceptions of assessment by exploring how he expresses the purposes of assessment, his descriptions of assessment, as well as the assessment education that he values for students in the assessment course that he teaches.

Hamzah's Purposes of Assessment

Analysis of data sources indicates Hamzah's beliefs regarding the purposes of assessment in teacher education, which appear as related to accountability and improvement frameworks. For example, data analysis illustrates Hamzah's belief about assessment serving student categorization, certification, placement, and educator's accountability to education stakeholders' purposes, as well as serving to improve educator's teaching pedagogies and student learning.

Hamzah's belief about the purpose of assessment as student categorization is reflected through interview transcripts where he highlighted that students are categorized through their grades on assessment tasks: "the grade of the students will be the representation of the students. For instance, if I train a student and the student ends up getting 70 out of hundred, the score of the student represents the student". This belief appears to leave the consequences of assessment on students since their grades will be used to identify or to categorize them. This finding also suggest that students are accountable for their learning through assessment as they will be placed or categorized into groups based on grades and achievement.

Analysis of interview transcripts also illustrates that Hamzah believes that assessment serves certification and placement purposes. Findings point out that Hamzah believes that through assessment, institutions award certificates to students for employment purposes upon graduating from the program: "If the student wants to go for any employment, the student will be asked how they did, and will be placed where they belong to on the job, according to their

certificates”. Furthermore, Hamzah believes that assessment helps institutions place students in programs that suit their assessment results– another of his beliefs about assessment that indicates a student accountability conception. For example, Hamzah shared that to admit students into programs, “institutions where there is no assessment, you just cannot look at the face of a prospective student and place them in a program accordingly. There is need for assessment to help to do that”.

Another purpose that assessment serves in teacher education in Hamzah’s case concerns his belief that assessment provides evidence of an educator’s classroom practices to external stakeholders. For example, to Hamzah, teacher education guidelines mandated him to assess students (especially through tests), hence, by implementing tests, he is showing evidence of his assessment practices to institutional regulatory bodies:

Test is one of the requirements as dictated in the BMAS. By the time the body in charge of this BMAS comes, they want to see what I use in assessing the students. I have to be able to show them [university regulatory bodies] that I have been assessing students.

Relatedly, findings suggest Hamzah also believes that assessment provides evidence of student learning to parents (another external stakeholder). According to Hamzah, he needs to assess students in order to communicate their learning to parents and guardians through their results: “and it [assessment] also serve like the report that will be given to parents in the form of an update on their child’s assessment and what the student knows”.

In addition to findings suggesting Hamzah’s beliefs about the purposes of assessment as related to accountability, interview transcript analysis also illustrates Hamzah’s understanding that assessment assists TEs to improve their teaching pedagogies: “as a teacher, it [assessment] serves as a way of evaluating yourself in order to modify necessary teaching techniques that

you're using or that you are not using, or that you will be using later in future". Similarly, along the lines of student learning improvement purposes, findings illuminate Hamzah's view that assessment helps students to engage with learning resources and course content, especially if assessment tasks are given on a continuous basis: "students learn more about course topics when they complete several assignments. They are more connected to the content when assessment is continuous, which assists their learning in the course". Findings from quotes in this paragraph illuminate Hamzah's beliefs about the purposes of assessment as for improving teaching and learning.

Hamzah's Descriptions of Assessment

Data analysis exemplifies Hamzah's description of assessment as a process with several stages, where evidence of student learning is sought through a variety of sources, and students are engaged in the process, thus reflecting on their learning. Also, assessment to Hamzah is a process of achieving set goals for student learning, as well as a broad construct that involves testing and non-testing techniques.

Hamzah describes assessment as a process that encompasses three stages: "the process of assessment must have at least three parameters, the task given to students, students' responses to the task, the teacher-student interaction". Again, data analysis suggests that Hamzah thinks of assessment as a process and not as a one-time activity drawing from his discussion that assessment involves sourcing evidence of student learning through various assessment tasks: "what I mean by assessment is that it shouldn't just be one whole assessment where the teacher will do only one test or concentrate only on one assignment".

Hamzah also described assessment as a process that engages students and allows them to self-regulate their learning. To Hamzah, there is limited opportunity for student involvement in

the teaching process, but assessment process provides opportunities for student participation and contribution and allows them to have some voice regarding how they would like to be assessed: “assessment to me involves students more than teaching. They can also personally reflect on their learning and the type of assessment given, especially if the assessment is continuous”. Interview data also indicate Hamzah’s description of assessment as connecting to students’ educational goals and achievement: “it is when you conduct assessment that you’ll be able to identify what each student knows, then you can know if the educational goals of that particular student have been achieved”.

Another description of assessment relates to Hamzah’s portrayal of assessment as a broad construct that encompasses testing and non-testing techniques. In this case, Hamzah appears to describe assessment alongside statistics and measurement as well as showcasing a belief that tests are an important tool in assessment: “testing serves as the major instruments or techniques that I use, but assessment is a broader concept that encompasses testing and some other non testing tools, measurement, etc.”

Hamzah’s Beliefs Regarding Assessment Education

The sub-category, *beliefs regarding assessment education* helps to focus on Hamzah’s beliefs regarding assessment education as needed by his teacher candidates. It also describes Hamzah’s modelling of assessment pedagogies useful for teacher candidates’ future careers while teaching his course which further highlights his conceptions of assessment

The title of the assessment course that Hamzah teaches is Tests and Assessment. However, the course syllabus includes topics on tests, measurement, assessment, evaluation, and statistics. A copy of the major sections of the compulsory assessment course (Tests and Assessment) syllabus is provided below as shared by Hamzah.

Table 13: EDU 416: Tests and Assessment Course Syllabus

COURSE OBJECTIVES

Concept of test, measurement, assessment and evaluation, relevance of test and measurement to educational stakeholders, meaning and domains of educational objectives, types of evaluation in education, meaning and levels of scale of measurement, meaning and classifications of classroom test, major variables to be considered in test standardization in educational system, test administration and steps in ensuring quality in test administration, methods in scoring essay test and objective test, procedures for test construction and educational statistics.

CONCEPT OF TEST, MEASUREMENT, ASSESSMENT AND EVALUATION

Test is the tools used in eliciting information from the individual and the system/act of administering test to the target audience is called testing. A number of instruments are often used to get measurement data from various sources. These include Tests, aptitude tests, inventories, questionnaires, observation schedules etc. All these sources give data which are organised to show evidence of change and the direction of that change. A test is thus one of the assessment instruments. It is used in getting quantitative data.

Measurement: The process of measurement as it implies involves carrying out actual measurement in order to assign a quantitative meaning to a quality i.e., what is the length of the chalkboard? Determining this must be physically done. Measurement is therefore a process of assigning numerals to objects, quantities, or events in order to give quantitative meaning to such qualities. In the classroom, to determine a child's performance, you need to obtain quantitative measures on the individual scores of the child.

Assessment: Assessment is a fact-finding activity that describes conditions that exists at a particular time. Assessment often involves measurement to gather data. However, it is the domain of assessment to organise the measurement data into interpretable forms on a number of variables. Assessment in educational setting may describe the progress students have made towards a given educational goal at a point in time. However, it is not concerned with the explanation of the underlying reasons and does not proffer recommendations for action. Although, there may be some implied judgment as to the satisfactoriness or otherwise of the situation.

Evaluation: Evaluation adds the ingredient of value judgment to assessment. It is concerned with the application of its findings and implies some judgment of the effectiveness, social utility or desirability of a product, process or progress in terms of carefully defined and agreed upon objectives or values. Evaluation often includes recommendations for constructive action. Thus, evaluation is a qualitative measure of the prevailing situation. It calls for evidence of effectiveness, suitability, or goodness of the programme. *It is the estimation of the worth of a thing, process or programme in order to reach meaningful decisions about that thing, process or programme.*

RELEVANCE OF TEST AND MEASUREMENT TO EDUCATIONAL STAKEHOLDERS

The main purposes of educational measurement and test construction are:

• Placement of student, which involves bringing students appropriately in the learning sequence and classification or streaming of students according to ability or subjects.

• Selecting the students for courses – general, professional, technical, commercial etc.

• Certification: This helps to certify that a student has achieved a particular level of performance.

• Stimulating learning: this can be motivation of the student or teacher, providing feedback, suggesting suitable practice etc.

• Improving teaching: by helping to review the effectiveness of teaching arrangements.

Other Objectives include: *research purpose, guidance and counselling services, modification of the curriculum purposes, selecting students for employment, modification of teaching methods, promotions to the student, reporting students' progress to their parents, awards of scholarship and merit awards, admission of students into educational institutions and maintenance of students.*

TYPES OF EVALUATION

The different types of evaluation are: placement, formative, diagnostic and summative evaluations.

Formative Evaluation: This is the type of evaluation carried out during the course of instruction to determine the extent to which the objectives have been achieved. This is a type of evaluation designed to help both the student and teacher to pinpoint areas where the student has failed to learn so that this failure may be rectified. It provides a feedback to the teacher and the student and thus estimating teaching success e.g. weekly tests, terminal examinations etc.

Summative Evaluation: This is the type of evaluation carried out at the end of the course of instruction to determine the extent to which the objectives have been achieved. It is called a summarizing evaluation because it looks at the entire course of instruction or programme and can pass judgment on both the teacher and students, the curriculum and the entire system. It is used for certification. Think of the educational certificates you have acquired from examination bodies such as WAEC, NECO, etc. These were awarded to you after you had gone through some types of examination. This is an example of summative evaluation.

Placement Evaluation: This is a type of evaluations carried out in order to fix the students in the appropriate group or class. In some schools for instance, students are assigned to classes according to their subject combinations, such as science, Technical, arts, Commercial etc. before this is done an examination will be carried out. This is in form of pretest or aptitude test. It can also be a type of evaluation made by the teacher to find out the entry behaviour of his students before he starts teaching. This may help the teacher to adjust his lesson plan. Tests like readiness tests, ability tests, aptitude tests and achievement tests can be used.

Diagnostic Evaluation: This type of evaluation is carried out most of the time as a follow up evaluation to formative evaluation. As a teacher, you have used formative evaluation to identify some weaknesses in your students. You have also applied some corrective measures which have not showed success. What you will now do is to design a type of diagnostic test, which is applied during instruction to find out the underlying cause of students persistent learning difficulties. These diagnostic tests can be in the form of achievement tests, performance test, self-rating, interviews, and observations etc.

EDUCATIONAL OBJECTIVES- DOMAINS OF EDUCATIONAL OBJECTIVES: Cognitive domain, psychomotor domain, and affective domain. Knowledge (or Memory) level, Comprehension Level, Application Level, Analysis Level, Synthesis Level, Evaluation Level.

SCALE OF MEASUREMENT: Nominal Scale, Ordinal Scale, Interval Scale, Ratio

TESTING AND NON-TESTING TECHNIQUES- Non-testing techniques: Examples of *non-testing techniques* include (i) Observation (ii) Interview (iii) Rating scales (iv) Socio-metric techniques (v) Case studies. **Testing Techniques:** Classroom tests. Types/classifications of classroom test: Essay test [Advantages of Essay Test, Disadvantages of Essay Test], Classification of Essay Test items: Extended Responses Essay Questions, Restricted Response Essay Questions], Objective test [Advantages of Objective Test, Disadvantages of Objective Test], Types of Objective Test [The Free Response (Supply) Test Items, The Alternative Response Test Item]

TEST STANDARDIZATION: Validity of tests [Content Validity, Face Validity, Criterion-Referenced Validity, Predictive Validity, Construct Validity]. Reliability of tests [Test-retest method, Alternate – Form method, Split-half method]

USABILITY OF TESTS and TEST ADMINISTRATION: ensuring quality in test administration, scoring

the test. Scoring Essay Test [The Point or Analytic Method, The Global/Holistic of Rating Method], Scoring Objective Test [Manual Scoring, Stencil Scoring, Machine Scoring]

BASIC PRINCIPLES OF TEST CONSTRUCTION: Planning for the Test, Defining Objectives, Specifying the Content to be covered, Preparation of the Test Blueprint, Determination of the Total Number of Items, Initial Administration, Item Analysis, Storing/Maintaining Acceptable Items, Test Norms

EDUCATIONAL STATISTICS: Descriptive and Inferential statistics

Findings from the course syllabus above suggest that Hamzah values teaching assessment education in a broad sense to teacher candidates. For example, even though Hamzah teaches test administration, design, standardization, and measurement as described in the policy document in his course, he also teaches a wide range of assessment-related topics in the course. Such topics include non-testing techniques, educational objectives as related to assessing student learning covering the learning domains, as well as his clear differentiation of tests, assessment, measurement, and evaluation concepts. Analysis of the course syllabus above also indicates how assessment is taught as a process used to interpret measured data as well as a concept used for different purposes. For example, Hamzah introduces students to the different purposes of assessment by separately characterizing placement, formative, diagnostic and summative assessments.

Assessment as taught in Hamzah's course suggests that teacher candidates learn about measuring student learning as well as other methods needed to understand students' learning and how to scaffold learning through assessment. This idea is also highlighted in previous paragraphs where Hamzah mentioned that assessment serves to categorize and place students based on their scores as well as assessment serving the improvement of teaching and student learning purposes.

Analysis of data indicate Hamzah's belief that assessment courses in teacher education should help teacher candidates to develop the requisite skills needed when they begin their

teaching careers: “the knowledge of assessment enhances the skills of student teachers in terms of planning, delivery as well as evaluation of student when they start teaching”. This belief is further elaborated in his course syllabus which appears to foster student learning of the different purposes of assessment as well as modelling multiple assessment strategies to teacher candidates in efforts to ensure that they are adequately prepared to assess students. So far, data analysis exemplifies Hamzah’s beliefs regarding teaching assessment education to improve teacher candidates’ learning.

Drawing on the conceptions of assessment model (Wang, 2020) adopted to analyze data from course syllabus and interview transcripts, findings illustrate accountability and improvement conceptions of assessment in Hamzah’s case. Particularly, Hamzah appears to hold multiple conceptions of assessment that includes an improvement of teaching and student learning, student accountability, and educator’s accountability to external stakeholders.

Hamzah’s Assessment Practices

In this section, I draw on the assessment practices model presented in Suurtamm and Arden (2017) to analyze data from interview transcripts, class observation notes, and assessment samples that illustrates Hamzah’s assessment practices as implemented in his course.

Ongoing Assessment Embedded in Instruction

Findings under this sub-category illustrate Hamzah’s practices of assessment as an ongoing process throughout the semester and how assessment is embedded within instruction to facilitate student engagement with course content, for student learning purposes. Analysis of interview data suggest that Hamzah practices ongoing assessment throughout the semester. Although he implements a test and a final examination at particular points in the semester, Hamzah gives weekly assignments to ensure continuous student engagement with course

content. According to him, if the gap between assessment tasks is too long, students may forget some content, hence leading to low scores in tests.

I normally give my students assignments on a weekly basis; I call it ‘the weekly diet’. I grade that too. So, on Saturday and Sunday, they [students] will be busy and they can work on assignments to remember what I taught every week, or else when it is time for a test, they will find it hard to study or pass.

Relatedly, to ensure that students continue to complete the weekly assignments which Hamzah uses to foster continuous student engagement with course content, he grades each assignment and provides brief feedback to scaffold student learning of weekly topics: “I mark the assignments and I give feedback accordingly. This is to enhance their [students] morale and learning”.

Findings illustrate Hamzah’s integration of assessment into instructional activities by continuously checking students’ level of understanding through prompting questions within instruction, and by providing ongoing feedback to clarify students’ confusions. Observation notes reflect how Hamzah probes students’ understanding during lessons: “can anyone remind us of the types of evaluation mentioned earlier today?”. During the lesson, some students responded to Hamzah’s question but could not mention the four evaluation types. Hamzah provided instant feedback to clarify that he mentioned four types: “okay, remember I said there are four types, right? summative, formative, diagnostic, and placement. And I said these four are used differently”.

Another instance of embedding assessment within instruction was illustrated through observation notes as Hamzah repeatedly asks students to respond to questions, although this practice was to give points to students for class participation. Students were encouraged to answer questions in class, when Hamzah announced in class that: “if you attend classes and do

not answer questions, you will not get marks for participation”. Interview transcripts reflect Hamzah’s intent for including participation marks through his mention that: “some students will attend class and will not even say anything even when I ask questions. To make sure that students participate especially since it is online, I give them marks, so I call it class participation”. In addition, Hamzah mentioned during interviews that giving marks for class participation is also a way to ensure that students ask questions during lessons so that he can provide feedback to clarify any misconceptions: “the marks also make them to ask me questions. Through their questions, I am able to know if they understood the lesson’s topic, or I need to explain again”.

Summarily, in Hamzah’s course, assessment is both implemented as a separate activity such as a mid-semester test and a final examination, and there were several instances where students’ learning was continuously assessed, understanding checked, and misconceptions clarified during instruction and throughout the semester.

Assessment Reflecting Meaningful Learning

Analysis of interview transcripts, assessment samples, and observation notes illustrate Hamzah’s use of assessment to provide meaningful learning through weekly assignments that continues to engage students with lesson topics, and by probing students’ understanding of lesson topics during classes and outside of the classroom.

One of the weekly assignments shared by Hamzah illustrates that he uses assignments to extend student learning on a weekly basis. The assignment (below) suggests how students were provided with learning opportunities on the topic outside of the classroom. For instance, the topic for one of the weeks was educational statistics and students were introduced to descriptive and inferential statistics.

Table 14: A Sample of Weekly Assignments

The following are the test scores of a sample of secondary school students in mathematics:									
10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
2	8	6	12	7	6	4	3	1	1

From the information above, prepare (i) Frequency table (ii) Mean (iii) Median (iv) Mode (v) Variance (vi) Standard Deviation

Observation notes also substantiate the claim that Hamzah uses assignments to expand student learning as he began the next lesson by asking a question regarding the assignment from students: “last class, we discussed descriptive and inferential statistics, can anyone briefly remind us of what we did and how we did it through the assignment they completed”. Findings indicate that although the assignment above focuses on statistics which may not foster useful classroom assessment education for students, Hamzah’s use of in-class questioning appear to provide deep learning opportunities for students. Although he gives points for class participation as mentioned earlier, Hamzah asks many questions and demands that students ask questions even if he feels they had been engaging well in class. For instance, while teaching one of the course topics, he clarified from students what he taught in the previous class by asking a question: “so in the last class we discussed....?” Students unmuted their microphones and echoed the answer “[topic discussed in the last class]”. Hamzah relied on students’ responses to continue with instruction for the day’s topic: “yes, I see that you got that right, let’s proceed with today’s topic”.

In addition, at several points in the lecture, Hamzah paused to demand or ask questions from students to confirm their understanding before proceeding with the lecture. In these instances, he would call on a student to unmute their microphone to respond to his question. Other instances, Hamzah asked his students to include questions or answers in the Zoom chat box. In each lesson, Hamzah took his time to notice students’ confusion while they responded to

his questions or from the questions they asked: “let me know if you do not understand and I will try to explain further, or we could meet after the class”.

Analysis of observation notes also indicate Hamzah’s provision of meaningful learning for students through other assessment tasks. Although he mentioned that the mid-semester test is usually in the form of multiple-choice questions, Hamzah gives constructed-response questions in the final examination. He mentioned during interviews that students have the opportunity to explain their answers rather than through multiple-choice questions which would not indicate how their knowledge and learning has evolved: “by providing written answers, I can notice if students really understood the course content. MCQs will not give me that information”. Sample examination questions in Hamzah’s class are provided below.

Table 15: Sample Examination Questions

1. Write short notes on the following concepts: (i) Test and Measurement (ii) Assessment and Evaluation
2. Expatiate on the relevance of Test & Measurement to educational stakeholders
3. As a teacher, present the meaning and domains of educational objectives
4. Clearly present types of evaluation in education
5. Explain the meaning and levels of scale of measurement
6. Explain the meaning and classifications of classroom test
7. Explain 3 major variables to be considered in test standardization in educational system
8. Define test administration and explain steps in ensuring quality in test administration
9. Explain the methods in scoring essay test and objective test
10. Explain the procedures for test construction

Summarily, even though Hamzah implements some assessment tasks at certain points in the semester (test and examination) and in multiple-choice format (a test), his use of continuous in-class questioning, and weekly assignments appear to assist in developing students’ conceptual and procedural knowledge which may provide meaningful learning opportunities for his teacher candidates. Findings in this section also illustrate Hamzah’s modelling of a complete picture of

assessment education to teacher candidate which may assist in their future assessment practices. Hamzah's prior familiarity with online teaching tools is indicated through the ease at which he provides learning opportunities for students through assessment despite the sudden transition to online teaching.

Assessing Through a Variety of Sources

Data analysis reveals that Hamzah implements weekly assignments, in-class questioning, a test, and a final examination as the complete array of assessments in his course. Hamzah's weekly assignments, in-class probing of student understanding through questioning, student class participation points, as well as how he uses the assessment to provide meaningful learning opportunities for students have been discussed in the previous section. Findings discussed above also suggest that Hamzah implements a multiple-choice test and a constructed-response final examination. In addition to seeking student understanding through these various sources, Hamzah discussed that he engages in dialogue with students outside of the classroom to further provide him with information about students' perspectives about the course and their learning progression: "I meet with some students after class to ask them how they feel about the day's topic and the course generally. I use that to decide how to proceed with some assignments and even my teaching too".

Hamzah's out-of-class dialogues with students were indicated also through observation notes when he mentioned in one of the lessons that: "I can see that some of you think the assignments are too much through the chats that we had. You see, it is for your own good. Try to complete them". In addition, findings from assessment samples and interviews indicate that Hamzah provides opportunities of a variety of examination questions for students to respond to topics that they feel they have more knowledge. He shared during interviews how he shifted his

approach to designing final examinations questions following out-of-class discussions that he had with his previous students: “it is from interviewing students to know if they are comfortable with the course that I knew it would be good to set different questions and allow them to choose the ones to respond to”. Hamzah gives students five essay questions in the final examination and ask students to respond to the first question (compulsory) as well as to choose any other two questions that they are comfortable providing responses to.

I set five questions of which students are expected to answer only three questions. So, I make question one compulsory and ask them to choose any two others that they like. I want to give them the chance to do well in the exam.

Summarily, Hamzah implements about four assessment tasks and assesses students’ understanding and perspectives about the course in-class and outside of the classroom through providing opportunities for examination question choices, interviewing, and questioning students. Although Hamzah grades some of the questions he asks students in class in the form of participation points, he practices in-class and out-of-class dialogues with students to adapt his teaching and his assessment practices.

Involving Students in the Assessment Process

Analysis of interview transcripts highlights how Hamzah provides feedback to his students, as well as student involvement in decisions regarding assessment processes in his course. Specifically, there was evidence from the data that students were involved in the assessment process such as co-developing test and examination questions. Data analysis also reflect dialogic conversations, in-the-moment clarifications, and grades as feedback between Hamzah and his teacher candidates.

Findings suggest that Hamzah involves students in developing the test and examination questions used in the course. He cited an instance during interviews of how students ask him for

topics to focus on for the test and final examination. Hamzah mentioned replying to students that: “I don’t go with the attitude of Area of Concentration (AoC). I have a question bank that I developed and update from the questions that students ask during lessons and outside of the classroom”. Hamzah appears to not encourage students to seek topics of focus, rather he supports his students by providing clarification on questions that they seek answers to during lessons and then drawing test and examination questions from students’ questions. This way, students contribute to the process of designing test and examination questions.

