Running Head: CLASSROOM ASSESSMENT

A QUANTITATIVE EVALUATION OF TEACHERS' APPROACHES TO CLASSROOM ASSESSMENT IN ONE DISTRICT IN BURLINGTON COUNTY, NEW JERSEY

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Abstract

A QUANTITATIVE EVALUATION OF TEACHERS' APPROACHES TO CLASSROOM ASSESSMENT IN ONE DISTRICT IN BURLINGTON COUNTY, NEW JERSEY

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Rider University, March, 2020

Teachers possess varying levels of assessment design abilities. The goals of this quasi-experimental quantitative study were to determine how teachers' approaches to classroom assessment varied, aligned with learning theories, and influenced classroom assessment practices. Teacher characteristics of age, years of experience, grade level assigned, and content area were examined relative to assessment practices. The results of this action research were intended to improve district professional development on assessment.

Study participants completed the Approaches to Classroom Assessment Inventory which generated a personalized assessment profile based upon the individual's responses to scenarios and their professional development needs. A follow-up second survey inquired about instructional and assessment practices, self-evaluation of these practices, and professional development interests. Raw data from both instruments was analyzed through descriptive statistics to determine any relationship between identified variables.

In each subgroup, the majority of teachers preferred the cognitivist approach to learning in which learners are active participants in assessments seamlessly integrating instruction with learning. Regardless of subgroup, teachers were concerned about modifying teaching strategies and identifying students' strengths and weaknesses. Comprehensive, authentic assessment tasks were favored over multiple-choice and free-response items. Teachers expressed a need for

training to evaluate and report student progress against standards, use digital tools for assessments, and develop high-quality assessments.

Recommendations were presented for resources to develop a vision and purpose of assessment. Suggestions were made to expand the teachers' repertoire of assessment strategies through focused professional development. Proposals for further research were offered to replicate and expand the findings of this study.

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Dedication

My family placed a high priority on my education. They believed that an education rooted in our Catholic faith would best prepare me for a successful future, and they sacrificed to provide this for me. They were right; the values they, and my Catholic education instilled, formed my servant leadership style and encouraged me to aspire to the highest degree in my profession, Doctor of Education in Educational Leadership. Thank you, Mom, Dad, and PopPop, for the opportunities you provided me, for believing in me, and for your unconditional love.

Henry Adams stated, “A teacher affects eternity, and one can never tell where their influence stops.” One incredible teacher unexpectedly influenced my educational journey over the course of almost 30 years. Dr. Ronald J. Maniglia, my high school physics teacher, a teacher whom I later hired, a participant in my wedding, an instrumental member of my dissertation committee, and a friend, his quiet example of servant leadership has influenced my personal and professional life. Ron, I am grateful for your assistance, guidance, and friendship.

My mom is the most influential person in my life. My first teacher, biggest cheerleader, truest critic, confidant, best friend, and the woman who has made me the person I am today. From editing essays at the kitchen table, to providing encouragement when I thought I couldn’t do it, you are the wind beneath my wings.

This dissertation is dedicated to all of you, as you made this accomplishment possible.

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CHAPTER 1: LEADERSHIP CONTEXT AND PURPOSE OF THE ACTION

Moving from a Problem to a Problem of Practice

Most middle school and secondary school teachers in a traditional, full-year schedule spend around 45 minutes a day, about 4 hours a week, roughly 15 hours a month, or approximately 135 hours in one year with their students. How do teachers know if students are learning? The answer should be through assessment, provided the design of the assessments measures the intended learning outcomes. “Teachers who develop useful assessments, provide corrective instruction and give students second chances to demonstrate success can improve their instruction and help students learn” (Guskey, 2003, p. 6). Mertler (2005) credited Stiggins with estimating that teachers spend up to fifty percent of their instructional time on assessment activities. Webb (2009) found there are few opportunities for teachers to develop their concepts of assessment or to learn how to assess in ways that inform instruction and support student learning.

“Assessing student performance is one of the most critical responsibilities of classroom teachers; yet, many teachers do not feel adequately prepared for this task” (Mertler & Campbell, 2005, p. 2). As recently as 2014, the National Council on Teacher Quality (NCTQ) Teacher Prep Review, identified that only 24 percent of the programs evaluated adequately address assessment topics to ensure that novice teachers can use assessment results to improve instruction (Greenberg, Walsh, McKee & NCTQ, 2015). Stiggins (2018) concurred that few teachers have been allowed to “master the basic principles of sound assessment practice” (p. 18).

DeLuca, LaPointe-McEwan, and Luhanga (2016a) indicated the need to focus on professional learning to develop teachers’ assessment practices. Meaningful professional development on assessment incorporates, “active learning and reflection; context-specific content related to normal work contexts, questions, and problems; and expert input and

opportunities to interact with peers" (Barrette, 2017, p. 6). Professional development within the district focused on the design of assessments and alignment to standards is in its infancy. Initial audits of district assessments indicated a disconnect between assessment items and intended learning outcomes. To confirm that students obtain learning goals, the district needed an understanding of teachers' knowledge of assessment design.

This study informed the work of administrators and teachers as the district could not identify the teachers' knowledge of assessment design critical to ensuring accurate reporting of student learning. In this regard, the results of this study informed district professional development on student assessment focused on improving the design of classroom assessments. In this context, assessment design specifically referred to such elements as the depth of knowledge of test items and the alignment of the test items to curriculum standards. The district will be able to provide students and parents with specific feedback relative to learning goals through an understanding of their performance on classroom assessments.

In *The Perfect Assessment System,* Stiggins (2017) noted that extensive research demonstrated that classroom assessments contribute to improved student learning. McMillan (2000) suggested, "good teaching is characterized by assessments that motivate and engage students in ways that are consistent with their philosophies of teaching and learning and with theories of development, learning and motivation" (p.2). "When teachers' classroom assessments become an integral part of the instructional process and a central ingredient in their efforts to help students learn, the benefits of assessment for both students and teachers will be boundless" (Guskey, 2003, p. 10).

In their article, *Approaches to Classroom Assessment Inventory: A New Instrument to Support Teacher Assessment Literacy,* DeLuca et al. (2016a) indicated "value in future research

that tracks how teachers use data about their assessment literacy to guide their professional learning in assessment" (p. 263) given the "variability in teachers' conceptions of assessment depending upon context and career stage" (p. 250). This suggests that school districts would best serve the needs of teachers by tracking the development of teachers' assessment literacy over their careers and providing professional development that matches teachers' approaches to assessment and career stage.

Social, Cultural and Historical Perspectives

The idea of measuring student success based on assessment results has a long history in public schools. "Multiple streams of influence, including social policy and societal goals, theories of the mind, and computational capacities, have affected the American educational assessment community over the past century and have prospects for continuing to do so well into the current century" (Pellegrino, 1999, p. 3). In 1971, Bloom, Hastings and Madaus' *Handbook on Formative and Summative Evaluation of Student Learning* provided a resource for teachers to use evaluation to improve student learning. This handbook addressed problems including how evaluation could be used to bring students up to mastery levels of learning, offered assistance to teachers on the purposes of evaluation and how to develop evaluation instruments, and provided guidance on constructing valid evaluation instruments for various objectives. (Kirkman, 1971).

For many years the majority of classroom assessments included multiple-choice and criterion-referenced items that measured students' mastery of designated competencies. "The United States is one of the most tested countries in the world, and the weapon of choice is the multiple-choice test" (Ramirez, 2013, p. 1). More recently, standardized assessments have changed to increase the involvement of students in the assessment process. This