Relatedly, Hamzah provides students with past tests and examination questions. During interviews, he shared that when students are not provided with likely questions, they may feel anxious and not score high marks in tests and examinations: “at the back of the handout that I give to students, I include revision questions. I feel it prepares students to write exams and not being under tension of not knowing what to expect. This may affect their scores”. Hamzah provided opportunities for students to go through the past questions and ask for clarifications if needed. Students were also allowed to come up with related questions to add to the revision questions as illustrated in observation notes where Hamzah mentioned in class that: “you see those revision questions; they are not absolute. You can also add to them but let me know so I can include your questions in the question bank”.

Regarding dialogic conversations, findings illustrate Hamzah’s continuous effort of seeking and providing feedback to students on questions raised during and after instruction. He also engaged students outside of the classroom through interviews to understand their perspectives on the course and on his teaching and assessment approaches. Observation notes further confirm Hamzah’s attempt to engage students in dialogic feedback when he asked students to provide him with feedback on the weekly assignments he gives and how students feel

it has assisted their learning in the course. Most students mentioned how the weekly assignments continue to engage them with course topics as well as helping them connect topics in the course. Interview data suggest that Hamzah receives positive feedback on his assessment and teaching approaches when he mentioned that “the students see me as a unique person because not all their instructors ask them for feedback on how they feel about the course and the assessments”.

Findings also revealed that Hamzah prefers to spend time to clarify students’ confusions rather than completely teaching the syllabus. His interview discussion also indicates that he cares more about effectively teaching the topics and assessing students on only the topics covered in class. He seems to help students to shift their conception about assessment as for testing and examination only, to a view of assessment as a process that should help to improve their learning.

If students ask me what is the AoC, I rather tell them, you mean area of confusion? I think we should teach students to learn and understand the content, not memorize all the topics because they feel tests and exams should focus on all topics in the course. I tell them that there is nothing I will teach them that I will not assess them on. And if I wouldn’t assess you on the particular component, then why am I teaching you?

Despite the ways that Hamzah involves students in his course as described above, interview data indicate that he provides feedback to students’ test and final examination in the form of grades, even though the examination constitutes 70% of their total score in the course: “there is no feedback regarding the final exam, other than scores. Also, the test, I mark them, and students receive their scores too”.

Drawing on the findings above, Hamzah’s assessment practices include formative purposes and practices as well as summative. Although both summative and formative assessment practices are valuable in the classroom and implemented by Hamzah, embedding

assessment within instruction, the use of assessment to provide deep learning opportunities, as well as Hamzah's provision of in-the-moment feedback, dialoguing, and involving students in assessment processes are robust assessment practices that indicate more formative assessment implementation than the previous two cases. Hamzah's prior experience with online teaching tools and the modest number of students in his course seem to have an effect on his assessment practices despite the sudden move to online teaching.

Influences on Conceptions and Assessment Practices

Data analysis revealed two sub-categories (*micro-, meso-level influences*) that assist with understanding the supports and impediments towards Hamzah's conceptualization and practices of assessment. With regards to support and constraints influencing how he conceptualizes assessment, Hamzah was very clear in mentioning that his work context (institution, community, colleagues) has no influence on his beliefs about what assessment should be and what it should be used for: "my view of assessment remains the same, the system cannot affect my attitude to and my perception of assessment".

Micro-level Influences

Analysis of data reveal limited facilities, prior familiarity with online teaching tools, and students' responses to assessment tasks as influences on Hamzah's assessment practices. He mentioned that with the limited resources to conduct assessment, there is little he could do, other than working within the limits of what is available. Specifically, Hamzah experiences issues with limited available facilities such as technological devices, internet access, and constant electricity supply. These limited resources according to him influence the assessment tasks he implements.

Normally, we're supposed to conduct tests online, but where are the computers? I use mine most times. If I want to print materials to use in assessing students, where

are the printers? I had to buy one for my personal use... most of the time, I use my personal internet access to post tests to Google Classroom. The provision of stable electricity is also one of the challenges.

Although Hamzah feels constrained by the limited technological resources available to effectively assess students, his prior familiarity with technological tools for learning appear to assist his use of a variety of tools to engage students in the assessment process. Hamzah shared that: “my technological knowledge and previous online teaching helped me to assess students when we had to move to online teaching unexpectedly. If not for that, I would not have been able to easily teach and assess online”. This implies an influence of prior knowledge of technological tools used in teaching and assessment on educators’ assessment practices when teaching shifts from in-person to online platforms.

In addition, Hamzah feels constrained in his assessment practices based on students’ reactions to his practices. He shared how some students think he is too critical and implement too many assessments, which appears to differ from what they experience in other courses. Although students’ negative reaction seems to not affect how he conceptualizes assessment, data suggest some impact on his assessment practices as he would not want to appear as the ‘odd instructor’ drawing from his colleagues’ approaches to assessment: “some colleagues do not give tests, they only award scores for it, others do not mark scripts; as for me that I do tests, give assignments, and mark, some students complain again that I do too much”. Another point to note that may influence Hamzah’s ability to implement assessment more frequently, may be related to his class size (about 70 students), which is much lower than those in other cases examined in this study. In this case, the sociocultural context of assessment (class size) differs from other cases who teach about 200 or 600 students which suggest differences in assessment practices. For example, Tracy

and David whose class sizes are about 600 engage more in large-scale assessment while Hamzah, whose class is about 70, practices more classroom assessment.

Meso-level Influences

Findings indicate meso-level supports and constraints influencing Hamzah's assessment practices. Specifically, findings indicate institutional support and challenges, colleagues' issues with his assessment approach, and parental influences on educators' assessment practices.

Hamzah shared during interviews how institutional sponsorship to conferences has helped him to further develop and implement better assessment strategies. To him, attending conferences provide opportunities to interact with colleagues outside of his university where he learns about innovative assessment practices: "the university always try their best, especially to sponsor us for conferences. Recently, my university paid for my conference to another state where we had a rapport with other experts in assessment". Another support Hamzah receives from his university relates to reduction in workload, especially since he needs to conduct research as well as teach students. He appreciates that his university employs part-time instructors to assist in teaching and assessment, despite that his institution is a privately funded university: "the university supports my practice by reducing my workloads. Being a private university with no external funding, yet they normally reduce our workload by ensuring that other instructors come here to assist us in teaching and assessment of students".

Other institutionally related influences on Hamzah's assessment practice include what he calls "the unique challenge of private universities" due to the admission criteria used to admit students into programs. Since private universities including where Hamzah works are self-funded, such universities tend to lower entrance standards, hence admitting students with minimum entrance criteria:

We have a unique challenge in the private university because most students we admit are usually weak students. Because they were unable to get admission to federal and state universities, they end up coming to private universities and they will be welcomed because we're interested in their cash.

In some cases, in Nigeria, it is only students from high socio-economic class that attend private universities. Generally, there are fewer students in private universities and the common saying is that instructors treat students as customers who they must bend regulations for, to fulfill their demands. This is not different in Hamzah's case, as he laments on the standard of students he teaches in his course. This affects how he implements assessment since he needs to consider the students' demands most times, even though he prefers to practice assessment differently.

As an instructor here, you must ensure that the student pass your course and you must moderate final grades too, so they [students] don't fail too much. This is affecting the assessment quality. Most of the time, some of us in assessment education will want to stick to quality, but most times we are left with no choice but to reduce assessment standards.

Other influences on Hamzah's assessment practices as indicated in interview transcripts relate to constraints from colleagues. He shared how other instructors refer to him as being too critical of assessment approaches; perhaps they feel his area of research interest and education makes him superior to them with regards to his assessment literacy and pedagogy: "my colleagues are not also assisting because they see me as an extremist. They'll say am I the only one that did assessment at the higher education level? They always complain about me being different in my practice".

Hamzah also indicated through interviews that parents of students in his university sometimes influence how educators assess students. Hamzah feels disappointed that parents encourage educators to inflate students' marks, even if such students did not show evidence of

content knowledge nor understanding of course topics. Parents as discussed by Hamzah capitalize on their high socio-economic status to dictate how students' learning is assessed.

Parents also are not helping the situation of assessment, because the type of students we have are from affluent and well-to-do families. Even if their kids have not done well in your course, they send you emails saying that “do you want to eat this mark yourself?... just to dash out marks, what is so difficult”?

Summary of Findings from Hamzah's Case

Findings from data analysis illustrate accountability and improvement conceptions of assessment in Hamzah's case. Specifically, findings reveal purposes of assessment serving to improve educator's teaching and student learning through data sources illustrating Hamzah's belief about improvement of teaching and learning purposes. He also describes assessment as encompassing several strategies from various sources, and beliefs that assessment education should model meaningful learning opportunities for teacher candidates. Hamzah's conception of assessment as accountability (student and external stakeholders) shines through his beliefs about assessment serving student categorization, certification, accountability to parents and regulatory bodies' purposes. Thus, Hamzah appears to hold multiple and interacting conceptions of assessment, including improvement (teaching and learning) and accountability (student and educators' responsibility to external stakeholders) as analyzed through the conceptual framework adopted in this study (Wang, 2020).

Data analysis illustrates assessment practices in Hamzah's course as including formative purposes and practices as well as summative. Although a test and a final examination were implemented in the course, Hamzah's implementation of assessment practices through embedding assessment within instruction, the use of assessment to provide meaningful learning opportunities, as well as the provision of in-the-moment feedback, dialoguing, and involving

students in assessment processes indicate more formative assessment implementation (Suurtamm & Arden, 2017).

A collection of analyzed data from all sources indicate another complex nature of connection between Hamzah's conceptions and practices of assessment. A clear connection reflects through Hamzah's conception of assessment as accountability and his implementation of a multiple-choice test and a final examination (both graded) at certain points in the semester, as well as using these two assessment tasks for reporting students' learning to parents and stakeholders. Hamzah also uses assessment as a control mechanism by awarding points for student participation, which further indicates student accountability conceptions and practices. At the same time, Hamzah's conception of assessment as improvement of teaching and learning connects with his striving to use assessment to improve his practices and to enhance learning for his students. A disconnection is however noticed between Hamzah's conception of assessment as student accountability and how he fosters deep learning, provides feedback, dialogue with students, and practices other improvement of learning opportunities for his student. Hamzah's case indicate the complexity involved when educators hold accountability conceptions and at the same time enact more formative assessment practices despite the constraints he mentioned as influencing his assessment practices. Arguably, it is much more possible for Hamzah's practices to reveal more formative assessment despite his accountability conceptions because he has a much smaller class size than Tracy and David. Further comparison of these cases is included in a latter section.

Whereas findings suggest influences from micro- and meso-level factors as supports and constraints to Hamzah's practices of assessment, there was no indication from data sources regarding influences on his conceptions of assessment. Micro-level influences as indicated

through interview transcripts include limited facilities, prior familiarity with online teaching tools, and students' perspective about Hamzah's assessment practices. Meso-level influences relate to institutional support and constraints, colleagues' issues with his approaches to assessment, and parental influences on educators' assessment practices.

Case 4: Alli

Alli had been teaching in teacher education programs for about ten years prior to the start of this study. Specifically, he had been teaching the compulsory assessment course since he joined the University of Motivations about four years ago. Currently, in addition to the compulsory assessment course, Alli teaches educational psychology, psychology of learning, and counselling education at undergraduate and postgraduate levels. Alli holds a first degree and master's degree in Guidance and Counselling (with concentration in assessment and testing) and a Ph.D. in Counselling with specialization in personnel settings. He belongs to professional organizations related to psychometrics, measurement, and testing in Nigeria and abroad.

Hamzah and Alli teach in the same teacher education program at the University of Motivations (a privately-owned university). While Alli currently teaches the compulsory assessment to part-time undergraduate students in their final year, Hamzah teaches the same course to full-time undergraduate students in their final year. In addition to the compulsory assessment course, Alli was teaching five other courses in the semester when this data was collected. Alli mentioned currently teaching about two hundred part-time undergraduate students in the assessment course. This course was in-person prior to the switch to online teaching due to the pandemic. His class comprises of students who had already received a National Certificate in Education (NCE), but who were interested in completing a Bachelor's degree to be able to teach from kindergarten through to grade 12. In Nigeria, teachers with NCE qualifications can only

teach K-6, thus, some already practicing and some new teacher candidates who work in other sectors may wish to complete an undergraduate degree in Education. Teacher candidates in Alli's class receive lectures over the weekend (Friday, Saturday, and Sunday) only and must complete their program in two years. A description of the University of Motivations is presented as part of Hamzah's case.

Alli shared his experience teaching online courses before the pandemic forced all courses to virtual platforms. Specifically, before joining the University of Motivations, he worked as a teacher educator in a distance-learning institution where he taught educational psychology and counselling psychology courses to teacher candidates. Alli thus appeared to find the sudden transition to online teaching easy and having no effects on his assessment practices; however, teaching a high number of students in online classes is a bit challenging to him: "with my experience teaching distance courses, the move to teaching online did not limit how I assess my students, the high number of students in the course is the issue that I have". Alli ensured that students turn on their cameras while in class so that he can observe their facial reactions. He also allowed students to unmute whenever they needed to respond to questions as well as dropping answers in the chat box on the Zoom platform.

Alli's Conceptions of Assessment

Alli's conceptions of assessment are discussed by highlighting how he expresses the purposes of assessment, his descriptions of assessment, as well as his beliefs regarding assessment education.

Alli's Purposes of Assessment

Analysis of data indicates Alli's beliefs regarding the purposes of assessment which include, for planning and adapting instruction, for engaging students in lessons, as well as using assessment to pass judgement on what students know through scores on tests and examinations.

One of the purposes of assessment according to Alli's belief is for educators to plan instruction. Through interviews, he shared how it is important for educators to assess students' prior knowledge about a topic before beginning a lesson and how the information that educators gather should be used to identify where to begin instruction rather than for grading purposes.

Before you begin to teach, you need assessment. We call it formative assessment. You want to know what the learner knows to know how to build on their knowledge through teaching. You do not need this information to grade them [students], it is for you to know where to begin teaching.

The purpose of assessment drawing from Alli's beliefs extends beyond assessing students' prior knowledge to continuously seeking students' understanding of topics in efforts to modify educators' teaching and instructional pedagogies. Alli shared during interviews that educators need to assess students' understanding as they proceed with instruction by asking questions rather than continuing teaching: "to be sure that the students are really following your teaching and understanding the topic, you have to continuously assess". Again, to Alli, assessment serves to engage students in the lesson: "some students will sit down in a class with their minds far away from the class. That is why I assess in the middle of instruction. To keep them connected with the class". Observation notes also illustrate an instance when Alli asked a question to ensure that students were engaged and understood his teaching of the day's topic: "I know we have discussed..., can somebody mention what we have discussed earlier in the lesson?"

In addition to using assessment for establishing students' understanding during instruction, findings indicate Alli's belief that assessment is also useful for providing scores to students' work and the score information is useful for evaluating students' learning of content: "assessment is used with the overall aim of passing judgments upon the exposure of a set of individuals to a known task. Their scores will tell if they have learned or not". In addition, data analysis indicates Alli's belief that assessing for summative purposes is the most important as it encourages students to study so as to prove their knowledge of the topics covered. Again, such beliefs as espoused in the quote below places assessment as interrupting instruction and viewing students as accountable for whatever scores they receive in such end-point assessments. The quote also suggests using assessment information derived from traditional assessment tasks for accountability purposes.

We also have summative assessment at the end of teaching, which is the most important. This is what will enable me to determine that what students know by the end of the day through how students perform in quizzes, tests, and exams. I will provide scores for these assessments, and it is up to the student to prove what they know at that point.

Relatedly, another purpose for assessment as indicated through interview transcripts in Alli's case is for verifying teacher candidates' understanding of course content, albeit through questioning, testing, and examining students. Alli shared his belief about assessing to understand what students know through scores, which further imply his reliance on tests and examination scores as evidence of providing information on students' learning: "tests and exams scores are so vital that if not done, you cannot determine what students know".

Alli's beliefs seem to regard assessment as serving multiple purposes, which includes improvement of educator's teaching and student learning, as well as for providing scores to students which helps to explain student learning. Alli appears to be aware of assessment as

serving summative and formative purposes in the classroom as well as how evidence of student learning is used to fulfill different purposes.

Alli's Descriptions of Assessment

Data exemplifies Alli's description of assessment as including multiple methods (briefly) with judgement of student learning through scores, as well as describing assessment through testing, grading, measurement, and norm-referencing characteristics. Assessment as described by Alli encompasses a variety of tasks and stages, however, Alli described assessment as including attaching grades to the multiple assessment tasks and again, for evaluating if students have learned content: "assessment is not a single thing. Assessment involves a number of steps, with the intention of scoring to know students' achievement of educational objectives".

Findings further imply Alli's description of assessment as he connects assessment to tests, measurement, and grades. Alli's discussion indicates that he understands tests, measurement, and grades as part of assessment processes, whereby one is not exclusive of the other: "when I am talking about assessment, it is about three other things [testing, grading, and measurement], which are important in the assessment process". According to Alli, he appears to believe that testing and grading are vital components when describing assessment: "there's no way we'll talk about assessment that we won't talk about testing and grading. There's no way we'll talk about assessment that we'll not talk about measurement, which is also grading". Again, Alli shared that a test is connected to assessment because it is one of the best assessment tools used to elicit student's understanding of content: "without tests, how will you know if students have learned? Tests is an important tool in assessment".

Similarly, findings reveal Alli's belief that an assessment process is incomplete without measuring a student's score on an assessment tool such as tests against other students' scores in

the course. He appears to describe assessment as connected to students' grades as he compares students' achievement in the course through their grades: "grading leads us to comparing an individual's performance to the norm - norm referencing, which is also measurement. Then I will know how my students have generally performed in the course". This quote implies Alli's description of assessment as measuring students' learning, rather than seeking to understand students' learning progression without grading and testing.

Alli's Beliefs Regarding Assessment Education

This sub-category, *beliefs regarding assessment education* describes Alli's beliefs regarding the assessment topics necessary to teach to teacher candidates in his course as well as his beliefs about assessment pedagogies important to model while teaching his course, which further highlights his conceptions of assessment.

The course syllabus below illustrates what Alli believes is important to teach teacher candidates in terms of assessment education. The course syllabus shared by Alli includes only topics without specifying the weeks used in teaching each topic, so I analyzed the number of topics listed in the syllabus. Majorly, most topics in the semester (about 85%) are focused on teaching assessment-related topics, while statistical topics (the last two topics) took about 15% of the teaching period in the semester. Although findings reveal that 85% of the topics were assessment related, Alli mainly taught test and measurement techniques, which further imply his focus on teaching topics related to measuring learning through scores from tests and examinations.

Despite that Alli must teach the Tests and Assessment course as prescribed in the BMAS, he can include other topics depending on what he values as important topics to teach based on his conceptualizations of assessment. For example, the first two topics focused on teaching

theories, purposes, and functions of assessment, measurement, and evaluation, seven topics [scales of measurement, classroom test (definitions and problems), types of classroom test (essay), types of classroom test (objective), item analysis, validity of a classroom test, reliability of classroom test] were related to test construction, administration, and interpretation as prescribed in the BMAS, while educational objectives and academic achievement were other topics that Alli included in the syllabus. Findings from the course syllabus suggest limited focus on teaching teacher candidates the assessment skills needed to use assessment evidence to facilitate student learning and to adapt instructional techniques when they begin their teaching careers. A copy of the course syllabus used to teach the Tests and Assessment course in Alli's class is presented below:

Table 16: EDU 416 Course Topics

<p>Course Topics:</p> <ul style="list-style-type: none"> ○ Conceptualization of Assessment and Evaluation in School Learning ○ Purpose and Function of Measurement and Evaluation ○ Scales of Measurement ○ Educational Objectives ○ Classroom Test (Definitions and Problems) ○ Types of Classroom Test (Essay) ○ Types of Classroom Test (Objective) ○ Item Analysis ○ Validity of a Classroom Test ○ Reliability of Classroom Test ○ Academic Achievement ○ Hypothesis Testing (Relationship Hypothesis Statistical procedure) ○ Hypothesis Testing (Difference Hypothesis Statistical procedure)

Analysis of interview data indicates Alli's belief about the assessment pedagogy necessary to model while teaching his course. Findings reveal that Alli believes that a student's scores represent the extent of the student's learning of concepts in his course: "it is possible to estimate the achievement of a student in a course and I can get this through the scores of that

student”. This quote connects with Alli’s description of assessment above regarding assessment being passing judgement on students’ scores to provide evidence of learning.

Drawing on Wang (2020), findings illustrate improvement and accountability conceptions of assessment in Alli’s case. Findings showcase instances of Alli mentioning purposes of assessment relating to planning and adapting instruction, for engaging students in lessons, as well as his awareness of formative and summative purposes of assessment in the classroom. He also briefly described assessment as involving multiple methods to provide evidence of student learning. These descriptions and purposes, suggest improvement of teaching and learning conceptions. Again, Alli believes that assessment information is useful for passing judgement on what students know through scores on tests and examinations, as well as describing assessment along the lines of testing, grading, measurement, and norm-referencing characteristics which suggest student accountability conceptions. Thus, Alli appears to hold multiple conceptions of assessment (the improvement of teaching, improvement of student learning, as well as student accountability) that co-exist.

Alli’s Assessment Practices

In this section, I present findings from interview transcripts, observation notes, and assessment samples that illustrates Alli’s assessment practices as implemented in his course.

Ongoing Assessment Embedded in Instruction

Findings under this sub-category illustrate Alli’s practices of assessment by embedding assessment in instruction through questioning students to probe their prior and in-the-moment understanding of lesson topics, as well as observing and noticing students’ reactions to questions during instruction to further assist their learning.

Findings from interview transcripts indicate Alli's practice of discussing and clarifying the lesson topics at the start and towards the end of each class. That is, he confirms students' understanding of the topic before commencing instruction and after instruction in every lesson to know how to proceed with instruction: "before I start a class, I ensure to discuss the content of that class, like the topic for the class; and we will not leave the class until I ask my students questions on what we discussed". Alli's practice of asking questions at the beginning, during instruction, and at the end of each lesson to clarify students' understanding is further illustrated through observation notes. For instance, he mentioned before starting a class that: "today we will be looking at classroom tests. We will define classroom tests and its characteristics, types of tests used in the classroom, and discuss problems that may arise from using tests. Any questions on the topic before we start?".

During instruction, Alli asked an open-ended question that: "the types of tests that we discussed are?" Students chorused the answers and he nodded to confirm their responses as well as mentioning that: "great! We can move on then". Other times during the class, Alli gave a thumbs up to confirm students' responses. At the end of the lesson, Alli asked students that: "we have discussed the qualities or the characteristics of a test. What do you understand about these characteristics? What are the characteristics we have discussed? If you do not understand, then I can re-teach briefly in our next class".

Relatedly, interview data indicate that Alli asks questions especially at the end of the class to help facilitate a continuous learning process where there is no gap in students' learning. He links questions from a previous class to the present class topic to ensure students still remember discussions from the last class:

And in the next class I don't just jump to the next topic, I will try to link what we discussed the last time to what we want to learn. I'll say "you know last week, we

discussed this and this, even at the end of last week lecture I asked questions about this and this, and you answered like this, having understood this, let's move to the next stage.

Another strategy of embedding assessment in instruction as indicated through data sources in Alli's course is noticing and observation. Alli shares how he observes his students' emotions and body languages while teaching, which makes him think that it is time to assess students' understanding. To him, merely observing students' faces tells him if they are confused or not, and that prompts him to stop teaching to ask questions from students to clarify confusions.

As a teacher and a psychologist, you should know when to stop bombarding students with information. If you look at their faces and they look tired, you must take it easy and try to slow down a bit while teaching them. This is the time I use to ask them about what we have discussed so far.

Upon asking questions, Alli notices his students' reactions and responses (via Zoom audio, video, and chat box) to his questions and uses that information to know how to proceed with instruction. If he observes that most students understood the question and responded swiftly, he moves on with the lesson assuming that others who are yet to understand may have found some clarity on the question from their colleagues' responses: "for the few students that get it, they will be able to respond and by the time they respond, other students who have not gotten it will now get it. So, in the class I do this often". However, in instances when most students did not still understand his question and thus only a few responded to it, he gave the question as an assignment: "if I see that their responses are not encouraging from their reactions to my question on what we have discussed. If [the] majority of them have still not gotten it, I give them something on that as an assignment".

Summarily, findings under this sub-category illustrate instances of in-the-moment acts, and decisions suggesting that assessment in Alli's course was embedded in instruction including in-lesson questioning, attentiveness to and clarifying students' misconceptions, as well as observing, and noticing students' understanding during instruction.

Assessment Reflecting Meaningful Learning

Data analysis illustrate Alli's use of assessment to provide meaningful learning by probing students' understanding of lesson topics during classes and outside of the classroom, and through weekly assignments that he implements to continue to engage students with lesson topics. To engage students in meaningful learning through assessment, Alli shared during interviews that he continuously checks his students' understanding of concepts through questioning, prior to beginning a class. To him, probing students' understanding of the course through questioning prior to beginning to teach the course sets the stage for preparing their minds on course expectations. Findings also reflect how questioning in the first class helps students to link any prior knowledge of assessment to the current course which in most instances have helped students' learning: "I try to link what we're about to study to what the students have learned before. So, I start my courses with some questions like, what do you know about this? Can you recollect knowing anything about this before?"

Furthermore, findings illustrate Alli's understanding of the connection between prior and current learning as well as how students' learning may be enhanced. Meaningful learning to Alli begins by and involves closing the gap between what students knew prior to starting his class and what they are yet to have knowledge about. He brought up evidence from assessment principles to explain his point: "assessment theories suggest moving between unknown and known, there

must be something that is known, now we want to bring what you don't know on, so that should be able to bridge the gap between known and unknown”.

Observation notes illustrate Alli's use of assessment to test students' understanding and to provide deep learning opportunities for teacher candidates. For example, he engaged students in an impromptu quiz, although he mentioned after the quiz that he would not grade the quiz, but only used the questions to know if they understood the topic: “everyone, click on the quiz link that I sent to you online and answer the questions on test design”. After students responded to the quiz questions, Alli mentioned that: “okay, I only used that to test your knowledge, I will not mark it”. Also, observation notes reflect an assignment question given to students to expand their knowledge on test design. Assignments such as this implies developing teacher candidates' conceptual understanding by engaging in transferring knowledge into practice: “produce a 40 question objective examination questions based on the curriculum of a term in your teaching subject”.

Another method adopted by Alli to provide meaningful learning through assessment was his use of assignments. Alli implements assignments to deepen students' thinking about a topic and to foster collaboration among his students. To him, students feel the need to study more when they know they have an assignment to submit: “when you give them [students] an assignment, many of them will not go back to their hostel to sleep; they would want to find a way to do the assignment and get it submitted within a specific time”. He appears to believe that when students interact outside of the classroom, they are able to assist each other in their understanding of the content, since the condition (language, etc.) outside of the classroom differ from that of the classroom: “students will think more about lesson topics through the assignment.

Students who understand will assist those who do not get it, and by the time they interact outside the classroom, they will learn better from each other”.

Illustrations of providing meaningful learning to teacher candidates as indicated through data analysis suggest Alli implements assessment to establish decisions on next steps in student learning and to expand students’ learning through assignments.

Assessing Through a Variety of Sources

Analyzing assessment samples, observation notes, and interview transcripts suggests that Alli implements a couple of assignments, monthly tests, and a final examination. He also implements in-class questioning and impromptu quizzes which were not graded but used to provide information on instructional pedagogies as well as students’ learning. As indicated in the previous subcategory, Alli continuously engaged in checking students’ level of understanding by prompting questions within instruction, and by providing ongoing feedback to clarify students’ confusions. Also, Alli provides other opportunities for assessment by implementing assignments and monthly tests to ensure his students continue to engage with course contents rather than waiting for the set test period to consult course notes: “if I give only one assignment and a test, students will not consult their notes regularly. So, I do monthly tests and give them many assignments”.

Another means of providing variety in assessment in Alli’s course is through setting examination questions in multiple choice and constructed-response question formats. To Alli, since the examination weighs 70% of students’ final grades, he wants to provide students with multiple question formats according to students’ preferences: “Even though they have to answer all the questions, I want to ensure that students who prefer multiple choice or essay formats will have questions that they like, because exams carry the heaviest mark”. Assessment sample data

confirm that Alli included both multiple-choice and constructed-response question formats in his final examination questions. Although Alli could not share the multiple-choice part of his examination questions with me, he shared some constructed-response question format which were drawn from his question bank as shown in Table 17. Alli mentioned that his multiple-choice question bank contains other items that he would like to be kept confidential, hence his inability to share that part of the examination questions.

Table 17: Sample Examination Questions

<ol style="list-style-type: none">1) Provide a detailed explanation on the following concepts with relevant illustration a) Test b) Testing c) Measurement d) Assessment e) Evaluation2) Justify the necessity of having Measurement and Evaluation in Education.3) An effective testing must be constructed on a number of principles. Present a detailed explanation of these principles.4) Critically examine the scales of measurement with relevant examples.5) Tests could be typified as classroom and non-classroom tests. Provide a detail description of these types of tests.
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Involving Students in the Assessment Process

Findings from data analysis highlight how Alli provides feedback to his students, as well as some level of student involvement in decisions regarding assessment processes in his course. Specifically, there was evidence from the data that students were involved in the assessment process such as co-developing test and examination questions. Data analysis also reflect dialogic conversations, in-the-moment clarifications, and grades as feedback between Alli and his teacher candidates.

The previous sub-categories suggest Alli provides in-the-moment feedback to students during lessons. Observation notes also indicate that Alli seeks questions from students during instructional periods: “try to read to understand or you are free to ask me questions in class. Through your questions and our discussion, I can clarify any confusions that you have”. The act

of posing, seeking, and discussing questions with students implies some dialogic conversations between Alli and his students.

Another means that Alli engages students in the assessment process is by repeating tests and assignment questions in the final examination questions and sourcing questions from students' questions in class: "I make sure to extract questions from the monthly tests and all the assignments to set the final exam questions". He mentioned prior that he has a question bank where he draws all his questions, including assignment and test questions. Interview data also suggest Alli includes questions that students asked in the class in his question bank, hence, students are indirectly involved in designing test, assignment, and final examination questions: "I include students' questions in class in my question bank where I set tests and assignments. That way, if students pass well in the tests and assignments, there's nothing saying they will not have good grades in the exam".

There was no evidence from data sources suggesting that students co-created assessment criteria with Alli, nor were there findings suggesting students were engaged in self and peer assessment. Monologic feedback through scores were noticed as the main form of feedback for assignments and tests "when the assignment is given back to them [students], and they see their score, they know that will be part of their final score". Findings point out that Alli leaves the responsibility of score interpretation to his students. To him, as soon as students receive their scores, they can determine what the score means in terms of their learning in the course: "the scores tell them if you are very low, buckle up your belt, and if you're up here, don't relent, because this is not the final score, it can come down, if you don't buckle up". Due to the number of students in Alli's course, he mentioned limited opportunities to provide written feedback on

major assessment tasks: “you know I have about 200 students, it is hard for me to write anything after marking and scoring the tests and assignments, even the exam”.

Although findings under this sub-category indicate some level of student engagement through involvement in test and examination questions, as well as some dialogic feedback, major assessment tasks were still implemented through tests and examinations where the feedback was in the form of grades. This suggests limited active student engagement in assessment processes, probably given the high student number in the course.

The findings above, gathered through observation notes, interview transcripts, and assessment samples reflect Alli’s assessment practices as including both formative and summative practices. Both summative and formative assessment practices are useful in the classroom and implemented by Alli drawing from his implementation of tests, several assignments, in-the-moment questioning and feedback, embedding assessment within instruction, ungraded quizzes, and providing some opportunities for meaningful learning through assessment tasks. Data also reveals less student engagement in assessment processes with grades acting as the major assessment task feedback.

Influences on Conceptions and Assessment Practices

Analysis of data revealed two sub-categories (*micro-, meso-level influences*) that emerged that help to understand the support and impediments towards Alli’s conceptualization and practices of assessment. With regards to support and constraints influencing how he conceptualizes assessment, Alli reiterated that his conceptions about assessment remain unchanged despite the constraints he experienced in his assessment practices: “the only thing affected is how I am able to practice assessment, nothing has changed my belief and understanding of assessment”.

Micro-level Influences

Findings under this sub-category reveal constraints related to high student numbers, limited facilities, and students' perspectives of assessment tasks as influences on Alli's assessment practices. Findings illustrate that the high number of students in Alli's class affects how he practices assessment. To him, because he teaches about 200 students in his course, there is barely enough time to implement some assessment strategies including providing useful feedback on the assignments, tests, and examinations: "they are many, so there is little I can do in terms of using different tools. I am also unable to explain their scores to them through writing; that will take so much time".

Limited available facilities to effectively implement assessment is another issue raised during interviews by Alli. To conduct online assessment as the situation demanded during the pandemic, Alli mentioned that: "the shortage of computers for my work and limited internet access are affecting my assessment practices. I want to do more assessments, but I am constrained by the limited resources". Despite Alli's broad experience with online teaching, the high student number and limited resources for online teaching and assessment still appear as the main influences on his assessment practices: "even my knowledge of teaching online has been overshadowed by their [student] number and the little support in terms of online teaching facilities. I am unable to practice assessment the way I want". This finding indicates that despite prior experiences with online teaching tools, the number of students in a course and lack of resources for online teaching and assessment could limit an educator's assessment practices. Another micro-level influence on Alli's assessment practice relates to students' prior knowledge and perspective in the way he implements assessment. Alli shared that often, students complain

that he gives too many assignments and tests: “most of these students have limited experience when it comes to assessment, so they think that the assignments and monthly tests are too much”.

Meso-level Influences

Data analysis indicate meso-level supports and constraints influencing Alli’s assessment practices. Specifically, findings indicate institutional and collegial supports for and challenges to Alli’s assessment practices, as well as parental influences on educators’ assessment practices. Findings imply that university financial supports for instructors to attend professional development programs such as conferences and seminars assist Alli’s assessment practices: “the university grants attendance to conferences as a support to my practice. The university administration encourages us to go, and they will provide some funds”. To him, through conference or seminar attendance, he has continuously re-examined his assessment practice and has thus changed his approaches to assessment generally: “when I attend a conference or seminar, I get more enlightened about my area of specialization and that has helped me to review my practice”.

Collegial assistance is another influence found under meso-level factors in Alli’s case. Findings point out that even though Alli may not share similar conceptions of assessment with his colleagues, they have been helpful to his assessment practice. The major aspect where he feels some of his colleagues have provided support is the encouragement that he receives rather than criticisms for how he conceptualizes and practices assessment: “I don’t expect everybody to think the same way on an issue as me. We get along with ourselves; at least my colleagues encourage and support how I do my assessment; their encouragement is what I need the most”.

Relatedly, findings suggest Alli feels constrained in his practices due to his senior colleagues, especially university administrators’ approaches to assessment. In his university,

professors in senior administrative positions find it difficult to shift assessment practices, as well as allowing educators to practice assessment the way they feel is best due to their expertise. Although Alli mentioned during interviews how senior administrators do not provide opportunities to utilize his expertise on assessment to change the university's assessment guidelines, he finds a way to implement assessment in ways he feels it should be in his classroom.

Majority of what we were taught to do, especially my university days, we're not allowed to practice it fully here. It can be difficult for anybody to tell them in this University that this is how you should do assessment. They [administrators and professors] will tell you that you cannot just come here and say what we're doing is wrong, so they always stand against whatever it is that I feel should change.

Another challenge to Alli's assessment practices as found through interview transcripts concerns parental influence on university decisions; his university sees parents as customers who assist to fund university activities. He laments on how in a bid to satisfy parents, his university encourages educators to give students higher grades than they deserve. To Alli, this practice affects his assessment practices because he needs to bow to pressures from the university and parents to keep his job.

The University does not want to discourage the parents. If you set the normal standard, it may affect the performance of the students; the student may have low grades and that is not encouraging to the parents. They [university administrators] will say that our customers are not meant to be annoyed with us by students having poor grades. So, with this, I have to kind of put human faces to every facet of the assessment process.

Summary of Findings from Alli's Case

Data analysis from course syllabus and interview transcripts illustrate improvement and accountability conceptions of assessment in Alli's case. Findings reveal purposes of assessment serving to improve educator's teaching and student learning through planning and adapting instruction and engaging students in lessons, as well as Alli's description of assessment as involving multiple methods to provide evidence of student learning. Alli's conception of assessment as student accountability is reflected through his beliefs about assessment being useful for passing judgement on what students know through scores on tests and examinations, as well as describing assessment through testing, grading, measurement, and norm-referencing characteristics. Drawing on Wang (2020), Alli appears to hold multiple conceptions of assessment (improvement of teaching, improvement of learning, and student accountability) that co-exist in an interesting manner.

Findings illustrate assessment practices in Alli's course as including both formative and summative practices. Although summative practices are reflected through the multiple tests and a final examination as implemented in the course, Alli's implementation of assessment practices through embedding assessment within instruction, his use of assessment to provide deep learning opportunities, as well as the provision of in-the-moment feedback, dialoguing, and limited involvement of students in assessment processes indicate both summative and formative assessment practices in Alli's case.

Analysis of data sources indicates a connection and disconnect between Alli's conceptions and practices of assessment. The connection between conceptions and assessment practices is apparent through Alli's conception of assessment as student accountability and his implementation of a multiple-choice question format in tests and in the final examination which

were implemented at certain points in the semester, as well as relying on students' grades to provide evidence of their learning. At the same time, Alli's conception of assessment as improvement of teaching and learning connects with his continuous use of assessment to improve his practices and to enhance learning for his students through in class questioning and multiple assignments. A disconnection is noticed between Alli's conception of assessment as improvement of teaching and student learning and his practices of assessment that indicates less student engagement in assessment processes and grades acting as the major assessment task feedback. For example, despite his improvement conceptions, the circumstances in the context of his course (high number of students and limited resources for assessment) appear as a reason why Alli uses grades as feedback to the main assessment tasks and has limited opportunities involving students in the assessment process.

Although findings suggest influences from micro- and meso-level factors as supports and constraints to Alli's practices of assessment, there was no indication from data sources regarding influences on his conceptions of assessment. Micro-level influences as indicated through interview transcripts include high student numbers, limited facilities, and students' perspectives of Alli's assessment practices. Meso-level influences relate to institutional and collegial support and constraints, as well as parental influences on educators' assessment practices.

Case 5: Awwal

Awwal was in his tenth year of teaching in the Bachelor of Education program prior to the start of this research. He had taught several courses in Nigerian high schools for about five years before joining the Faculty of Education at his current university. Awwal completed his Bachelor of Education, master's, and doctoral degrees in Educational Psychology. His doctoral program focused on creativity and emotional intelligence. Awwal teaches other assessment-

related courses in his faculty, however, he mentioned that there is one compulsory assessment course (Tests, Measurement, and Evaluation) which all Bachelor of Education students need to pass to graduate.

Awwal currently teaches in the Faculty of Education at the University of Aspirations, a state-owned university in the North-western region of Nigeria. The University of Aspirations was established about a decade and a half ago and is funded by the state government where it is located. The number of students inclusive of graduate students (master's and doctoral) is approximately 25,000 across seven faculties. The University of Aspirations focuses intensely on community development and entrepreneurship as many of the research projects in the university are intended to connect the community and the academy. Located in the outskirts of the city in a serene environment, the University of Aspirations houses a lot of beautiful buildings, trees, green spaces, and vast yet-to-be used land space.

In the Faculty of Education at the University of Aspirations, students enrol in the compulsory assessment course in their third year as part of graduation requirements. Although the BMAS mentioned Tests and Measurement as the compulsory assessment course, the title of the course in Awwal's university is Tests, Measurement, and Evaluation. Again, the BMAS states that this course will be taken in the second year of a Bachelor of Education program, Awwal's teacher education program offers this course in the third year, but with the same credit load as is in the BMAS (two credits).

Awwal mentioned having about 250 students in the compulsory assessment course. He currently teaches the course alone in addition to other Faculty courses. Awwal belongs to several professional bodies around classroom assessment, educational psychology, and measurement. His research has been published in numerous journals and Awwal has supervised several

undergraduate projects and master's theses. I observed internet disruptions in Awwal's online lessons, but mostly, it occurred from the students' internet connections. Awwal's university provides instructors with stable internet facilities, but this support is not extended to students.

Prior to the pandemic, Awwal had attended some professional development programs on teaching and assessing in virtual spaces, so he was grateful for being familiar with online teaching and assessment tools before the sudden transition to virtual spaces due to the pandemic. His familiarity with online teaching and assessment tools however does not indicate the level of his online pedagogical knowledge which Awwal did not discuss during the interviews. Awwal applauded his university for supporting his career advancement, especially preparing him to teach online even before the pandemic struck, but the number of students in his assessment course has not provided opportunities to enact his full knowledge of online teaching and assessment: "my university invested so much in my professional development, but the number of students in my course is making my practice less effective because I cannot practice all that I know about online teaching and assessment."

Awwal's Conceptions of Assessment

This section describes Awwal's conceptions of assessment as explored through his expression of the purposes of assessment, his descriptions of assessment, as well as his beliefs regarding assessment education required to teach in his course.

Awwal's Purposes of Assessment

Analysis of interview transcripts indicates Awwal's beliefs regarding the purposes of assessment which include improving teacher candidates' knowledge and learning about assessment, assessment being useful for student's learning adjustments, for educators to adapt

teaching, for diagnosis, placement, and certification, as well as for reporting students' performance to parents.

Awwal believes that the main purpose of assessment in teacher education is to assist in improving teacher candidates' knowledge about the different assessment strategies to use in their classroom. To Awwal, assessment is useful to teacher candidates since they will need the knowledge when they begin their careers as teachers: "I believe assessment is useful for the learning process in our programs. Without assessment knowledge, how will our student teachers assess their students when they start teaching"? He appears to speak from the perspective of teaching assessment courses drawing from his belief about the purpose of assessment which coincides with how he feels assessment should be taught to achieve the required purpose: "assessment is supposed to be taught in way that will improve their [students'] knowledge and their ability to use the different types that we have. To me, this should be the major aim".

Related to assessment serving improvement purposes are findings indicating Awwal's belief that scores from assessments are useful for students to improve on their learning. To him, after providing scores to students on assessment tasks, students use that information to determine next steps. Awwal believes that when students observe that their marks are low in the course, they tend to find means of improvement. For students who notice that they have good marks, they want to sustain the high marks by engaging more with the course content: "assessment is useful in various areas of student development, but mostly cognitively. Their scores tell them if they need to improve or to sustain their scores effectively. Students usually use scores to decide when to buckle up".

Another purpose for assessing students relates to Awwal's belief that assessment serves as a means for adapting his teaching. He shared through interviews, his belief regarding his

responsibility to ensure that teacher candidates are taught and assessed properly, especially in ways that supports their learning: “I always use assessment to consider what to change in my teaching and the way I assess students. The aim is about what they will learn from the course”. Findings also point towards Awwal’s belief regarding adapting his teaching upon noticing that students are failing assessment tasks. He shared that he feels there is a need for him to reteach or to adopt other assessment strategies that suit his students given the information he gets through assessment. Although Awwal mentioned using assessment information to adapt his teaching and assessment tasks, the quote below also suggests that he referred to students’ scores as assessment information and how he is informed of students’ learning through assessment:

When I give students tests or any assessment tool, I use their scores to see how many passed or failed. That tells me where to focus next time because I may need to reteach some topics. I take certain decisions at the time and the decision will be based on the information obtained from the assessment.

Awwal’s other beliefs about the purposes of assessment shine through his discussion that assessment information assists educators to position students suitably into academic categories. To Awwal, assessment information is useful for the “purposes of making valid and good decisions about where to place your student appropriately”. Findings also suggest Awwal’s belief that assessment provides information needed to properly certify students upon concluding their programs: “if we don’t conduct assessment, how will we know if students have done well and the class of certificate to give them? Only assessment can provide that information”. The quotes in this paragraph suggest Awwal’s beliefs about the purposes of assessment being focused on diagnosis, placement, and certification.

Reporting students’ performance to their parents is another purpose of assessment as implied through interview transcripts in Awwal’s case. Awwal discussed that assessment is

essential to implement because the information gathered can be used for reporting students' achievement to parents at the end of the course: "because I must give maybe the family, parent, or guardian information about students; that report will come from assessment. How has the student performed in my course? So, I need to conduct assessment to get that information". This sub-category uncovers Awwal's beliefs about assessment serving a couple of purposes, including improvement of educator's teaching and student learning, which appears as Awwal's main beliefs about the purposes of assessment, as well as placement, certification, and reporting purposes.

Awwal's Descriptions of Assessment

Analysis of data demonstrate Awwal's description of assessment as a continuous process involving multiple assessment tasks and covering all domains of student learning, as well as briefly characterizing assessment as measuring student learning through tests and grades. In an interview, Awwal described assessment in this way: "assessment is a continual process, using different tools, with the intention to improve student achievement". Furthermore, Awwal described assessment as involving sourcing evidence of student learning from multiple methods with the aim to enhance student learning: "we assign a test, and we feel, that's the best way that students must learn- no! Learning is not going to happen that way. Assessment involves many tools".

Relatedly, Awwal believes that assessment involves paying attention to all facets of student learning by implementing tasks that measure three domains of learning: cognitive, affective, and psychomotor. Awwal suggests eliciting evidence of student learning through multiple sources to deeply understand how students learn: "assessment covers other areas apart from cognitive that you measure when you are giving tests to students. When a student is being

assessed, it means you want to look at that student holistically and measure everything about that student”. Here, Awwal appears to understand assessment as a process rather than an activity done to students occasionally.

Findings further indicate Awwal’s characterization of assessment as measuring student learning, especially through tests, even though he acknowledged that assessment includes seeking evidence from other assessment tasks. For example, Awwal shared that a test is a vital assessment tool used to elicit student’s understanding of content: “test is good in measuring the ability of students in a particular area or subject. But assessment also involves other methods like observation, projects, and portfolios”. This quote implies Awwal’s awareness of assessment as including several methods useful to elicit information about student learning, however, he sees tests as an important assessment tool which suggests characterizing assessment as quantitatively measuring learning.

Further analysis of interview transcripts connects with Awwal’s description of assessment along the lines of measurement. This affirms Awwal’s belief about the centrality of the quantitative information (scores and marks) derived from the assessment process: “a mark or score is important in assessment. There must be assessment first which leads to the score that you have allotted to that particular trait that you have assessed”. Further connection of assessment to measurement is revealed through Awwal’s mention of the centrality of scores or grades to reporting students’ learning in a course, which appears to draw from stakeholders’ perspective about assessment.

I am beginning to see a must to ensure assessment results is in form of scores because that is what the students or other people around me understand. If you conduct assessment and describe that students have performed in this way, there may be further questions to find out the quantification of what you have assessed.

The quote above implies Awwal's belief about assessment involving converting assessment information to scores or grades for students' and other stakeholders' understanding of how much learning has occurred or the level of student knowledge of course content. As is in the first sub-category (purposes of assessment), we again see multiple descriptions and characterizations of assessment, including assessment being a process involving seeking evidence of student learning through multiple tasks and a holistic process, as well as assessment measuring learning through tests, scores, and grades.

Awwal's Beliefs Regarding Assessment Education

Examining Awwal's *beliefs regarding assessment education* while teaching his course further highlights his conceptions of assessment. Specifically, analysis of data from interview transcripts and course syllabus were used to understand the assessment education that Awwal prioritizes for his students and models in his course.

Although Awwal must teach the Tests, Measurement and Evaluation course as prescribed in the BMAS, findings from interview data indicate that he can include other topics based on his beliefs regarding important topics to teach in the course: "I put topics that I feel the students need to learn and I assess them based on what I think is most valuable for them to do later in the profession". A copy of the course syllabus used to teach the *Tests, Measurement, and Evaluation* course in Awwal's class is presented in Table 18, which reveals the autonomy of institutions in deciding course titles, as well as TE's independence in designing the course syllabus. For example, a different course title is used to represent the BMAS prescribed *Tests and Measurement* in Awwal's university, while his course syllabus includes topics (e.g., statistics) which are not part of the Tests and Measurement course description.

Table 18: EDU 301 Course Syllabus

<p>Learning Objectives: At the end of this course, students will be able to explain the basic concepts in assessment, tests, and measurement and clearly distinguish them.</p>	
<p>Assessments: Types of assessments and grading policy: The four main methods of assessment shall be assignment, test, class participation, and final examination.</p> <ol style="list-style-type: none"> 1. Assignment (10 marks): 2. Test (10 marks) 3. Class attendance and participation (10 marks) 4. Final Examination (70 marks) <p>Nature of Assessments: Essay and multiple-choice questions</p> <p>Assessment dates: Test date: [redacted] Final examination start date: [redacted]</p>	
Weeks and Dates	Contents
Week 1	Meaning of Test, Measurement, and Evaluation; and their roles in education
Week 2	Types of Tests
Week 3	Test characteristics, uses, and methods of construction
Week 4	Validity, Reliability and Usability
Week 5	Test of Reliability
Week 6	Item Analysis
Week 7	Basic statistical concepts and procedures- Central tendency, variability, correlation, percentile and standard score types of variables and sampling techniques.
Week 8	Basic statistical concepts and procedures- Central tendency, variability, correlation, percentile and standard score types of variables and sampling techniques.
Week 9	CA Test
Week 10	Classes End
Week 11	Examination begins

The course syllabus also indicates that, out of the eight weeks that Awwal uses to teach topics in the semester, he spends two weeks (25% of the course) teaching topics related to statistics, while the remaining six weeks (75% of the course) are spent on teaching concepts of tests, measurement, and evaluation, as well as measurement and test techniques. Although Awwal spends six weeks teaching tests and measurement concepts, the first week in his course is dedicated to teaching theories of tests, measurement, and evaluation, as well as the roles of these concepts in education. Findings from the course syllabus and interview transcripts suggest that

Awwal models some assessment pedagogies to teacher candidates by communicating assessment tasks and the grading policies to be adopted in the course prior to beginning teaching: “I believe students should know how they will be assessed in my course right from the beginning of the course. My belief is that they will adopt this style and will also replicate clear communication with their own students”.

Drawing on the conceptions of assessment model (Wang, 2020), these findings illustrate improvement of teaching and learning as well as accountability as prominent in Awwal’s conceptions about the purposes of assessment. Findings suggest that Awwal regards the purposes of assessment as improving student learning and for adapting teaching, for placement and certification of students, and for reporting student performance to parents. Awwal described assessment as a continuous process of seeking evidence of student learning through multiple tasks as well as a process of measuring and quantifying student learning. Awwal appears to conceptualize assessment in multiple ways: the improvement of teaching and student learning as well as student accountability.

Awwal’s Assessment Practices

As is with previous case findings’ presentation of results, four sub-categories are discussed below to illustrate Awwal’s *Assessment Practices*.

Ongoing Assessment Embedded in Instruction

Findings under this sub-category are drawn from interview transcripts and observation notes to describe Awwal’s assessment practices regarding embedding assessment in instruction. Findings suggest that Awwal probes students’ understanding through questioning before instruction, however, he uses this questioning to provide participation and attendance marks for students. For example, Awwal shared: “some students will not attend classes, and some will

attend and not say anything. So, I included marks for coming to class and paying close attention to the course content”.

Classroom observation notes indicate that some students, despite the participation and attendance points, were unable to answer questions posed by Awwal. Awwal appears to believe that if students had prepared for the lesson, they would be able to respond to his questions: “I feel students should be responsible by reading ahead of class since the topics are on the course syllabus given to them at the beginning of the semester”. I wonder though if the quiet students did not read prior to the class or that they lacked the confidence to share their answers out of fear of being wrong and then getting low marks. I draw my thoughts from Awwal’s mention regarding what determines students’ scores in the participation assessment: “their [students] level of preparedness for the class will determine what they will score; their score also depends on how they respond to questions, their readiness from reading ahead”.

Data from classroom observations also indicate that Awwal appears to respond to students’ questions during instruction for supporting their learning. Data analysis demonstrates Awwal’s responding to students’ reasoning, as well as paying attention to, and clarifying students’ misconceptions to support effective thinking and learning. For example, Awwal paused a few times during lessons to ask if students understood the topic: “does anyone have questions? Are you getting what I am saying?” Instances when students raised concerns, Awwal responded to questions and explained clearly, any issues raised by students. Findings from interview data also indicate Awwal’s practice of in-the-moment acts, and decisions geared toward improving learning for students: “I like to provide feedback to students’ questions while in the class because if they do not understand something, it will complicate their learning if questions are not cleared properly”.

Assessment Reflecting Meaningful Learning

Findings suggest limited implementation of assessment as providing meaningful learning opportunities for students in Awwal’s class. For example, Awwal implements graded participation assessment through student’s provision of correct or wrong answers. He also implements an assignment which focuses on improving teacher candidates’ knowledge of statistics, as well as a test and a final examination with questions focused on test types and development, and statistics.

As mentioned in the previous sub-category, Awwal probes student understanding of topics before instruction through questioning, however, he does so to grade their engagement and participation in the course. Awwal’s implementation of participation assessment appears to limit meaningful learning opportunities for students through assessment since his feedback to students’ answers are through grades and correct-response-based, as well as possibly reducing student engagement due to the risk of scoring low points due to providing wrong answers. Awwal implements an assignment (also graded) as indicated in the course syllabus and through interview transcripts. As seen below in (Table 19), the only assignment implemented in Awwal’s course focuses on statistics which appears to not assess the requisite assessment education that teacher candidates need to practice as classroom teachers.

Table 19: Sample Assignment

The following scores were obtained when a group of 11 students were tested twice to ascertain reliability coefficient, Test A and Test B.											
Test A	2	2	4	5	3	6	4	5	6	8	7
Test B	2	3	4	4	5	5	6	6	5	8	9
a) Compute the Pearson Product Moment Correlation Coefficient between Test A and Test B. Interpret your computed value.											
b) Compute the Spearman correlation coefficient for the above data.											

Awwal also gives a test towards the end of the semester close to the final examination period after teaching has concluded.

Table 20: Sample Test Questions.

1) Test can be defined as----- -----
2) Measurement means----- -----
3) Assessment can be described as----- -----
4) Define teacher-made tests----- -----
5) What is standardized test? ----- -----
6) What is performance test? ----- -----
7) What is achievement tests?----- -----
8) What is a psychological test?----- -----
9) Give two examples of placement tests ----- -----

Although test questions were in a constructed-response format (as seen above in Table 20), Awwal shared some sample examination questions (Table 21) which were in a fill-in-the gap format, with a question on computation of scores. The test and examination questions appear to foster low-level cognitive learning given that most questions required students to briefly describe and state as well as list concepts than to analyze, evaluate, explain, etc., that may facilitate higher-order learning for students.

Table 21: Sample Examination Questions.

State five reasons why teachers conduct test
1)-----
2)-----
3)-----
4)-----
5)-----
6) what is objective test----- -----
State 5 types of Objective test

- 7)-----
- 8)-----
- 9)-----
- 10)-----
- 11)-----

12) What is Essay Test?

State 5 ways of reducing the subjectivity of Essay test

- 13)-----
- 14)-----
- 15)-----
- 16)-----
- 17)-----

State 5 advantages of Objective test

- 18)-----
- 19)-----
- 20)-----
- 21)-----
- 22)-----

The following scores were obtained in a test by 40 students in the department of Early Childhood Education.

70	45	50	45	68	70	80	40	60	20
20	50	50	53	42	56	60	70	40	70
60	51	40	50	30	80	35	80	90	30
45	46	60	70	80	40	50	50	60	30

- a) Prepare a frequency distribution table with class interval of 3.
- b) Determine the Cumulative frequency
- b) Represent the data in Bar Chart
- c) Compute the mean, median and percentile 25

At the same time, the timing of implementing the test and the feedback provided may not allow meaningful learning for teacher candidates. For example, the time of implementing the test in the semester may not avail Awwal an idea of how students have learned, nor will the feedback that students need to establish decisions on next steps in their learning be beneficial. It is important to note from the course syllabus and interview data that the test is implemented two weeks to the start of examinations and that feedback on the test is provided in the form of scores: “I always ensure that I mark and give my students their scores on the test and assignment”.

Summarily, this sub-category illustrates limited meaningful learning opportunities through assessment in Awwal's case. Findings from data analysis in this sub-category did not reveal that assessment provides students with a complete picture of assessment education needed when teacher candidates begin their careers, nor was Awwal involved in implementing assessment in ways that provided high cognitive learning opportunities for students.

Assessing Through a Variety of Sources

Analysis of data suggests that Awwal's assessments include an assignment (with which he attaches a presentation), a mandatory test, multiple impromptu tests, course participation marks, and a final examination: "students will have one assignment, a test, the final examination, and their attendance marks. These will be added together to form their final score in the course".

Awwal includes a presentation with the assignment that he implements (the assignment is shown in Table 21 above). According to him, students should not just submit assignments, but must be able to defend their assignment through a presentation. Awwal's decision to include a presentation after the assignment draws from his experience with academic dishonesty where students are not the true owners of their work or do not have an in-depth understanding of the assignment due to copying and the inclusion of responses from established sources: "when I give the assignment, students make a presentation on it before they can finally submit. I have just discovered that many of our students do copy and paste, without knowing anything about the topic".

However, observation notes illustrate that not all students had the opportunity to present their assignments. For example, Awwal asked a random set of students to present their assignment responses in one of the lessons that I observed, specifically in week 10, scheduled at the end of classes: "so today is the end of classes and as I mentioned last week, some of you will

present your assignments. I will pick randomly so I expect each one of you to be prepared”.

Further analysis of observation notes indicate that Awwal provided general feedback to students’ presentations probably due to the number of presenters and the time available to conclude the course: “well, that is good. You did well”. Findings from interview data highlight Awwal’s reason for randomly choosing students to present their assignment, his general feedback, as well as the actual use of information from students’ presentations: “there is not enough time for all students given the number of students in this course. The presentation is just to encourage them to do the assignment themselves, I do not have the time to score it”.

Interview data also indicate that Awwal implements impromptu tests to increase student attendance in his lessons. Awwal’s implementation of impromptu tests draw from his knowledge that some students do not bother to attend online classes since the test date has been scheduled in the course syllabus. Awwal shared that his students are aware that there will be impromptu tests, which will count as part of their attendance points: “they know that I can give tests to them at any time, so they try not to skip classes and do the impromptu tests just to have attendance marks”. Findings suggest that Awwal does not mark nor use results from impromptu tests, other than to ensure students attend classes: “I do impromptu tests to ensure students attend classes, otherwise, some will not even bother to come until when they know they’re having a test. I do not mark it; it is just to make sure they attend classes”. Regarding if Awwal uses the scripts from the impromptu test for other purposes since he does not grade them, findings suggest that he does not have the time to go through the impromptu tests in attempts to make meanings out of them: “you know it’s online, so I just keep them there. As I said, it is difficult given their numbers to do something else in addition to what I do”. Another assessment used to seek evidence of learning without grades attached in Awwal’s class is in-class questioning. As mentioned in

previous subcategories, Awwal probes student understanding during lessons, aside the participation assessment that he grades.

Involving Students in the Assessment Process

Findings reveal that the provision of feedback to the major assessment tasks in Awwal's class implies limited student involvement in the assessment process. Results from data analysis also indicate some student involvement in dialogic conversations with Awwal during and after classes to assist student learning, yet these dialogues were not to involve students in the assessment process. There was no indication from data sources that students were involved in co-developing test and examination questions, nor were there findings suggesting implementation of self- and peer assessment strategies.

Findings in previous sections highlight that students receive feedback on assessment tasks in the form of scores and towards the end of the semester: "I always ensure that I mark and give my students their scores on the test and assignment. They will see their score in the exam after the school post it on their individual platforms". This implies limited student involvement in the assessment process since scores provide little to no information to students on how to move forward in their learning. The feedback timing (towards the end of the semester) also appears to limit opportunities for dialogue between Awwal and his students on the assessment results.

Findings also infer that Awwal see scores as a form of feedback that students can use to improve their learning: "their [students'] test and assignment scores tell them how they have performed, and they can do the calculations themselves before the exams to see how to improve". However, as mentioned in the previous paragraph, by the time students receive grades for the test and assignment, the semester has almost concluded, so Awwal's feedback may not be

very useful for students to prepare for the examination, and less useful in supporting their learning.

Findings suggest that Awwal engages in seeking and responding to questions during instruction (as indicated under the sub-category, *Ongoing Assessment Embedded in Instruction*) and outside of the classroom which indicates some dialogic conversation between Awwal and his teacher candidates: “I allow communications between me and the students inside and outside of the class”. Also interview transcripts further illustrate some dialogic conversations outside of the classroom where Awwal endeavors to seek and provide some feedback to students on their marks. Yet, these dialogues do not imply student involvement in the assessment process, but a way of scaffolding student learning through their scores on assessment tasks:

I do tell my students in the class that if after the assessment, you feel that something is wrong and if you’re not comfortable with your marks, you are free to come to my office and ask questions. This way, they learn better about the course.

When asked specifically during interviews if students were engaged in deciding the test and examination questions, findings indicate that Awwal decides on assessment task questions without students’ involvement in the process: “no, students are not involved in it. Yes, I determine, determine what I will assess them on and the questions. I set all the questions”.

The findings above reflect Awwal’s assessment practices as including both formative and summative practices, with summative being most prevalent. Awwal’s formative assessment practices are reflected through his continuous probing of students’ understanding during instruction, in-the-moment questioning and dialogue to clarify students’ questions upon receiving test and assignment scores, and how he seeks assessment evidence through several sources. Awwal’s use of assessment information (grades) to determine where students are at in their learning in the course, his implementation of a test and an assignment towards the end of

the semester, the limited opportunities for providing meaningful learning to students through assessment tasks, as well as limited student involvement in the assessment process suggest a focus on summative purposes and practices of assessment.

Influences on Conceptions and Assessment Practices

Findings from data analysis reveal two sub-categories (*micro- and meso-level influences*) that stood out as supports and impediments to Awwal's practices of assessment. Despite the challenges and opportunities mentioned by Awwal as influencing his assessment practices, findings imply that his conceptions about assessment is not affected: "nothing has ever changed how I perceive assessment because I am always entitled to my opinion".

Micro-level Influences

Analysis of data revealed constraints related to high student numbers, time to implement assessment based on student numbers, and limited resources for students as influences on Awwal's assessment practices. Awwal shared that the high number of students in his course has implications for his assessment practices, including the feedback he can provide for students and the assessment tasks he can provide. As Awwal suggests: "because the students are many, I can only give tests; I ensure to provide scores though. I would like to do more than a test and an assignment if students were fewer". Relatedly, Awwal shared time as a constraint to implementing more assessment tasks; he connects time with the issue of high enrolments in his course: "I don't have time to do many assessments when students are many. Their number will determine the kind of strategy to use to assess; assessment that gives quick results that I can mark in the shortest time possible".

Another micro-level influence on Awwal's assessment practices is the limited resources available for students, especially in current times of online assessment. Awwal shared that he

limits online assessment tasks in his course due to the difficulty of students' access to internet connections: "I think about students' limited internet access facilities to assess students. Most of them pay from their pockets, so I try to limit how many times I assess them, which also affects how I do assessment".

Meso-level Influences

Data analysis indicate meso-level supports and constraints influencing Awwal's assessment practices such as institutional and collegial supports for and challenges to Awwal's assessment practices. Awwal suggests that there are some institutional supports and resources regarding assessment through the university library. He feels that the world-class library filled with technological features for research and learning assists his assessment practices: "there are opportunities for me to use the very good library, like one of the best in the country. I find resources where I learn more about assessment practices that I can use in my courses". Although findings suggest limited internet resource support for students, Awwal shared that his university provides educators with good internet and computer facilities which enable him to assess students virtually, especially during the pandemic: "the university provides computers and free internet for educators that I make use of to conduct online assessments. That has also helped in giving tests and examinations online".

Another meso-level support for Awwal's assessment practices is the assistance that he receives from his colleagues. Awwal described his colleagues' readiness to monitor and grade students, especially during tests and examination periods when students' submissions are massive due to high student numbers: "I enjoy the support of colleagues when it comes to assessment because they assist to invigilate my classroom test and the final exam. We also join hands to mark the tests and exams because the students are many". Notwithstanding Awwal's

mention of receiving support from colleagues, he laments on how some senior colleagues' perceptions of assessment affect his assessment practices: "many of our senior colleagues are too primitive; this is a major challenge that affects how I assess, because you cannot tell them what to do and again, they tell you to do what they want". According to Awwal, his senior colleagues often impose certain assessment practices on junior educators: "they say this is the way you should assess, so you that are recent in the field can't be telling them this is the way to do it. This is a very serious challenge to my assessment practice".

Summary of Findings from Awwal's Case

Analysis of data sources point to improvement of teaching and student learning, as well as student accountability as Awwal's primary conceptions of assessment. Specifically, findings reveal purposes of assessment serving to improve educator's teaching and students' learning and descriptions of assessment as a continuous process involving seeking evidence from multiple sources. Awwal's conception of assessment as student accountability is reflected through his beliefs about assessment being useful for certification, and reporting student learning, as well as describing assessment as the measurement of learning through tests and grades. Drawing on Wang's (2020) categorization of conceptions of assessment, Awwal appears to hold multiple conceptions of assessment that co-exist in an interesting and interactive form.

Findings illustrate assessment practices in Awwal's course as including both formative and summative practices. Summative practices were more conspicuous as reflected through Awwal's use of assessment information (grades) to determine where students are at in their learning in the course, his implementation of a test and an assignment towards the end of the semester, the limited meaningful feedback opportunities, minimal active student engagement, as well as implementing a test, participation assessment, and a final examination with no indication

of meaningful learning opportunities for students. Limited formative assessment is noticed through Awwal's implementation of in-the-moment feedback and dialoguing to improve student learning, which may have been necessitated by the number of students in the course.

Analysis of data suggests a connection and disconnect between Awwal's conceptions and practices of assessment. The connection resonates through Awwal's beliefs about assessment being useful for certification, and reporting student learning through scores and the implementation of his main assessment tasks in a low cognitive format and at specific points in the semester with feedback only in the form of scores to the test, assignment, and final examination. At the same time, Awwal's conception of assessment as improvement of teaching and student learning connects with his use of assessment to improve his practices and to enhance learning for his students through in-class questioning and the provision of clarification of students' misconceptions opportunities outside of the classroom. Awwal espouses conceptions that conflict with his assessment practice probably given the sociocultural influences on assessment in his context. For example, despite his improvement of teaching and student learning conceptions, he mainly practices summative assessment because of policy expectations on assessment, and other sociocultural factors (e.g., colleagues' perspective to assessment, high student number, etc.) shaping assessment in his context.

Moreover, influences on Awwal's conceptualization and practices of assessment suggest micro- and meso-level factors as supports and constraints to his practices of assessment, there was no indication from data sources regarding influences on his conceptions of assessment. Micro-level influences include high student numbers, time to implement assessment, and limited internet resources for students. Meso-level influences relates to institutional and collegial supports for and challenges to Awwal's assessment practices.

CHAPTER 6: CROSS-CASE ANALYSIS AND DISCUSSION

By collecting course syllabi, assessment artifacts, and interviewing the five TEs as well as observing three online lessons for each educator, I had the opportunity to learn deeply about each of the cases, as highlighted in the previous chapter. Exploring the data within each case afforded me an understanding of how assessment is taught to and practiced with teacher candidates in the context of the five participants. I was also able to form an understanding of TEs' conceptions of assessment as well as insights into the accounts of how they conceptualize and practice assessment with teacher candidates in the Nigerian teacher education programs that participated in this study.

This chapter is organized into sub-headings following the three research questions explored in this study:

1. What are the assessment conceptions and practices of the five Nigerian TEs?
2. What is the nature of the connection between the five TEs' conceptions of assessment and their assessment practices?
3. What do the five TEs perceive as opportunities and constraints influencing their conceptions of assessment and their assessment practices in the context of Nigerian teacher education?

Some of the themes that emerged through analysis of data were those presented in the conceptual framework in Chapter 3 before collecting the data; other themes emerged from the data as I immersed myself in reading and rereading my data sources, coding, and analyzing the information gathered from participants, and in discussions with my thesis supervisor.

Specifically, this chapter begins with a cross-case synthesis drawing from the within-case analysis findings presented in Chapter 5 to identify commonalities and differences observed across the five cases and to address the research questions. I organize the cross-case analysis

under four sub-headings that connect with the three research questions in this study. The first two sub-headings address the first research question (conceptions of assessment and assessment practices), the second sub-heading focuses on the second research question (nature of connections between conceptions and assessment practices), and the fourth sub-heading discusses research question three (opportunities and constraints influencing TEs' conceptions of assessment and assessment practices). The chapter goes on to the discussion section where I connect the findings highlighted in Chapter 5 and those under the cross-case analysis with previous related literature in this area of research. I used the same set of sub-headings under the cross-case analysis to summarize the big ideas from my study while connecting them with the literature.

Cross-case Analysis

In this section, I highlight the similarities and differences regarding the five TEs' conceptions, assessment practices, nature of the connection between their conceptions and practices, and influences that shape their conceptions and assessment practices. I found that similarities and differences across cases appear explicit through the sub-categories under the three models in the conceptual framework I used to analyze the data. Thus, the cross-case analysis findings are presented in sub-headings following the categories used in Chapter 5 which align with this study's research questions.

Conceptions of Assessment

Whereas findings reveal similarities in that the five TEs held multiple conceptions of assessment, differences were noticed in the dimensions of those conceptions. Indeed, the five TEs conceptualize assessment in varying degrees drawing from their beliefs regarding the purposes and descriptions of assessment, as well as their beliefs about the assessment knowledge

that is important to teach teacher candidates in their courses. Specifically, the five TEs' purposes of assessment included improvement and accountability purposes, albeit to differing levels. Common to the five TEs are beliefs that assessment provides educators with information on adapting instructional strategies and provides evidence needed to support students' learning. Another commonality among the five TEs is that they all demonstrated accountability purposes of assessment, including assessment being useful for reporting, certification, sorting, diagnosing, placement, and for judging the level of content learned by students. Findings revealed two other purposes of assessment which were not included in Wang's (2020) model, but that emerged during data analysis: assessment for students' behavioural control and assessment for syllabus coverage. Specifically, all TEs used assessment for the purpose of controlling student behaviour in classes, especially class attendance and participation, while Tracy and David used assessment for the purpose of covering course material.

Relatedly, four TEs share beliefs regarding their descriptions of assessment as a process and as an event. For example, Tracy, Awwal, David, and Alli described assessment as a process involving seeking multiple sources of evidence of learning and a recurring process to improve student learning. In addition, these four TEs' descriptions of assessment indicate assessment as an event, a method for quantifying learning and for passing judgement on how much content students have learned. However, Hamzah differed in his description of assessment when he shared that assessment is a continuous process encompassing testing and non-testing techniques with a focus to holistically enhance students' learning.

Analysis of assessment course syllabi in the three teacher education programs indicate some similarities in course titles (Tests and Measurement appears consistent across two programs, while tests is a constant term for all the three programs) which may further suggest the

assessment education emphasized in teaching Nigerian teacher candidates. For example, whereas the compulsory assessment course title in Tracy's and David's teacher education program is *Tests and Measurement*, Awwal's teacher education program titled the same course as *Tests, Measurement, and Evaluation* and in Hamzah and Alli's program, the course is titled *Tests and Assessment*. These notable connections in course titles (especially the term 'tests') may account for most of participant TEs' focus on teaching and modelling of testing and measurement techniques to teacher candidates drawing from National policies on and notions about assessment, as well as cultural perspectives to assessment.

Findings reveal that because of brief course descriptions in the BMAS and limited recommendations for specific topics to include and teach in a course, individual TEs possess the autonomy of teaching topics that they regard as assessment education in the course. Also, TEs' choice for including topics in their syllabus depended on their individual perceptions of the importance of complying with official policies. Although TEs in this study taught topics related to those prescribed in the BMAS, they also included other topics in their course syllabus based on their beliefs of the essential assessment knowledge needed by teacher candidates. Thus, differences were found in TEs' beliefs regarding what is important to teach to teacher candidates in an assessment course. For example, while the five TEs taught topics according to the description of the Tests and Measurement course in the BMAS, their focus on topics that they felt were important for teacher candidates' learning in the course and the time spent on teaching topics differed. While Tracy, David, and Alli, focused mainly on teaching test and measurement techniques as prescribed in the BMAS, Awwal taught more classroom assessment-related topics, and Hamzah focused largely on teaching broad classroom assessment-related topics including differentiating the purposes of assessment. Tracy and David spent four weeks teaching statistics

topics, while Alli, Awwal, and Hamzah spent lesser time (maximum of two weeks) teaching statistics topics.

Differences were also found in TEs' modelling of assessment pedagogies. Tracy, David, and Alli share beliefs that students' grades and scores help to explain student learning and this pedagogy is what they feel is essential to model in their courses. Awwal and Hamzah however, share beliefs that it is necessary to engage with students to understand their learning patterns and to model sound assessment strategies that will assist teacher candidates' future practices. It is important to note how TEs' institutions did not appear to play a role in the assessment education valued and modelled to teacher candidates given that TEs who shared similar beliefs work in different teacher education programs.

Differences in beliefs regarding assessment education and modelling of assessment pedagogies was observed between two participants (Hamzah and Alli) who teach the same course in the same program: *Tests and Assessment*. Teacher candidates in Hamzah's class, for instance, learn about multiple methods of assessing student learning, but Alli appears to focus more on teaching topics related to measurement and testing techniques for analyzing scores from tests and examinations to teacher candidates. Also, findings indicate that Hamzah differentiates among the purposes of assessment and provides opportunities for teacher candidates to learn about measuring student learning as well as other methods needed to scaffold learning through his modelling of assessment pedagogies in his course. The observed differences between the two TEs' teaching the same assessment course suggest that personally internalized beliefs, rather than institution types, may be one factor that influences the type of learning emphasized for assessment and the assessment knowledge introduced to teacher candidates.

Mainly, Vygotsky's sociocultural theory emphasizes that learning and development are a function of social interaction, which may assist to explain the differences found between Hamzah's and Alli' cases above, as well as other TEs' focus on teaching measurement and test techniques. For instance, an individual's cognitive, emotional, logical, and conceptual development must be understood from the perspective of the underlying cultural, contextual, and social ideals functioning in their contexts (Vygotsky, 1978). Similarly, an individual's construction of knowledge is first an outcome of their social interaction, and then an internal interpretation (Vygotsky, 1978). Thus, the difference noted between Hamzah and Alli's teaching of the assessment course could draw from the contexts of their prior teaching experience, their own experiences of assessment, area of specialization, and the number of students in their individual courses, which stood out differently between the two. Also, contextual and social standards for assessment may assist to explain why Tracy, David, and Alli focused mainly on teaching measurement and testing techniques, drawing from the title of their courses as well as the content topics that they valued as important to teach. It follows then that TEs' internalized beliefs about teaching assessment education draw from their experiences belonging to a sociocultural context, their contextual realities, and their identities within particular social and cultural communities. Contextual realities such as large class sizes appear as also responsible for the differences revealed in TEs' focus on teaching measurement and test techniques. Evidence of belonging to particular social and cultural communities and the influence these may have on an educator's teaching is revealed in Hamzah's case. Hamzah is the only TE with international teaching experience as well as membership to several professional associations in Nigeria and outside Nigeria in the areas of counselling, evaluation, and classroom assessment, which may have led him to teach different topics on assessment in his course.

Based on data analysis indicating TEs' expression of multiple beliefs regarding the purposes of assessment and about what assessment means as indicated through how they characterize assessment, as well as their beliefs about assessment education necessary to model through their courses, Wang's (2020) five conceptions of assessment categories appear evident among the Nigerian TEs. Specifically, the five TEs demonstrate improvement of teaching, improvement of learning, student accountability, educators' accountability to institutions, and educators' accountability to external stakeholders' conceptions. These multiple conceptions interact and co-exist in an interesting manner across the five TEs' cases. For instance, each TE holds improvement of teaching and learning conceptions and at least an accountability conception of assessment.

Findings indicate that the multiple conceptions of assessment held by TEs may have developed from social and culturally-imposed beliefs and less from institutional policies on assessment. The possibility that TEs' conceptions of assessment are less developed based on institution policies could be explained through the limited differences in the dimensions of the conceptions drawing from institution types. For example, Tracy, Alli, and Awwal share similar multiple conceptions of assessment (the improvement of teaching, improvement of student learning, and student accountability), but work in a federal, private and a state institution respectively. Similarly, although Hamzah and Alli, who both teach in the same program and university type and share similar conceptions of assessment (the improvement of teaching, improvement of student learning, and student accountability), they differ slightly with the educator's accountability to external stakeholders' conception noticed in Hamzah's case. A clearer difference in conceptions of assessment dimension is noticed between Tracy and David who both teach in a federal university's teacher education program. Although Tracy and David

hold improvement of teaching and learning conceptions, they differ given Tracy's additional conception of assessment as student accountability, while David's case revealed an additional educators' accountability to institutions conception. The cross-case findings on TEs' conceptions of assessment thus suggest that different teacher education programs do not account for differences in TEs' conceptions of assessment. However, a TE's conceptions of assessment draw majorly from the realities of their teaching contexts or settings. Some of these realities include the number of students that TEs teach, TEs' prior familiarity with online teaching tools with limited support for professional development, as well as cultural perspectives of assessment which is apparent through the title given to the course in the BMAS and how classroom assessment is perceived in other policy documents reviewed.

Assessment Practices

Regarding TEs' assessment practices, findings reflect differences across cases regarding TEs (1) practicing assessment as an ongoing process embedded in instruction, (2) assessment reflecting meaningful learning for teacher candidates, (3) seeking evidence of teacher candidates' learning through a variety of sources, and (4) involving students in the assessment process. Specifically, findings imply that two TEs (Hamzah and Alli) embedded assessment in instruction by sometimes probing students' prior and in-the-moment understanding of lesson topics, attentiveness to, responding to, and clarifying students' misconceptions, as well as observing, and noticing students' understanding during instruction. Limited opportunities of embedding assessment within instruction were noticed in Awwal's case with very minimal opportunities for ongoing assessment in Tracy's and David's cases.

Similarly, although all TEs implemented at least a test and a final examination which were mostly in multiple-choice, constructed-response, and fill in the gap formats, slight

differences were indicated in TEs' practices of assessment to reflect meaningful learning through the implementation of other assessment tasks. Again, findings illustrate Hamzah's and Alli's assessment tasks as providing means of expanding learning for teacher candidates, which was often exhibited through weekly assignments that continued to engage students with lesson topics. Hamzah and Alli also probed students' understanding of lesson topics before, during, and after classes as well as outside of the classroom to establish decisions on next steps in student learning. Findings revealed that Tracy, David, and Awwal had assessment components that reflects meaningful learning in students. Tracy, despite the high student number still introduced students to formative assessment terms and implemented an ungraded presentation. David, through the one assignment he implemented, probed students' critical thinking and knowledge application skills by allowing students to identify ethical issues in the assignment question. Awwal also probed student understanding of topics before instruction through questioning, even though he uses this task for scoring participation points for students.

Similarities and differences were observed in the ways that TEs sought evidence of student learning. The five TEs appear similar by adopting multiple sources of seeking evidence of student learning in their courses. Mainly, the TEs implemented a test (Tracy: two tests and Alli, monthly tests) and a final examination since these tasks were compulsory mandates in policy documents on assessment. All the TEs also implemented an assignment, but the frequency differed: Tracy, David, and Awwal implemented one assignment, while Hamzah and Alli implemented weekly, multiple assignments. Other assessment tasks revealing differences across cases are in-class questioning (Hamzah and Alli), class participation or attendance points (Awwal), ungraded impromptu quizzes and tests (Awwal and Alli), and ungraded presentation (Tracy).

Findings reveal that generally, students were minimally involved in the assessment process across the five cases. For example, all TEs provided grades as feedback to tests and the final examination, which may not provide opportunities for students to utilize the feedback (score) to improve their learning nor to have some conversations with TEs on content areas where they needed to improve. No evidence emanated from the five cases suggesting that students were involved in peer and self- assessment nor were there indications of TEs encouraging self-regulated learning for students. Again, for the most part, the TEs are the ones who make decisions on assessment and in some cases consult with administrative heads on test and examination questions. However, two TEs (Hamzah and Alli) practiced some dialogic feedback, invited students to contribute ideas to the development of test and examination questions, and sought feedback from students with the intent to improve their learning and one TE also permitted students the choice of final examination items.

Assessment practices of the five TEs appear similar in that they all practiced assessment for summative and formative purposes, but their extent of practices once again differ across the four sub-categories. Findings reveal three TEs' (Tracy, David, and Awwal) assessment practices as including both formative and summative practices, but with summative being most prevalent. Prevalence of summative assessment as practiced by these three TEs draw from limited involvement of students in the assessment process, reliance on grades to decide students' learning, limited meaningful learning opportunities through assessment, and the monologic feedback format practices. For Hamzah and Alli, findings imply more formative practices of assessment through embedding assessment within instruction, the use of assessment to provide meaningful learning opportunities, as well as provision of some in-the-moment feedback, dialoguing and involving students in assessment processes.

An important finding that emerged from the data which does not appear in the spectrum of formative and summative assessment is the use of grades for rewards or control of student behaviour. Specifically, TEs used grades as a reward or as a control mechanism. While some TEs awarded grades for class attendance, engagement, or participation by expecting students to respond to questions during lessons and grading them on this participation, others used impromptu tests to encourage students to attend classes. It is important to note that although these TEs ask questions that engage students in lessons and sometimes help to clarify students' misconceptions by answering the questions, using grades for incentives and to control student behaviour is not the same as embedding assessment in instruction. However, due to contextual factors, some participant TEs felt they needed to engage in these practices to ensure compliance and engagement.

I draw my conclusion regarding contextual factors from TEs' discussions regarding their experiences with students in their context as well as teaching in the online context. For example, Tracy mentioned that if there are no marks attached, students will not respond to assessment tasks: "the moment students realize that she won't mark, you will not be taken seriously". Again, Awwal shared that if his students knew that they will not be graded for coming to class and participating, most of them will not come to class until there is a graded component such as a test and examination. The online teaching platform appears as another contextual factor as to why TEs devised the grade as incentive and behavioural control. For example, Alli commented that the online teaching pedagogy comes with downsides which requires educators to find ways of steering online lectures. Such downsides are student engagement and participation in online lessons. He mentioned during an interview that: "you will not even know if students are there,

especially because students manage internet resources by not turning videos on. But when you attach marks to questions, you will see that more students will participate in the lesson”.

Findings uncover other factors that may explain the differences noticed in TEs’ assessment practices. First, the average number of student enrolment in each course differs: 70 (Hamzah), 200 (Alli), 250 (Awwal), and 500-600 (Tracy and David). This provides compelling evidence that TEs with higher number of students have limited opportunities to practice robust assessment tasks and acts that have been confirmed to support teaching and learning no matter what conceptions they may hold. The striking differences noticed in Hamzah’s, Tracy’s, and David’s assessment practices appear to arise from the varying class sizes. However, a noticeable difference is observed between Alli and Awwal who teach almost the same number of students. In this case, it appears that the type of university may also come into play when accounting for differences in TEs’ assessment practices. Although Alli teaches about 200 students, his assessment practices are similar to Hamzah’s and they both teach in the same teacher education program and in a private University; Awwal on the other hand teaches in a state university, teaches a similar number of students as Alli, but practices assessment in a different way to Alli. This suggests institutional culture and policies may account for some portion of TEs’ practices of assessment.

Connection Between Conceptions and Assessment Practices

Mainly, similarities were observed in the nature of the connection between TEs’ conceptions and assessment practices. All the TEs held conceptions of assessment that connected with how they practiced assessment, and this reflects across the cases in a consistent pattern. For example, accountability conceptions (student accountability, educator’s accountability to institutions, educator’s accountability to external stakeholders) held by TEs connected with their

practicing of assessment for summative purposes such as the implementation of tests and a final examination which accounts for majority of students' final grades and implementing teacher-centered assessment practices. For improvement of teaching and learning conceptions held by the TEs, findings indicate instances of practicing assessment for the purpose of adapting teaching and supporting student learning.

Another interesting nature of the connection between conceptions and assessment practices was found in all the cases. There were instances reflecting complexity in the nature of the connection between TEs' conceptions of assessment as improvement of teaching and learning and their opportunity to practice assessment as improvement. For instance, although Tracy and David held improvement of teaching and learning conceptions, these conceptions were not fully enacted in their practices due to the circumstances of their teaching context. Arguably, a disconnection is observed between improvement of teaching and learning conceptions held by these TEs and the assessment tasks that they are able to implement which appeared as mainly summative with a few formative assessment opportunities. For Tracy and David, the disconnection between their improvement conceptions and opportunity to practice assessment for teaching and learning improvement may draw from their large class sizes and the limited support available to assess students in online contexts despite the sudden move to online teaching.

Furthermore, Awwal stated that his conceptions of assessment are not affected by contextual factors, but that his assessment practices are challenged by contextual factors related to assessment. This finding suggests that conceptions can be resilient despite constraints and other influences to conceptions of assessment. Awwal espouses conceptions that conflict with how he is able to practice assessment given the views of assessment in his context. For example,

Awwal conceptualizes assessment as improvement of teaching, student learning, and student accountability, yet his assessment practices indicate summative assessment being most prevalent. His implementation of assessment for summative purposes draws majorly from contextual policy standards for assessing students. This ‘disconnect’ between conceptions and assessment practices as well as the resilient conception despite contextual factors as found in Awwal’s case could emanate from his exposure to classroom assessment pedagogies. He is also the only TE in this study with institutional support for professional advancement in online teaching and assessment. Awwal also has connections to professional organizations in the area of classroom assessment.

Other TEs who mentioned that their conceptions of assessment are not affected by contextual factors but whose conception of assessment appear to conflict with their assessment practices are Hamzah and Alli. For example, an interesting disconnect is noticed between Hamzah’s conception of assessment as student accountability and how he fosters deep learning, provides feedback, dialogue with students, and practices other improvement of learning opportunities for his student. Also, Alli’s conception of assessment as improvement of teaching and student learning does not appear to connect with his practices of assessment that indicates less student engagement in assessment processes and grades acting as the major assessment task feedback. Differences in class sizes may be responsible for the ‘disconnect’ noticed between conception of assessment and practices in Hamzah and Alli’s cases since they both reported similar influences on their assessment practices.

Influences on Conceptions and Assessment Practices

Influences on TEs’ conceptions and assessment practices appear similar as well as differ slightly. First, influences on conceptions and practices of assessment as analyzed following Fulmer et al.’s (2015) framework indicate micro- and meso-level factors across the five cases.

However, differences were noticed in some cases along the lines of impacts on conceptions of assessment and the institutional contexts.

Across all cases, findings indicate common influences at the micro level arising mostly from large class sizes, students' perspectives or views on assessment, and limited classroom assessment resources such as internet and computer facilities for students' and TEs' use, as well as limited staffing. Again, across all cases, meso-level influences related mostly to institutional policies and support for assessment practices (especially online assessment), collegial support and approaches to assessment, limited funding opportunities for facilities, resources, and training to effectively implement assessment. Although all TEs mentioned influencing factors on assessment practices, differences in impact on conceptions of assessment differed. For example, Hamzah, Awwal and Alli stated clearly that influencing factors only impacted their assessment practices, and not their conceptions, while Tracy and David shared how micro and meso-level factors were beginning to shape their conceptions of assessment.

A slight addition to influences on assessment practices was noticed in Hamzah's and Alli's cases arising from parental intrusion on classroom assessment, especially regarding students' grades. It is important to note that these two TEs work in a private university where strong parental control appears to exist. This finding suggests that external influences such as parental intrusions are more common in private education systems than the public (state or federal) given that there was no evidence of parental influence reported from other TEs who work in the state or federal universities.

Across all cases, there were indications of large class sizes and the sudden transition to virtual teaching platforms impacting TE's assessment practices, especially in the provision of in-the-moment feedback, effectively embedding assessment in instruction, and enacting various

assessment tasks. Specifically, the number of students that TEs in this study teach ranges from 70 to 600, which leaves limited opportunity for them to practice more assessment tasks or provide extensive feedback in their courses. Again, all TEs mentioned experiencing issues with teaching online courses, which include limited student participation and engagement, TEs and students possessing limited technological skills, unstable internet service leading to log-in fluctuations during lessons, and the lack of students' access to internet resources.

Another fascinating finding from this study concerns the influence of TEs' prior experiences with online teaching tools on their assessment practices. Due to the pandemic that necessitated a move to the virtual learning environment, having prior experiences of online teaching tools was a factor that influenced TEs' assessment practices, as noticed specifically in Tracy's and Hamzah's cases. For example, Tracy was just learning online teaching tools when teaching moved online and she shared how her limited online teaching experience influenced her assessment practices, along with other factors. For Hamzah, his prior online teaching experience assisted him to navigate the online platforms, to implement online assessment tasks, and to engage students in assessment in spite of the sudden transition to online teaching.

Interestingly, the findings also imply that even when an educator has sufficient or broad online teaching experiences prior to the sudden transition to online teaching, other sociocultural factors may affect their ability to utilize their experiences. For example, the number of students enrolled in a course, availability of resources for educators to conduct assessment, as well as funding support for students' internet access, influenced TEs' ability to implement some online assessment practices in spite of their prior online teaching experiences. This finding indicates the strength that some sociocultural factors could have over an educator's personal experience,

which could dictate how assessment is practiced in the context of such educator, depending on the unique circumstances existing in each educator's case.

The cross-case analysis presented above suggest that TEs' conceptions and their assessment practices, the nature of the connection between conceptions and assessment practices, as well as the underlying influences on their actions and decisions are not linear and simple but a multi-faceted and complex endeavour.

Discussion of Findings

To address my main research questions, I draw from the results presented under the within-case and cross-case analysis and I looked across these results to see the main topics that described TEs' conceptions, assessment practices, nature of the connections between, and the sociocultural influences shaping their conceptions and practices. Thus, I present four main topics that I felt represent responses to my research questions and that emerged from my review of the results presented in Chapter 5. The first topic addresses TEs' conceptions of assessment. The second topic focuses on TEs' assessment practices as they teach the compulsory assessment course in their teacher education programs. The third topic relates to the nature of the connection between TEs' conceptualization of assessment and their assessment practices. The fourth topic addresses the sociocultural influences that account for TEs' conceptions and assessment practices as shared by the participants.

As I discuss these four topics, I reflect on my grounding of this thesis on a sociocultural view of classroom assessment, which emphasizes classroom assessment as more of a social practice that is contextually situated. Classroom actions and decisions drawing from sociocultural perspectives stresses the centrality of the social, political, contextual, cultural, and ethical aspects of assessment practices as central to educators' approaches to assessment (Pryor

& Crossouard, 2008). In Chapter 3 of this thesis, I discussed sociocultural theory and sociocultural perspectives to classroom assessment at length because it is the theoretical basis of this study. Thus, bringing forth sociocultural perspectives to classroom assessment in this discussion section will help to form an in-depth response to and understanding of the main research questions guiding this study. In addition to organizing the discussion of results around the four topics noted above, I relate the findings to relevant literature discussed in Chapter 2 of this thesis.

Teacher Educators' Conceptions of Assessment

Conceptions of assessment were played out in diverse ways, which were shaped by the different views or orientations held by the participant TEs, as well as contextual-related factors. The literature review (in Chapter 2) brought to fore the centrality of conceptions of assessment in the classroom actions (in this case, assessment practices) that educators implement. This in the words of Deneen and Brown entails paying attention to individual educator's conceptualization of assessment (2016), as well as understanding the culture and context of assessment where educators work (Brown et al., 2019). Furthermore, TEs' articulation of the purposes and descriptions of assessment, and their beliefs of what is important to teach regarding assessment education (Brown, 2004; Xu & Brown), play a central role in framing their conceptions of assessment (Wang, 2020).

TEs' conceptions of assessment were analyzed drawing from Wang's (2020) model of conceptions of assessment which explicitly describes five dimensions of conceptualizations of assessment based on beliefs about what assessment is useful for, the meanings ascribed to assessment, and what they see as important assessment education needed to be taught to teacher candidates. Wang's five dimensions of TEs' conceptions of assessment include viewing

assessment as: a tool for the improvement of teaching; a tool for the improvement of learning; driven by school accountability purposes; driven by student accountability purposes; driven by educators' accountability to different audiences (2020). Several studies establish the centrality of educators' conceptions of assessment in the decisions they make regarding assessment as well as the various forms that conceptions exist and interact (Deneen & Brown, 2016). This study thus focused on providing insights into how five TEs conceptualize assessment in teacher education programs in the North-western region of Nigeria.

TEs in this study conceptualize assessment in multiple forms covering Wang's five classifications of conceptions of assessment in teacher education (described above) which appear to fall under two categories (improvement and accountability conceptions). TEs' expression of multiple conceptions of assessment as in this study relates to established findings from the literature (e.g., Brown, 2002; Brown et al., 2019; Gebril & Brown, 2014; Remesal, 2011) reporting improvement and accountability conceptions among educators, albeit in different contexts. Drawing from the findings in this current study, within-case analysis showcases different dimensions of conceptions of assessment interacting in a complex manner. Also, the strength of occurrence of each of the five conception of assessment categories varied across the cases. By dimensions, I mean the type(s) of conception of assessment exhibited within and interacting in a case; and I also discuss the extent or strength that TEs exhibit each dimension or type of conceptions of assessment across the five cases.

Results reveal multiple conceptions of assessment interacting in a fascinating manner in each TE's case which aligns with findings from Brown's (2004) study suggesting possible interactions between or among the various conceptions that educators hold. Findings from my study, illustrate the complexity in the interactions among the multiple conceptions of assessment

held by TEs. For example, even though all the TEs described assessment and the purposes of assessment along accountability dimensions, they still held improvement of teaching and learning conceptions. Specifically, in Tracy's, Alli's, and Awwal's cases, student accountability conception interacted with improvement of teaching and learning conceptions. Also, in David's case educator's accountability to institutions interacted with improvement of teaching and learning conceptions. In the case of Hamzah, student accountability, educator's accountability to external stakeholders, and improvement of teaching and learning conceptions interacted and co-existed withing a case.

The strength of existence of conception of assessment dimensions illustrated across the five cases appear to differ. Specifically, the five TEs express improvement of teaching and learning conceptions. With regards to accountability conceptions, all five TEs held accountability conceptions, while four TEs (Tracy, Hamzah, Alli, and Awwal) espouse conceptions related to student accountability. Educator's accountability to institutions conception was found in David's case and Hamzah also happens to be the only one who expressed an educator's accountability to external stakeholders' conception. Hence, results from this study illustrate that across cases, improvement of teaching, improvement of learning, and student accountability, educators' accountability to institutions and educators' accountability to external stakeholders' conceptions of assessment were noticeable, but at different degrees.

Educators' expression of multiple conceptions of assessment as found in my study synchronize with the findings presented in Aydin and colleagues' qualitative study which explored five Turkish mathematics TEs' conceptions of assessment (2009). These authors' findings reveal differences in educators' conceptions of assessment patterns similar to what was found in my study. For example, while some TEs in Aydin and colleagues' study expressed

conceptions of assessment at the conceptual level (assessment as a process that engages both TEs and teacher candidates as well as considers the emotions of all actors in the process), a few others articulated conceptions of assessment at an individualized level (valuing individualized assessment and viewing assessment as a process that provides feedback to TEs and teacher candidates). Similarly, findings were reported in other studies (e.g., Azis, 2015; Brown, 2004; Gebril & Brown, 2014; Opre, 2015; Remesal, 2011) that connect with those highlighted in my study regarding interactions in conceptions of assessment dimensions across participating educators. For example, educators in Gebril and Brown's (2014) study held improvement of teaching and student learning as well as student accountability conceptions that interacted strongly across a sample of 507 Egyptian professors. Similar interactions between improvement of teaching and student learning as well as student accountability were found in Brown's (2004) study among New Zealand educators.

Although data was analyzed through institutional types, there was no evidence backing how institutional contexts accounted for the conceptions that TEs have. That is, the type of institution where TEs work did not influence the dimensions of conceptions that they hold about assessment. Notwithstanding, it appears evident that broader sociocultural perspectives to assessment contribute to TEs' conceptualizations of assessment in my study. Extant literature (e.g., Aydin et al, 2009; Parks & Rawlings, 2021; Postareff et al., 2012; Wang, 2020) findings reveal that educators mainly hold multiple conceptions of assessment which responds to contextual and social notions to assessment in their broader work contexts. Results from previous studies synchronize with those found in my study regarding how TEs' sociocultural contexts (including the curriculum for assessment education, course titles approved by the Ministry of Education, national assessment policies and perspectives, societal values attached to assessment,

class sizes, etc.) may contribute to how they conceptualize assessment. Findings from my study also reflect how stakeholders in education (such as the perspectives of students, parents, senior colleagues, policy makers regarding assessment) exert strong influences on how assessment is conceptualized; thus, reminding us of Ercikan and Solano-Flores' claim that educators' conceptions of assessment can be "shaped by a country's social organization and culture, including its institutions, legislation, and structure of power" (2016, p. 491).

Teacher Educators' Assessment Practices

Extant literature suggests that implementing more formative assessment may assist to improve student learning as well as limiting the negative consequences of assessment on the educational system generally, as cautioned by Messick (1989). To ensure effective assessment knowledge for teacher candidates, that would assist their practices when they begin to teach, there is a need to introduce a progressive view of assessment and the modelling of formative assessment practices by TEs (Munroe et al., 2015). Again, a country may produce less competent teachers and continue to experience academic failure in K-12 schools if limited or no formative assessment practices are modelled in teacher education programs (Olatunji, 2017).

Notwithstanding, studies on classroom assessment practices need to consider the broader sociocultural influences on how assessment is orchestrated in classrooms (Koch, 2010; Xu & Brown, 2016). Hence, in this section, I first discuss TEs' assessment practices as revealed through the findings from this study and then I draw on the epistemological stance adopted in this study (sociocultural theory) to discuss influences that appear to differentiate and connect participants' assessment practices.

Analysis of the assessment practices of TEs in this study draw from Suurtamm and Arden's (2017) assessment practices framework and reveal practices of assessment for

summative and formative purposes, however, the extent of implementation of both assessment practices varies across the cases. This finding confirms the disparate levels of assessment practices reported in teacher education studies (Brookhart, 2017). Specifically, although three TEs' (Tracy, David, and Awwal) assessment practices includes both formative and summative purposes and practices, summative assessment practices appear to be more prominent in the array of assessment tasks and actions implemented in their courses. This finding synchronizes with the minimal formative assessment practices in teacher education programs as reported in previous empirical studies (e.g., DeLuca & Volante, 2016; El Ebyary, 2013; MacLellan, 2004).

For Hamzah and Alli, findings imply more formative purposes and practices of assessment than the results recorded in Tracy, David, and Awwal's cases. Although results illustrate mainly formative assessment practices in Hamzah and Alli's cases, Hamzah's case reflected formative assessment practices to a greater extent than Alli's case, given that there were more instances of assessment fulfilling summative purposes in Alli's course than as found in Hamzah's course. For instance, the major assessment tasks in Alli's course were implemented through tests and examinations where feedback was in the form of grades. Alli's case findings also highlight limited active student engagement in assessment processes, probably given the high student number (about 200) in his course when compared with Hamzah's (about 70 students). The few instances of summative assessment practices in Hamzah's case involve his implementing of assessment as a separate activity such as the mid-semester test and a final examination which were mandated in policy guidelines.

Findings from the cross-case analysis in this study reveal high numbers of students in TEs' classes and this factor appears as a main deterrent to their assessment practices. This finding connects with reports from other studies (e.g., Adeosun, 2014; Barnes et al., 2019;

Rawlusk, 2018) on how higher education instructors' assessment practices are impacted by high numbers of students enrolled in courses. In responding to one of their study's research questions, Rawlusk (2018) found that assessment strategies were implemented more when class sizes are lower in Canadian higher institutions. Between a threshold of 26 to 60 students, instructors are able to practice formative assessment more than when classes are larger than 60 students (Rawlusk, 2018). With large classes, as is the case in most Nigerian higher education, it is less likely that instructors will have the opportunity to effectively assess student learning (Adeosun, 2014; Barnes et al., 2019). It is important to note that instructor to student ratio as indicated in the BMAS is 1:30, yet, in this study, Hamzah is the TE with the least number of students in his class, which is still higher than the specified 1:30 ratio. TEs in this study reiterate the extent and type of feedback that is feasible given the high number of students in their courses. This further exemplifies contextual factors such as large class sizes acting as dictating the assessment practices that TEs are opportune to implement even if they would have liked to include more assessment tasks.

It is important to note that both formative and summative assessment practices are useful in the classroom (Suurtamm & Arden, 2017), however, the use of formative assessment practices and models in teacher education support teacher candidates' learning and their future approaches to assessment in teaching positions (DeLuca et al., 2021; Grainger & Ardie, 2014, Smith et al., 2014). Notably, this was not the objective of the mandatory assessment course in the Nigerian teacher education program which focusses on Tests and Measurement as stated in policy guidelines. Several studies show the centrality of formative assessment practices in teacher education as a means to develop teacher candidates' awareness of how assessment informs teaching and learning, as well as practical and sustained assessment knowledge (DeLuca et al.,

2021; Munroe et al., 2015; Smith et al., 2014). Although some participants (e.g., Tracy, David, and Awwal) certainly saw this as a valuable thing to do, they did not feel they could enact this in their course.

The differences and connections in assessment practices as found in this current study appear to draw from the social, contextual, cultural, and political notions of assessment in the Nigerian education system. For example, the national policies on assessment in Nigeria mandate the compulsory implementation of tests and a final examination at certain points in the semester across all higher education programs, including teacher education (BMAS, NUC, 2007). In following and obeying policy guidelines, all participants in this study implemented tests and a final examination at certain points in the semester. In addition, The NUC, through BMAS, mandates that the final grade of teacher candidates in a semester comprises of continuous assessment (between 30% and 40%) and final examination grades (between 60 and 70%). This dictates a heavy portion of teacher candidates' grades on the final examination, leaving TEs with minimal opportunities to implement several assessment tasks prior to the final examination. This finding adds to the political pressures experienced by teachers through policies on assessment (Suurtamm & Koch, 2014) and the high-stakes assessment priorities and policies (El Ebyary, 2013) acting as influences on educators' assessment practices. The findings presented in this paragraph also connect with empirical reports stemming from Nigerian researchers that assessment is often one-shot, less formative, and executed mainly at the end of the semester (Osokoya, 2012) and that assessment is usually implemented for summative purposes (Anyanwu & Iwuamadi, 2015; Olutola & Olatoye, 2020). Similar connections to results from my study were noticed in Adodo's (2013) study who argued that assessment policies may not translate to

actionable practices in Nigerian classrooms nor provide opportunities for bottom-up policy development approaches.

Although the BMAS mentioned that TEs could implement other assessment tasks, analysis of the Nigerian policy documents on assessment strategies suggests minimal assessment for and as learning and limited student-centered assessments in teacher education programs. In addition, the high-stakes and teacher centered assessment focus exhibited through the Nigerian assessment policy documents appear to be reflected in how TEs taught the compulsory assessment course. This is noticed in how participants mostly taught test development and design, validating test quality and statistics for analyzing students' scores for criterion referencing. Thus, the objective of the compulsory assessment course indicated in policy documents as Tests and Measurement appear to dictate the content taught by the TEs and how they implemented assessment tasks. In addition, the dominant assessment practice (testing) in Nigerian K-12 schools appears to also dictate the content taught by the TEs even though Nigerian researchers continuously advocated for formative assessment practices in K-12 schools as a way to improve the decline in education being experienced across the country.

In an earlier study, Stutchbury (2014) warns that teacher education in Africa is hardly student-centered and can propagate oppressive and autocratic models of learning. Similarly, the policy views to assessment which influences TEs' assessment practices as revealed in my study connects with Asim and colleagues' findings reporting on the inadequacies in preparing teacher candidates' competence to develop multiple-choice tests. Although Asim and colleagues only reported findings related to influences on teacher candidates' efficacy to develop tests, the influences documented in their study connects with those found in my study among TEs. These authors argue that inadequate teacher preparation draw from TEs' limited opportunity and

autonomy to influence their professional practices, including complexities related to assessing large classes, as well as the popularity of teaching test development (indicated through policies) as having negative effects on the quality of teacher education in Nigeria. Again, national policies on assessment may be misconceived in classrooms, especially when such policies do not translate to actionable practices nor provide opportunities for bottom-up approaches to policy developments (Adodo, 2013).

Other contextual factors such as large class sizes, limited resources for online assessments, minimal opportunities for professional advancement, and short semester durations emerged in my study as influences on TEs' assessment practices. This finding echoes the concerns raised by Barnes and colleagues (2019) and Olatunji (2017) who reiterated the need for reforms in Nigerian teacher education programs, especially on assessment implementation, so as to improve teacher candidates' learning and their future classroom practices. Jekayinfa et al., (2012), as well as Anyanwu and Iwuamadi (2015) reported low competencies in assessment among Nigerian educators due to limited opportunities for professional development, high educator-student ratio, and compressed program durations that tend to limit the time for educators to implement formative assessment. It is however surprising that the Nigerian Teacher Education Policy [NTEP] documented the above issues upon researching situations of learning in teacher education classrooms in Nigeria. Yet, drawing from recent reports on education in Nigeria, no reform efforts are underway to curtail these issues in Nigerian teacher education. This lack of interest in education suggests the value that Nigerian educational stakeholders place on education and on teacher candidates' learning.

Another important finding illustrated in this study suggests differences in assessment practices across teacher education programs. Although participants in this study taught the same

compulsory assessment course in their teacher education programs, their instructional and assessment practices differed along the lines of the university where they work. Similar findings were reported in a study on assessment specific courses in 180 teacher education programs across the US (Greenberg & Walsh, 2012). These authors reported that the majority of the assessment courses modelled traditional assessment methods to teacher candidates, while only 3% of the programs prepared teacher candidates in terms of sound assessment practices. Although Greenberg and Walsh's study did not report on what may have influenced the reported differences, especially based on institution types, my study showcases that TEs in the private university practiced more formative assessment than other participants in the federal and state universities. This finding is informed by Hamzah's and Alli's mention about the '*uniqueness of private institutions*' in Nigeria. Notably, these two TEs indicated a strong professional advancement support from their institutions and mentioned parental role in university policy decisions due to the high tuition paid by parents, indicating institution's and parents' interest in the practices of the TEs. Hence, TEs in private universities appear to have an added responsibility to implement sound practices because they are more liable to account for practices than those in state and federal universities. For example, Hamzah and Alli stated their satisfaction regarding institutional support for educators' practices and professional advancement. Hence, the saying that 'to whom much is given, much is expected' play out in these TEs' assessment practices. That is, their institution's support for professional advancement means that they would possess the pedagogical knowledge which may translate to enactment of sound practices. This finding reminds us of Okoro's (2019) mention that at all levels of education in Nigeria, educators in private institutions are more likely to engage in sound

practices than those in public schools because of institutional and parental accountability reasons.

TEs' assessment practices were likely influenced by the sudden move to virtual teaching as Panadero et al. (2022) reminds us that assessment pedagogy may unfold in unique ways when teaching in an online environment. Although some TEs were grateful that they could assess students online which made their marking faster and easier to communicate grades to students, all TEs reported experiencing changes in their assessment practices because of the shift to online teaching as a result of COVID-19. For example, there were instances of student absences due to the limited and unstable internet facilities in Nigeria and low student engagement in lessons due to students' rationing of internet resources which affected TEs' ability to practice sustained assessment practices. Other issues related to limited TEs' and students' technological skills which often affected opportunities to practice assessments such as online self and peer assessment, and e-portfolios. Another factor is that the course syllabus was developed for in-person teaching and a syllabus for online learning would typically be quite different. This finding resonates with Panadero et al.'s (2022) report that instructors who move to online teaching may experience differences in practice while enacting formative and summative assessment in online settings. This may be due to limited professional development training regarding adapting to emerging and new teaching situations, as well as limited institutional resources to support online teaching and assessment practices. Lack of instructors' knowledge in e-assessment and other technological features required for online assessment may be responsible for changes in instructors' assessment practices (Sharadgah & Sa'di, 2020).

Connections Between TEs' Conceptions and Practices of Assessment

The importance of considering the nature of the connection between educators' conceptions and practices of assessment has long been established in the literature (Monteiro et al., 2021). For example, to deeply understand educators' assessment practices, there is a need to pay close attention to their conceptualizations of assessment (Brown & Gao, 2015; Cowie & Cooper, 2017; Monteiro et al., 2021), which in most cases, reflects a complex relationship, especially when multiple conceptions of assessment are involved, and drawing on contextual perspectives to assessment (Brown et al., 2019; Monteiro et al., 2021).

Findings from this study indicate that TEs each hold multiple conceptions of assessment which connects with their differing assessment practices, and this is reflected across the cases in a consistent pattern. For example, TEs' accountability conceptions appear to connect with how they practiced assessment mainly for summative purposes such as the implementation of tests and a final examination that accounts for a major part of students' final grades and implementing teacher-centered assessment practices. Again, TEs' conceptions of assessment as improvement of teaching and learning connect with several instances of practicing assessment for the purpose of adapting teaching and for supporting student learning. Related findings were reported by Elshawa (2016) detailing how TEs who held a process-oriented conception of assessment implemented formative assessment; the reverse was the case for TEs reporting a product orientation to assessment. Notwithstanding, Elshawa's study did not document the complexity in the nature of the connections between conceptions and assessment practices as my study has shown that the connection between these two concepts is not linear but multifaceted.

Another finding from this study indicates that at times, conceptions may not completely align with practices as shown in all the TEs' cases. For example, Tracy, David, and Awwal who

held improvement of teaching and student learning conceptions practiced limited formative assessment in their courses. This finding from my study appears to connect with reports showcasing a disconnect between Malaysian TEs' conceptions and assessment practices (Mustafa & Manaf, 2019), but the departure is evident in the lack of report on the factors relating to the 'disconnect'. While TEs' conceptions in Mustafa and Manaf's (2019) study appeared to support student learning, they practiced assessment mainly for accountability purposes. However, the study lacked sufficient data for an in-depth understanding of the disconnect between the two concepts examined. The significant 'disconnect' between conceptions and practices touch on Gebril and Brown's (2014) study noting that the social and cultural perspectives to assessment in educators' educational contexts may be responsible for their assessment practices, irrespective of the conceptions espoused by such educators. Also, findings from my study connect with those from (Anyanwu & Iwuamadi, 2015; Barnes et al., 2019; Jekayinfa et al., 2012; Rawlusk, 2018) regarding how large classes exert strong influences on the nature of the connection between conceptions and assessment practices.

Further on how TEs' conception of assessment may not align with their assessment practices, an interesting finding, and an area of departure from literature suggest another form of 'disconnect' between educator's holding improvement conceptions and their implementation of more summative assessment as seen in Tracy, David, and Awwal's cases is noticed in Alli's case. For example, Alli's conception of assessment as improvement of teaching and student learning and how he repeatedly shared his beliefs regarding assessment being useful for developing students learning and for adapting teaching does not appear to connect with his practices of assessment that indicates less student engagement in assessment processes and grades acting as the major assessment task feedback. Another interesting 'misalignment' is

observed in Hamzah's case. Hamzah's conception of assessment as student accountability appears to not align with how he fosters deep learning, provides feedback, dialogue with students, and practices other improvement of learning opportunities for his student. This 'misalignment' finding suggest the complexity involved in and the significant impact of educators' context on the nature of the connection between their conceptions and assessment practices. Mainly, the number of students taught by TEs in this study and availability of resources and support for online assessment appear to influence the 'disconnection' finding.

Complexities in the nature of the connection between participants' conceptions and assessment practices also reflect through the strong influences that broader sociocultural perspectives to assessment exert on TEs' conceptions and practices of assessment in my study. For example, the nature of the connection between participants' conceptions and assessment practices as detailed above appear to also occur based on institutional and national values and support for assessment practices, such as national policies on assessment, and institutional provision of professional development opportunities. This finding adds to the body of literature (e. g., Barnes et al., 2015; Brown, 2021; Munroe et al., 2015; Opre, 2015; Poth, 2013) suggesting institutional policies and values on assessment, collegial support and culture, pedagogical barriers, and professional development opportunities account for the nature of the relationships observed between educators' conceptions and practices of assessment.

Influences on TEs' Conceptions and Assessment Practices

Drawing on substantial evidence suggesting that research on classroom assessment practices and conceptions should not be detached from examining the underlying social, cultural, and contextual influences on educators' decisions and actions (Brown et al., 2019; Pastore & Andrade, 2019; Xu & Brown, 2016), this section discusses findings from my research connecting

with those espoused in previous studies in this area of research. Majorly, all TEs in this study articulate micro and meso-level constraints and support as shaping their conceptions and practices of assessment as analyzed through the three-level influencing factors model in Fulmer et al. (2015). It is important to note that my study does not view influences mainly as the challenges that educators face, rather, influences also include supporting factors that assist educators in their conceptualization and practices of assessment.

Specifically, TEs in this study reported support and constraints covering micro and meso levels, however, two TEs (Tracy and David) did not describe influences in terms of support but as constraints which perhaps is not surprising given that they were tasked with teaching about 600 students in their courses. These same TEs reported impacts on their conceptions while the other three TEs stated clearly that nothing influences their conceptions of assessment. Findings regarding impacts on Tracy's and David's conceptions suggests the extent to which constraints can wear down conceptions. Similar findings relating to challenges impacting conceptions and assessment practices have been reported in previous studies (e.g., Bearman et al., 2017; Rohrbacher, 2015; Wu & Jessop) where constraints matched those mentioned by participants in my study. For example, constraints to conceptions and assessment practices in this current study at the micro and meso levels include, large class sizes, negative students' views on assessment, limited classroom assessment resources and facilities for students' and TEs' use, low staffing, impractical institutional policies on assessment, limited support for assessment practices (especially online assessment), lack of collegial support and difference in views about assessment, limited funding opportunities for professional advancement, and parental intrusion on educators' assessment practices.

TEs' prior familiarity with online teaching context tools was another factor that influenced their assessment practices. Findings revealed that TEs' with limited technological experience in online contexts found the sudden transition to online teaching platforms challenging. This finding reiterates Sharadgah and Sa'di's (2020) mention that instructors' previous familiarity with online teaching tools will influence their practices given the unexpected transition to online learning platforms. Although results emanating from this current study revealed the influence of prior experience in online teaching tool on TEs' practices, which showed that TEs who were familiar with online teaching tools were able to practice more assessment tasks, they experienced limited ability to fully demonstrate their skills due to the high student enrolment in their courses. Similar findings were reported among university instructors in a Pacific Northwest university with high-enrolment online courses (Lowenthal et al., 2019). These authors found challenges related to lack of time for instructors to engage students in various assessment tasks and the limited opportunities to provide useful and timely feedback to the high numbers of students in their online courses. Instructors' prior experience with online teaching tools did not influence their assessment practices as much as effects of the large class sizes (Lowenthal et al., 2019).

Again, although there are very few studies on educators' conceptions of assessment in the Nigerian research space, existing research confirms the constraints mentioned by participants in this study. Examples of constraints to assessment practices reported among Nigerian educators include high educator-student ratio, unethical assessment practices among educators, limited understanding of the useful purposes of assessment (Ogidi & Udechukwu, 2020; Olutola & Olatoye, 2020). Other factors are differences in educators' conceptualizations of teaching, limited pedagogical content knowledge in teaching subjects as well as in assessment processes,

inadequate resources to facilitate sound teaching and assessment, administrative barriers such as admitting unqualified students into teacher education programs, and lack of professional development opportunities for educators' knowledge advancement and international collaborations (Barnes et al., 2019; Olatunji, 2017).

TEs in this study also highlighted several affordances that assisted their assessment practices. It is important to note how some of the supports articulated by participants also appear as constraints to TEs' assessment practices, but mainly at the meso-level. For example, three TEs mention institutional and collegial support for assessment, funding for professional development, as well as facilities such as a good library that assist to further their learning about classroom assessment practices. Studies from Rohrbacher (2015) and Bearman et al (2017) also reiterate this finding regarding affordances influencing educators' assessment practices. These authors reported institutional and collegial support and available facilities as impacting higher education educators' assessment practices.

CHAPTER 7: CONCLUSION

This chapter begins with a general summary of the study. Then, I discuss the contributions of the study to research, implications for professional development, implications for practice, significance of the research, and limitations to this study. This chapter concludes with some final thoughts regarding lessons learned and my future goals given the findings from this study.

Summary of the Study

This qualitative case study aimed at better understanding the patterns of and influences on conceptions of assessment and assessment practices among Nigerian TEs teaching a specific assessment course in a teacher education program. The study addressed the following research questions:

1. What are the assessment conceptions and practices of the five Nigerian TEs?
2. What is the nature of the connection between the five TEs' conceptions of assessment and their assessment practices?
3. What do the five TEs perceive as opportunities and constraints influencing their conceptions of assessment and their assessment practices in the context of Nigerian teacher education?

In this study, I assume a sociocultural perspective to classroom assessment practices which considers assessment as a social practice (Koch, 2010; Vygotsky, 1978) deeply informed by contextual, social, and cultural factors (Gipps, 1999; Shepard, 2000). Participants in this study were from three types of universities in Nigeria (2 federal, 1 state, and 2 private). This multiple case study involved five TEs and data for each case, collected over a semester, included three classroom observations (virtual lessons) for each TE, two interview sessions with each instructor, assessment artifacts, and course syllabi. Analysis of these four data sources commenced with a

document analysis of the Nigerian teacher education policy documents. I relied on three conceptual frameworks: conceptions of assessment dimensions (Wang, 2020); assessment practices strategies (Suurtamm & Arden, 2017); and factors shaping educators' conceptions and assessment practices (Fulmer et al., 2015). These frameworks informed the development of initial codes and organization of data into sub-categories and categories.

In response to my first research question, I argue that TEs conceptualize assessment in multiple forms covering Wang's five dimensions of conceptions of assessment in teacher education. The conceptions of assessment expressed by participants in this study broadly align with improvement and accountability conceptions. The multiple forms of conceptions found in this study co-existed in interesting ways. For example, each TE held an improvement and at least an accountability conception. While all TEs expressed improvement of teaching and learning conceptions, accountability conceptions of assessment dimensions held by TEs varied across the cases. Some TEs (e.g., Tracy, Alli, and Awwal) espoused student accountability conception of assessment in addition to improvement conceptions. Other TEs like Hamzah held improvement conceptions, student accountability, and educator's accountability to external stakeholders' conceptions. David also held improvement conceptions and educator's accountability to institutions conceptions.

In response to the second part of the first research question, I maintain that the five TEs practiced assessment for summative and formative purposes, however, major differences were evident in the extent that they engaged in formative assessment such as embedding assessment within instruction, engaging students in the assessment process, providing meaningful learning through assessment, and seeking evidence of student learning through multiple sources. While three TEs practiced assessment primarily for summative purposes, two TEs included more

formative assessment practices in their courses. Whereas there is strong evidence that specific assessment courses assist to develop early career teachers' confidence and skills (Brown, 2021; Greenberg & Walsh, 2012), a single assessment course may not result in significant changes in teacher candidates' conceptual and practical knowledge (MacLellan, 2004; Volante & Fazio, 2007; Xu & Brown, 2016). At the same time, a single assessment course may limit teacher candidates' engagement in and introduction to in-depth learning about the complex connections between teaching, learning, and assessment (DeLuca & Bellara, 2013). This has been shown to be particularly true if that course focuses more on tests and measurement than on the broad range of classroom assessment practices teachers need to understand and enact. Notwithstanding research indicating that a single assessment course is incapable of providing teacher candidates with the requisite assessment education to assist their professional practice, this current study argues that carefully designing an assessment course to align with professional standards and ensuring that robust assessment pedagogies are introduced to teacher candidates could result in improved practices among early career teachers in Nigeria. In addition, providing excellent training opportunities to advance TEs' professional assessment practice could prompt improved educational changes across all education levels in Nigeria.

In response to my second research question, I confirm a connection as well as a 'disconnect' between conceptions of assessment and assessment practices across the five cases. First, the nature of the connection between TEs' conceptions of assessment and assessment practices exists in a coherent and consistent pattern. For example, TEs articulated accountability conceptions (student accountability, educator's accountability to institutions, educator's accountability to external stakeholders) and practiced assessment for summative purposes. Also, TEs' conception of assessment as improvement of teaching and learning were reflected in their

practicing of assessment for the purpose of adapting teaching and supporting student learning. Again, an interesting finding is noticed across TEs' cases revealing a disconnect between how they conceptualize assessment and their assessment practices. For instance, some TEs expressed improvement of teaching and student learning conceptions but practiced more summative assessment in their courses. Others held student accountability conceptions and practiced summative assessment. These findings appear to draw from contextual and cultural factors impacting TEs' conceptions of assessment and assessment practices relationship.

The response to my third research question highlights micro and meso-level factors impacting TEs' conceptions and assessment practices. Mainly, the high number of students in the assessment courses taught by participants stood out as a major constraint to their assessment practices. Institutional support for assessment practices such as available facilities and resources, funding for professional development, as well as collegial support and views to assessment were common affordances and constraints to the TEs' conceptions and assessment practices. Finally, I argue through this thesis that while the type of institution where TEs work did not influence their conceptions of assessment, it did impact their assessment practices and the types of constraints and supports stated by the participants. Findings also provide evidence suggesting that enacting online assessment pedagogy may be different for educators who transition to virtual settings.

Contributions of the Study

This study contributes to the very limited body of literature by unpacking the intersection of conceptions of assessment and assessment practices of TEs in teacher education programs across Nigeria. In particular, the Nigerian research space has just begun to examine conceptions of assessment, with the only existing study in this area of research having investigated teachers' conceptions of assessment at the basic education level. Hence, results from my study add to the

body of literature regarding accounts of how assessment is orchestrated in Nigerian teacher education programs. Results from this study specifically contribute to broader discussions around conceptions and assessment practices in terms of 1) the adoption of an interpretive methodological approach to generate a detailed description of the cases, and 2) providing a voice for the Nigerian TEs regarding their experiences while teaching and assessing the only compulsory assessment course in teacher education programs. This voice also entails a clear understanding of the thoughts and rationale informing participants' actions and decisions regarding assessment education. Other contributions of this study include 3) an explicit outline detailing the complex interactions among conceptions, assessment practices, and influencing factors informed by sociocultural perspectives to assessment as obtained in the research context, 4) revealing the extent of TEs' autonomy regarding assessment implementation in teacher education classrooms drawing from institutional policies and external educational stakeholders, and 5) documenting and unpacking the needs for designing effective professional learning modalities that suit the situation of the Nigerian education system.

A contribution of the study concerns the adoption of an interpretive methodological approach informed by a detailed description of the research setting and the participants involved in the research, an in-depth narrative of TEs' negotiation of their conceptions about assessment, as well as how they implement assessment in the context of their workplaces. The interpretive approach adopted in this study also allowed for a thorough description of the contextual, social, and cultural influences shaping TEs' conceptions and assessment practices. The in-depth depictions afforded by the methodological approach portrayed the contextually, socially, and culturally mediated experiences as established in the TEs' classrooms and shaped by the limitations, perspectives, and policies within and outside the classroom setting. Hence, the

methodological approach permitted a holistic understanding of TEs' conceptions, assessment practices, and the nature of the connection between, as well as factors mediating these two concepts in Nigerian teacher education programs.

Another contribution of this study involves providing voice for the Nigerian TEs regarding the meanings they attach to assessment. These meanings connect to how they implement assessment and their overall experiences while teaching and assessing their courses. This study provided an opportunity to understand and discover the actual situations in terms of how and why assessment is practiced by the TEs, including the constraints and affordances impacting their practices. For example, through this study, TEs' conceptualizations of what assessment means, what they do in terms of assessing student learning, and how they feel supported and constrained in their practices were clearly and individually described using their actual words, the artifacts that they use, and by observing them in online classroom settings. In particular, findings brought forth the different degrees that TEs implemented formative and summative assessment given the different sociocultural mediating factors existing where they work. This is a key contribution especially given the integration of multiple data sources to bring forth TEs' narratives and voices.

Likewise, this study's contribution entails a succinct, yet explicit outline describing the complex interactions among conceptions, assessment practices, and the sociocultural factors influencing both concepts in the context of Nigerian teacher education. There is strong research evidence signifying a dearth of empirical studies detailing Nigerian educators' conceptualizations of assessment and the intricacies embedded in the interaction between conceptions and assessment practices. Thus, through my thesis, I clearly outline and present in-depth findings describing the complex interactions between Nigerian TEs' conceptions of

assessment and their assessment implementation, as well as influencing factors shaping their conceptions and assessment practices. For example, two (micro and meso) out of the three (micro, meso, and macro) levels of influences to conceptions and assessment practices as reported by Fulmer and colleagues (2015) were reported by the Nigerian TEs. However, upon analyzing the Nigerian teacher education policy documents, and interacting with the TEs to understand their assessment practices, nationally imposed guidelines appear as also determining TEs' assessment practices. In particular, all TEs in this study implemented tests and a final examination at specific points in the semester drawing from assessment mandates in the National policy guidelines on assessment.

Relatedly, this study also presents the extent of TEs' autonomy regarding assessment implementation in teacher education classrooms drawing from institutional policies and external stakeholders. In the case of the TEs in this study, there was clear evidence detailing the differences in assessment practices based on the type of university where participants worked. For example, TEs in the federal university mentioned institutional policies and practices in the form of short semester duration, high educator-student ratio, as well as limited facilities and resources as influencing factors on their assessment practices which are beyond their control and limits what they are able to do in terms of assessment. And the requirement in some cases to have examination items approved by the institution or to follow the practices of more senior instructors. For TEs in the private university, their major lack of autonomy comes from institutional policy and practices on admissions and assessment of students with the aim to attract more customers (students) and parental intrusions on how assessment is practiced. The TE from a state university however did not mention institutional policy or practices nor parental influences as acting to relegate his assessment practice autonomy.

Another key contribution of this study is unpacking the practical and essential needs of Nigerian TEs regarding the design of professional development approaches that may suit their peculiar needs for improved assessment pedagogies. Understanding TEs' conceptions of assessment in this study revealed the crucial areas to direct future professional development programs which extends Deneen and Brown's (2016) recommendation that professional development directed at enhancing educators' classroom assessment practices needs to consider first, their conceptions of assessment. As found in this study, some TEs expressed conceptions which appear to be subdued by contextual realities, and institutional policies and views on assessment. This implies a need to meet each TE where they are at in their conceptual levels regarding assessment. Hence, identifying the peculiar needs to advance assessment pedagogies for Nigerian TEs through an understanding of their conceptualizations of assessment is the starting point towards improved professional growth and classroom decisions that supports student learning.

Implications for Professional Development

Results from this study suggest the necessity to ponder how multi-dimensional, multi-level, and multi-layered phenomena, conceptions and assessment practices research can be. The outcomes of this research have shown that the TEs conceptualize assessment along various dimensions, as well as implemented formative and summative assessment in varying degrees, which were commonly shaped by the sociocultural factors existing in their contexts. Indeed, most of the sociocultural factors influencing the conceptions espoused and the assessment practices implemented by the TEs are beyond their control drawing from available evidence. Notwithstanding, there may be opportunities to advance learning through collaborative efforts among TEs. Specifically, TEs mention the need for more opportunities to attend professional

development programs where they can further interact with colleagues to expand their assessment literacy and approaches. In situations where there may be administrative and funding issues for continuous, targeted, and result-oriented professional development, collaborative and interactive professional learning communities have been suggested for educators (DeLuca et al., 2018; Suurtamm & Koch, 2014). Hence, regarding professional development for TEs, it would appear necessary to come to a greater appreciation of the variety of learning possibilities available through team-based, collaboratively designed professional learning programs. Such programs should embed targeted and self-regulated learning goals within a collaborative community of educators where discussions mainly are focused on practical and innovative classroom assessment strategies.

Relatedly, results from this study indicate the need to re-design the few available professional development programs in Nigeria to be more frequent and focused on classroom assessment. Extant research reports on the one-shot and generally-focused strategy adopted by facilitators and developers of professional development programs in Nigeria. At the same time, studies in the area of professional development designs invalidate occasional and broad learning strategies for educators (Kennedy, 2014; Marzano, 2011; Volante & Beckett, 2011; Wiliam & Leahy, 2015), rather, there is the need to specifically focus professional development on the educators' choices, based on their least proficient areas of classroom assessment, as well as on sustained and repeatedly interactive professional learning designs. There is also a need for specific professional development opportunities that focus on ways to provide formative feedback and ensure assessment supports learning in settings with large class sizes as well as how to ensure assessment supports learning in online settings.

Implications for Policy Development

Findings from this study suggest the urgent need for policy reviews in the Nigerian education system, especially around classroom assessment. Setting innovative purposes and clear guidelines for assessment would assist TEs in implementing assessment for the purpose of student learning which is the ultimate goal for assessment. As is in the existing policy documents where grades appear as more emphasized than approaches to deeply understand student learning, TEs tend to practice assessment based on national and institutional policy guidelines and perspectives. Curriculum for the compulsory assessment course in Nigeria teacher education needs to be refined starting with the common title of the course (Tests and Measurement) to avail a course content geared towards teaching the required knowledge needed by teacher candidates in their future careers. There is strong research evidence suggesting that the preparation of prospective teachers regarding the assessment course that they take while in teacher education may impact their practices when they begin their teaching careers (Olatunji, 2017; Volante & Beckett, 2011). Thus, to avoid recycling failed pedagogical acts and decisions, teacher candidates' depth and breadth of knowledge about assessment should become a top priority. This may be a very good starting point towards reviving the dwindling Nigerian education system by introducing and modelling innovative assessment practices to teacher candidates.

As the compulsory assessment course is a stand-alone assessment course which researchers (e.g., Brown, 2021) emphasize as an important way to improve teacher candidates' assessment literacy in teacher education and in future careers, "new approaches to assessment in teacher education are needed to achieve impact. The current model of a course on assessment may simply not present sufficient time to precipitate this impact. A sustained program-level engagement with assessment may be needed" (Deneen & Brown, 2016, p. 12). Hence, the

current model of a compulsory assessment course in Nigerian teacher education programs may not guarantee positive changes in teacher candidates' assessment literacy, thus the need for additional compulsory assessment courses and/or the content of the course needs to be revised. However, if the current single stand-alone model will continue to be implemented in Nigerian teacher education programs, adopting Fink's (2013) slow and significant learning experience taxonomy (DeLuca et al., 2021) would be a very beneficial approach given confirmed reports on the success of the framework. According to Fink, significant learning experiences continue to impact the learner beyond the course, outside of their classrooms, and extends into their "personal, professional, social or civic life" (2013, p. 72) in the long term. DeLuca and colleagues (2021) adopted Fink's slow and significant learning experience taxonomy to examine pedagogies that provoked slow and significant learning in assessment education at a Canadian teacher education program. These authors reported findings indicating that "purposeful, structured reflection over time using empirically validated tools within an extended, in-depth course" reinforced teacher candidates' learning experiences in the area of classroom assessment (DeLuca et al., 2021, p. 11).

Another area that demands the intervention of policy makers is providing TEs with sustained and funded professional learning opportunities where they can advance their pedagogical skills. Given reports from Nigerian studies and those found in this current study, educators at all levels in Nigeria are not properly trained to effectively perform their professional roles. Hence, intentional efforts towards improving educators' practices at all education levels should be a priority for the educational policy makers. In addition, since the government and institutions are majorly in charge of providing useful facilities and resources, findings from this study suggest the need for updated facilities and resources required to effectively implement

assessment in Nigerian teacher education programs. Facilities and resources may include providing (1) new technologies for educators' use, (2) functional study spaces for students' use with useful facilities to enhance learning and to access assessment tasks, (3) uninterrupted power supply, and (4) internet access for educators and students. Other resources include recruiting additional and qualified TEs to reduce the high student-educator ratio and ensuring that experts in particular fields such as classroom assessment teaches the only compulsory assessment course in teacher education.

Significance of the Research

This study contributes to the extant body of assessment literature in teacher education in several ways. First, it provides detailed insights into TEs' conceptions and practices of assessment in the context of Nigerian teacher education programs, given the dearth of studies focused in this area of research. Specifically, this study offers an in-depth understanding of how assessment is practiced with teacher candidates. This understanding is vital since several studies suggest that teacher candidates develop their conceptions of assessment as well as their assessment pedagogies from how they experience assessment while in teacher education programs.

Second, there is compelling research evidence suggesting that new teachers possess limited assessment education required to effectively make assessment and instructional decisions when they begin their teaching careers. The situation is more complex from studies emanating from Nigeria that suggest low levels of assessment pedagogies among Nigerian teachers (especially newly recruited teachers). Hence, due to the connection between TEs' assessment practices and future teachers' assessment pedagogies, this study also contributes to existing literature but focused on a context yet to be explored regarding the researchers' understanding

between assessment practices in Nigerian teacher education and beginning teachers' assessment literacy levels. This contribution is important for future efforts geared towards assisting in the development of assessment literacy among K-12 teachers in Nigeria.

Third, since most studies on conceptions and practices of assessment do not focus on understanding the factors influencing TEs' conceptions and practices of assessment, results from this study will contribute to assessment literature by detailing and discussing those factors that present as opportunities and constraints to TEs' practices and conceptions of assessment. Perhaps, when mediators such as facilitators of and impediments to TEs' conceptualizations and assessment practices are identified, the potential benefits of assessment that improves teaching and learning can be enacted and maximized.

Lastly, given that very few educators have access to professional development opportunities in Nigeria, results from this study are planned to form the basis for the design of educators' professional learning communities with a focus to enhance teaching, learning, and assessment in Nigeria. Specifically, findings from this study aim to assist in the design of professional learning opportunities among newly recruited K-12 teachers regarding the implementation of classroom assessment strategies that can support student learning. Similarly, this study intends to provoke a collaborative culture of learning among TEs as well as an extension of collaborations to K-12 teachers. Thus, TEs will begin to engage in communities of practice to discuss better ways of teaching assessment courses in teacher education and engage K-12 teachers in collaborative discussions to advance innovative classroom assessment practices that can move learning forward in the Nigerian education system.

Limitations of the Research

In conducting this study and through my appraisal of the literature, it is relevant to state that most if not all studies, regardless of efficiency in the adoption of methodological approaches as well as utilization of the research design, have limitations. Thus, as is with all research endeavours, this study also has its limitations which include the downsides of collecting data mainly through online platforms, observing TEs' assessment practices in an online classroom, the compulsory assessment course being a *Tests and Measurement* course, location (within only a single state in Nigeria) of participants' universities in this study, and the opportunity for TEs to clearly articulate their conceptions in two interviews.

Data collection in this study did not follow a traditional face-to-face pattern due to the pandemic that shut down travel and in-person contact possibilities; hence, I experienced some internet downtime with participants during the data collection period. For example, given the unstable internet connections experienced in Nigeria, during interview sessions, there were several disruptions to participant's internet connections which were frustrating because they broke our line of discussion. However, I ensured to repeat the question or took the participant back to where our discussion was interrupted. During classroom observations, the times when the participant TEs' internet got interrupted, we (myself and the students) were logged out of the Zoom session, and we had to re-connect when things got better. These disruptions may have implications on participants' responses during interviews and their actions during classroom observations.

Similarly, I noticed a limitation to the data collected through observing TEs' assessment practices in an online classroom. TEs were enacting online pedagogy and assessment strategies with limited time to hone their knowledge and skills because of the sudden change to virtual

teaching. Hence, I did not get a good look at how they enact moment-by-moment assessment as they teach because I attended remote classes which are notably different in terms of the opportunities for providing formative feedback or practicing broader formative assessments. This limitation could be a restriction to the transferability of the study. Another limitation in this research that could impact the transferability of the study is that the compulsory assessment course that participant TEs taught was not an assessment course per se, but a Tests and Measurement course. This fact may impact how TEs practiced assessment with teacher candidates.

Although this study initially focused on teacher education programs across North-western states in Nigeria, eventually, participants were from a single state in Nigeria (but covered the three university types). Since Nigeria has a very diverse cultural population, educational policies and ideals may draw from peculiar cultural perspectives to influence pedagogical practices. By expanding the research area to include more states covering the other five geo-political zones in Nigeria, more robust findings may be achievable. Such robust findings may illustrate possible impacts from peculiar social and cultural perspectives and policies acting as influences on TEs' conceptions and assessment practices. At the same time, a wide-ranging report could avail more generalizable findings that cut across a broader population.

Lastly, while some TEs were able to clearly articulate their beliefs regarding the purposes, descriptions, and the assessment education that they value within two interview periods, others appear to convey less information and articulate less clearly within the same periods. Hence, increasing the number of interviews could afford opportunities for more information gathering which may offer a clearer view into the conceptions of assessment of participants.

Lessons Learned and a Look into the Future

Through the conduct of this research, I have learned substantial lessons on classroom assessment in teacher education. Prior to beginning the study, I was curious to know the ‘what they do’ (practices) and the ‘how and why they did it’ (underpinnings of practices) of assessment practices in Nigeria teacher education programs given the incessant failures reported at all education levels in Nigeria. These failures were different for K-12 students and teacher candidates though. Among K-12 students, several studies and educational regulatory bodies reported sharp declines in students’ understanding of concepts across disciplines, with STEM being the most hit. I wondered what K-12 teachers were not doing right, but the literature pointed me towards the low-literate students being graduated from Nigerian teacher education programs as the main factor responsible for K-12 students’ knowledge and learning decline. As someone who is passionate about researching phenomena to understand the actual situation, especially through the main actors’ narratives, I sought to learn more about how assessment is practiced and modelled to teacher candidates. I also strongly believe that an individual’s actions (including practices) and decisions taken in the classroom draw from contextual, societal, and cultural values on classroom teaching, learning, and assessment, hence I adopted a sociocultural approach to analyze data and to report findings in this study. Given these personal ideals to research, upon concluding this study, I learned deeply about TEs’ conceptions and assessment practices which were multiple and diverse, as well as the underlying factors that relate how and why TEs conceptualize and practiced assessment the way they did. I learned that for the most part, what influenced how assessment is taught in Nigerian teacher education is more of a systemic matter than individualized concerns.

This study also availed me the opportunity to expand my scope on classroom assessment and conceptions literature, to learn about the works of relevant researchers in these fields, and how assessment is orchestrated in different classrooms and educational contexts. Also, I was able to gain in-depth and practical information on how TEs assess the way they do through the wonderful assistance of my participants—indeed, without their interest in my study, I would not have been able to complete this fascinating project. Ultimately, this research has improved my level of reasoning about research approaches suitable for conducting studies and in exploring research problems. The constructive feedback that I received from my thesis supervisor and committee members went a great length in shaping my focus towards what is essential to look for in aspects of research – particularly case study research.

These significant lessons learned in this study point me towards further research into Nigerian TEs' approaches to assessment. First, I intend to use the results from this study to inform the development of a professional development program to advance TEs' assessment practices. I plan to make this professional development program a collaborative project with TEs where several research findings can be published as TEs continue to negotiate shifts in their conceptions and assessment pedagogies. Also, I would like to extend my research framework from a contextual to a capacity paradigm (DeLuca et al., 2019). Capacity frameworks emphasize educators' learning and capacity building, "in which there is valuing of assessment and assessment learning as socio-culturally situated and linked to teachers' developing professional identities" (DeLuca et al., 2019, p. 16), hence, I plan to continue to explore educators' assessment literacy and approaches through this lens. In addition, because Nigerian TEs may have limited access and involvement in curriculum development and design processes, I intend to present a summary of findings from this study to the Federal Ministry of Education and the

National Universities Commission in Nigeria as a conversation beginner for revising the Nigerian teacher education curriculum on assessment education. Lastly, drawing from policy implications on educators' assessment pedagogies as found in this study, I intend to further research into the ways that teaching, learning, and assessment policies guide and suggest educators' classroom practices.

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Appendix A: ‘Invitation to Participate’ Letter to the Director of Teacher Education
For the attention of the Director, Teacher Education Program, {Institution Name}

I am a Ph.D. Candidate in the Studies in Teaching and Learning concentration, Faculty of Education, University of Ottawa, Canada. I am conducting research as part of the requirements for the completion of my Doctoral degree. The topic of my thesis is “Conceptions and Practices of Assessment: Case Studies of Nigerian TEs”. I am requesting your office to kindly assist to share the attached information sheet detailing useful information about my research with TEs who teach assessment courses in your teacher education program.

Participants in this study are five TEs who teach assessment course(s) (exclusively or with any other subject) and have taught the assessment course for at least two years in the Bachelor of Education program. It would be greatly appreciated if you could share the project information sheet (attached to this email) with TEs who teach assessment courses for ease of recruiting interested and qualified participants. I will be happy to consider your suggestions for more efficient ways to recruit potential participants.

The purpose of this qualitative study is to advance knowledge and add to the body of research regarding assessment practices in Nigerian teacher education programs. It also aims to provide insights into TEs’ conceptions and practices of assessment in Nigerian teacher education programs. Specifically, the research seeks to explore through a qualitative case study design, the underlying conceptions that TEs have regarding assessment, the assessment strategies that TEs enact, how their conceptions of assessment relate to assessment types they implement, and some opportunities and constraints that relate to how TEs conceptualize and practice assessment.

Data for this study will be collected through virtual interviews, virtual classroom observations, assessment samples, course syllabi, and assessment policy documents. TEs’ participation in this research is voluntary, and there will be no financial compensation to participants. However, by participating in the study, TEs may benefit from increased awareness about their personal conceptions regarding the assessment of teacher candidates. They may also benefit from participating in this study by reflecting on their conceptions of assessment is reflected in their teaching and assessment practices. On a broad scale, this research may assist in the design of appropriate professional learning opportunities that could help in the advancement of teaching and learning in Nigeria. It may also assist to provoke a collaborative culture of

learning among TEs (e.g., engaging in communities of practice to discuss better ways of teaching assessment courses in teacher education).

Confidentiality and anonymity of participants and the information they share, or about their institutions will be ensured following research ethics protocols of University of Ottawa (A copy of ethics approval for the study is attached). A summary of the results of this study will be made available to participants through their agreed means of communication at the end of the study.

For further information or enquiries on the study, kindly contact the principal researcher and her thesis supervisor through the contact information provided below.

Thank you so much for your time.

Sincerely,

Monsurat Omobola Raji

Principal Investigator

Prof. Christine Suurtamm (thesis supervisor)

Research Supervisor

Appendix B: Information Sheet

Project Title: Conceptions and Practices of Assessment: Case Studies of Nigerian TEs.

1. Invitation:

You are invited to take part in a study that is examining TEs' conceptions of assessment and practices of assessment in Nigerian teacher education programs. Specifically, the research would examine the underlying conceptions that TEs have regarding assessment, the assessment strategies that TEs enact, how their conceptions of assessment relate to assessment types they implement, as well as some opportunities and constraints that relate to how TEs conceptualize and practice assessment.

2. What is the purpose of the study?

This study aims to advance knowledge and add to the body of research regarding assessment practices in Nigerian teacher education programs. It also aims to provide insights into TEs' conceptions and practices of assessment in Nigerian teacher education programs.

Specifically, it will examine the following questions:

1. What are the assessment conceptions and practices of the five Nigerian TEs?
2. In what ways, if any, do the five Nigerian TEs' conceptions of assessment relate to their assessment practices?
3. What do the five TEs perceive as opportunities and constraints related to their conceptions of assessment and to their assessment practices in the context of Nigerian teacher education?

3. Why have I been asked to participate in this study?

This study requires the participation of five TEs that teach assessment course(s) in a Bachelor of Education program in Nigeria. It is intended that TEs who teach assessment courses will have adequate level of specificity in the teaching and assessment of teacher candidates. In addition, TEs who teach an assessment course in the Bachelor of Education program will provide in-depth narratives which will enhance the data required to explore the research problem. Your participation is voluntary and there is no consequence for declining this invitation.

4. What will I be asked to do?

This study requires two one-on-one, virtual interviews between you and the researcher at a quiet and private space through zoom or Microsoft teams (as most convenient to you). The interview

will be an unstructured process with the inclusion of prompts to facilitate discussions about your conceptions of assessment and the assessment strategies you implement in your course. Each interview will last approximately sixty minutes and it will be digitally audio-recorded with a handheld recording device. Digital sound files will be later transcribed. Virtual classroom observations, each lasting the period of a lesson (approximately) will be conducted at the beginning, middle, and towards the end of your course to observe any formal and informal classroom assessment strategies going on during your lessons. Virtual classroom observations will not be audio or video-recorded but will be noted into an anonymized journal specific to each TE and later analyzed by the researcher. Participants will also be asked to share (via email or liquid files) artifacts, that is, assessment samples they use in their assessment courses, the course syllabus, and any assessment policy documents available. Assessment samples are intended to further portray how individual TEs seek for evidence of learning and how such evidence is utilized. Secondly, sample assessment instruments may assist to prompt solid conversations regarding TE's assessment practices during interviews. Course syllabus is intended to provide information about the expectations of educational policymakers for teaching and learning in individual TE's working context. In addition, institutional policy documents on assessment in each TE's program will be useful to indicate any formal or informal institutional expectations on assessment. The total time that your participation will be required throughout the data collection and analysis in this study is thirteen hours. This includes time for providing artifacts, syllabus, and assessment policy documents, granting interviews, allowing classroom observations, and member checking of the data.

5. Are there any possible benefits from participating in this study?

Participation in this study is voluntary and there are no financial benefits to you from participating in this study. However, by participating in the study, TEs may benefit from increased awareness about their personal conceptions regarding the assessment of teacher candidates. They may also benefit from participating in this study by reflecting on their conceptions of assessment is reflected in their teaching and assessment practices. On a broad scale, this research may assist in the design of appropriate professional learning opportunities that could help in the advancement of teaching and learning in Nigeria. It may also assist to provoke a collaborative culture of learning among TEs (e.g., engaging in communities of practice to discuss better ways of teaching assessment courses in teacher education).

6. Are there any possible risks from participation in this study?

There are no foreseeable risks from participation in this study, but kindly inform the researcher of any concerns you may have, and these will be thoroughly addressed.

7. What if I change my mind during or after the study?

You are free to withdraw your consent to participate at any time during the data collection and analysis stages, and you can do so without providing an explanation, and with no consequences to you. If you decide to withdraw from this study, kindly communicate with the researcher through email and/or phone contacts provided on this form. Kindly note that you can no longer withdraw from this study after the results have been made public. All data relevant to your participation will be destroyed. Specifically, electronic files will be deleted from computer hard-drives and servers, and paper documented files will be securely shredded.

8. How will my confidentiality and anonymity be maintained?

Pseudonyms will be assigned to data collected from interviews, classroom observations, artifacts, and institutional documents to ensure the confidentiality and anonymity of individual participants in the publication or dissemination of any findings from this study. No detailed demographic or information that might be able to identify TEs or their teacher education programs will be used in the publication of results. Artifacts will be redacted to make them anonymous. The digitally voice recorded interview data will not be used in any presentation or disseminating materials. Electronic data will be password secured on the researcher's computer and all data will be accessible only to the researcher and the thesis supervisor. All hard copy data will be filed securely in a locked filing cabinet at the researcher's home office and in the thesis supervisor's office in the Faculty of Education, University of Ottawa. All files will be held securely for a maximum of 12 months following the publication of reports or articles resulting from data generation and then securely destroyed. Electronic files will be deleted from computer hard-drives, USB drives, and servers, and electronic recycle bins emptied. Hard copy documents will be securely shredded.

9. How will the results of this study be published?

Results of this research will be published in the form of a Doctoral thesis. Results will also be provided to all participants through an agreed means of communication at the end of the study. Results of the research will be published in relevant journals in the form of an academic article, and they may also be used for presentation at education conferences.

10. Who do I contact if I have questions about this study?

You may always approach me with any concerns you may have:

Monsurat Omobola Raji (principal investigator)

Otherwise, you can contact my thesis supervisor:

Prof. Christine Suurtamm (thesis supervisor):

This information sheet is for you to keep, whether or not you agree to participate in this research.

Do not hesitate to contact me should you have any questions about your participation in this research.

Kind regards,

Monsurat Omobola Raji

Appendix C: Informed Consent Form

Title of the Study: Conceptions and Practices of Assessment: Case Studies of Nigerian TEs.

Principal Investigator and contact information:

Monsurat Omobola Raji (principal investigator)

Faculty of Education, University of Ottawa

Research Supervisor and contact information:

Prof. Christine Suurtamm (thesis supervisor)

Faculty of Education, University of Ottawa

Invitation to Participate: I am invited to participate in this Doctoral thesis project conducted by Monsurat Omobola Raji (principal investigator) and Prof. Christine Suurtamm (thesis supervisor).

Purpose of the Study: The purpose of the study is to explore the conceptions of assessment and the assessment practices of five Nigerian TEs who teach assessment courses in Nigerian teacher education programs. It will also look at the connections between their conceptions and practices of assessment, and the opportunities and constraints they experience related to their conceptualization and practices of assessment, drawing from a qualitative case study approach. The objectives of this doctoral research are to (1) explore and understand TEs' views (conceptions) about classroom assessment, (2) observe examine the assessment strategies that Nigerian TEs enact in the assessment course that they teach to teacher candidates, (3) explore the nature of the connection between TEs' conceptions and practices of assessment, (4) explore the opportunities and constraints that TEs experience relative to assessment.

Participation: My participation will consist essentially of two virtual interviews, three virtual classroom observations, and providing assessment samples, course syllabus, and institutional documents on assessment that are available in my program. Specifically, I will participate as detailed below:

- Two one-on-one, virtual interviews between me and the researcher which will be conducted at a quiet and private space through Zoom or Microsoft teams (as most convenient to me). The interview will be an unstructured process with the inclusion of prompts to facilitate discussions about my conceptions of assessment and the assessment strategies that I implement in my course. Each interview will last approximately sixty minutes and it will be digitally audio-recorded with a handheld recording device.

- Three virtual classroom observations, each lasting the period of a lesson (approximately) will be conducted at the beginning, middle, and towards the end of my course to observe any formal and informal classroom assessment strategies going on during my lessons. I understand that the total time for the classroom observations is approximately nine hours, but that classroom observations will take place within my normal teaching schedule. Virtual classroom observations will not be audio or video-recorded but will be noted into an anonymized journal specific to me and later analyzed by the researcher.
- I will also be asked to share (via email or liquid files) assessment samples that I use in my assessment course, the course syllabus, and any assessment policy documents available in my program. The total time I require to share documents and assessment samples is approximately one hour.
- The total time that my participation will be required beyond my normal teaching routine and throughout the data collection and analysis in this study is four hours. This includes time for providing assessment samples, syllabus, and assessment policy documents, granting interviews, allowing classroom observations, and member checking of the data.

Risks: My participation in this study will entail that some personal information will be evident during the data collection process, but this will be kept confidential. I understand that there are no foreseeable risks attached to my participation in this study. I have received assurance from the researcher that every effort will be made to ensure the confidentiality and anonymity of my personal information and those of my program/institution in the publication or dissemination of any findings from this research. Pseudonyms will be assigned to all personal data collected and the actual names of my institutions and mine will not be mentioned in the thesis or any article published from the data collected for this study.

Benefits: My participation in this study is voluntary and I understand that there are no financial benefits to me from participating in this study. However, by participating in the study, I may benefit from an increased awareness about my personal conceptions regarding the assessment of teacher candidates. I may also benefit from participating in this study by reflecting on assessment and on my teaching and assessment practices. It may also give voice to my concerns regarding assessment challenges. On a broad scale (as mentioned by the researcher), this research may assist in the design of appropriate professional learning opportunities that could help in the advancement of teaching and learning in Nigeria. It may also assist to provoke a collaborative culture of learning

among TEs (e.g., engaging in communities of practice to discuss better ways of teaching assessment courses in teacher education).

Confidentiality and anonymity: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used only for the purpose of exploring how TEs conceptualize and practice assessment in Nigerian teacher education programs. I am aware that my confidentiality will be protected by not using the voice recorded interview data directly, rather, an interview transcript will be developed where textual quotes will be derived and included in any presentation or dissemination of this research. The quotes derived from transcripts and used in presentations or dissemination of the research will not identify me as a speaker. Information that I provide for the purpose of this research will be available to the principal researcher and her thesis supervisor only. In order to minimize the risk of security breaches and to help ensure my confidentiality it is recommend that I use standard safety measures such as signing out of my account, closing my browser and locking my screen or device when I am no longer using them / when I have completed the study. It is also recommended that I share documents with the researcher through secure file sharing platforms such as liquid files.

Anonymity: I understand that the anonymity of my personal information and those of my institution will be protected by assigning pseudonyms to the information I provide. I recognize that transcripts produced from the digital files (interviews) and the journal where observation notes are recorded will be anonymized and saved on a password-protected computer. Documents and assessment samples that I share will be redacted to become anonymous. I have received assurance from the researcher that every effort will be made to ensure the confidentiality and anonymity of my personal information and those of my program/institution in the publication or dissemination of the research findings. I am also aware that the actual names of my institutions and mine will not be mentioned in the thesis.

Conservation of data: The data collected for the purpose of this study will be kept in a secure manner. Specifically, all digital files shared by me will be saved to a password-protected computer and on the uOttawa One Drive and accessible only by the principal researcher and her thesis supervisor. I understand that all data collected will be filed securely in a locked filing cabinet in the researcher's home office and in the research supervisor's office at the Education building, University of Ottawa during data collection and analysis period. I am aware that all study files will

be held securely for a maximum of 60 months following the publication of reports or articles resulting from the data, and then securely destroyed. Electronic files will be deleted from computer hard-drives, USB Drives, and servers, and electronic recycle bins emptied. Hard copy documents will be shredded.

Compensation: I understand that my participation is voluntary and that there is no compensation of any kind to my participation in this study.

Voluntary Participation: I have received assurance from the researcher that I am under no obligation to participate in this study and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw from this study, I can communicate directly with the researcher through email and/or phone provided on the first page of this form. All relevant data gathered until the time of withdrawal of participation will be destroyed. Specifically, electronic files will be deleted from computer hard-drives and servers, and paper documented files will be securely shredded. I understand that I can still withdraw from this study after the results have been published. In this case, my data will be securely destroyed and not used in other research projects.

Acceptance: I, agree to participate in the above research study conducted by Monsurat Omobola Raji of the Studies in Teaching and Learning Concentration, Faculty of Education, University of Ottawa, which research is under the supervision of Prof. Christine Suurtamm.

If I have any questions about the study, I may contact the researcher or her supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 154, Ottawa, ON K1N 6N5

Tel.: (613) 562-5387

Email: ethics@uottawa.ca

There are two copies of the consent form, one of which is mine to keep.

Participant's signature: Date:

Researcher's signature: Date:

Appendix D: Data Sources Table (type of method and the rounds for each method)

Method	Number of times data was collected	Data collected from	Total number of times data was collected for all TEs
1. Interviews	One at the beginning of the semester	Each TE	1 X 5= 5 +
	One towards the end of the semester	Each TE	1 X 5= 5 = 10 interviews
2. Online Classroom Observations	One at the beginning of the semester	Each TE's class	1 X 5= 5 +
	One mid-way into the semester	Each TE's class	1 X 5= 5 +
	One towards the end of the semester	Each TE's class	1 X 5= 5 = 15 classroom observations
3. Assessment Artifacts (previous assessment instruments)	Once	Shared by each TE	As provided by TEs
4. Course Syllabi	Once	Shared by each TE	1 X 5 = 5
5. Policy documents on Assessment	Once	Federal Ministry of Education (NTEP and NPE), National Universities Commission (BMAS) websites.	1 X 3 = 3

Appendix E: Interview Prompt

Note: As this proposed research is inductive, it is expected that some other interview questions could emerge and develop as the interview advances. The unstructured interview will be framed as a conversation, where participants will be encouraged to engage in free narratives about the major topics of the study. Accordingly, the following questions are prompts only, which will be used in no particular order and may be framed slightly differently and/or rephrased as needed to encourage conversation and ensure comprehension.

Part A. Background Questions

1. Tell me about the type of institution (federal, state, or private) where you are currently employed as a TE.
2. How many years have you been teaching an assessment course in your Bachelor of Education program?
3. Approximately how many teacher candidates do you teach in your assessment course per year at your institution?
4. Aside teaching an assessment course, are there other teacher education courses that you teach?
5. Can you briefly describe your educational background?
6. Are there some way that you feel your educational background influences the way you teach and assess your students?
7. Could you describe the gender that you identify with?

Part B. Conceptions of Assessment Questions

1. How would you describe the purposes of assessment in teacher education?
2. Could you share your views and beliefs about classroom assessment in teacher education?
3. Could you discuss those factors that account for your choice of assessment strategies?

Part C. Assessment Strategies Questions

1. Tell me about how you assess your students.
2. Can you discuss some methods you adopt in assessing your students' understanding of the subject content?

3. Thanks for sharing your samples of assessment. I wonder if you could tell me more about them, such as how you use them.
4. In what ways do you provide feedback to students?

Part D. Opportunities and Constraints Experiences Questions

1. In what ways do you feel supported in your assessment practices?
2. Are there any barriers or constraints to how you conceptualize, and practice assessment based on your place of work (e. g., colleagues, program, and institutional perspectives to assessment)?
3. What influences how you think about assessment and your assessment practices?
4. In what ways do educational policies and the broader community (State and National policies on assessment in teacher education, parental and community perspectives) support or limit your conceptualization and practices of assessment?

Appendix F: Observation Protocol

Note: The prompts in this observation protocol are designed as a guide to observe TEs' classroom assessment practices. Accordingly, the prompts included will be used in no particular order. Observation notes (documenting any observed practices related to the prompts) will be recorded per classroom observation for each TE. Any other observed assessment practices in each TE's classroom, not included in the prompt, will be logged in the observation note.

General Observation Information				
Lesson Topic:	Date: Time of the day:	Time in the semester (B, M, E):	TE's pseudonym:	Number of students in class:
Assessment Practices Record Form				
General classroom context at the time of observation:				
Assessment Practices Prompts			Observation Notes	
<p>1. Ongoing or at the end of unit or course: TE</p> <ul style="list-style-type: none"> - Seeks students' prior knowledge of the topic before teaching it. - Continuously seeks, listens, and responds to student understanding of content. - Uses statements rather than questions to encourage thoughtful answers from students. 				
<p>2. Embedded within or interrupting instruction: TE</p> <ul style="list-style-type: none"> - Tests students' knowledge of content during instruction and clarifies students' misconceptions before moving on with instruction. - Provides in-the-moment feedback during instruction. - Allows students to think through a question before providing feedback. - Encourages in-class collaborative problem-solving among students to observe student thinking and to provide useful feedback. - Seeks feedback from students to find out where they are at their learning and responds to such feedback. - Seeks feedback from students to improve instruction. 				
<p>3. Learner- or educator-centered: TE</p> <ul style="list-style-type: none"> - Develops assessment criteria with students. - Shares learning intentions with students. - Shares and discusses rubrics that outline success criteria. 				

<ul style="list-style-type: none"> - Uses exemplars to discuss success criteria and to assist students identify quality work. - Encourages in-class learning-informed activities (discussions, demonstrations, guided inquiry, etc.) rather than lecturing students only. 	
<p>4. Active or passive student engagement: TE</p> <ul style="list-style-type: none"> - Encourages students to take responsibility for and to self-monitor their learning. - Encourages group work and feedback on topics among students. - Promotes metacognition and allows students to reflect on their work. - Engages and develops students' skills to peer assess other student's work. - Allows students to mediate in the feedback they provide in class. 	
<p>5. Assessment practices reflecting meaningful learning</p> <ul style="list-style-type: none"> - What is important for students to know - Including a complete picture of the course content (in this case, assessment education). - Implementing assessment to have an idea of how and what students have learned, and to establish decisions on next steps in student learning - Encourages and implements deep learning tasks 	
<p>6. Evidence of learning sought through single or multiple sources: TE</p> <ul style="list-style-type: none"> - Provides multiple opportunities for students to demonstrate their knowledge of the content. - Combines assessment techniques with the aim of gathering more evidence of student learning and understanding, as well as to improve learning and instruction. 	
<p>7. Any other observations regarding in-class assessment practices</p>	

B: Beginning of semester, M: Middle of semester, and E: End of semester. TE: TE

Appendix G: Sample of Codes Merged to form Sub-categories and Categories in one Interview Transcript

Code samples.

codes	Sub-categories	categories
Beliefs/ views purposes of assessment understanding of assessment describing assessment students-teacher candidates placement certification reporting to parents for scoring students scores for pass or fail learning teaching assessment as measurement assessment decisions promoting student development importance of assessment in Ted major aim-student improvement future learning of TCs topics to teach assessment pedagogy understanding student learning what is relevant to teach for adapting teaching continuous process student achievement variety of tools best way to assess learning covers all areas of learning holistic measurement of learning assessment related to scores understanding learning through scores control behaviour syllabus completion	purposes of assessment descriptions of assessment beliefs regarding assessment education	Conceptions of assessment
Some of these overlap within sub-categories Number of students Time to mark papers	ongoing assessment embedded in instruction	Assessment Practices

<p>Test (1) Final exam (1) Assignment (1) + presentation before final submission + random picking for presentation. Attendance or participation points Impromptu tests (not graded) Participation (reading ahead)- Marks depend on correct or wrong answer Feedback in class Communication to clarify misconceptions in and outside the class Fixed test date Students' reaction = impromptu tests Impromptu test to increase attendance control behaviour syllabus completion Adopting different forms of assessment Assessing course contents only Focusing on course objectives Setting questions No student involvement in question design Feedback-mostly scores + verbal in class Feedback on test and assignment- scores prior to the exam Students define their level of learning through scores</p>	<p>reflecting meaningful learning assessing through a variety of sources involving students in the assessment process</p>	
<p>Conceptions not impacted, only practices senior colleagues' attitudes to assessment; their attitude to junior colleagues' expertise limited internet access for students high student number time to assess the large class university facilities for TEs- good library, computers and internet access support from colleagues to assess and invigilate</p>	<p>Micro meso</p>	<p>Influences on conceptions and assessment practices</p>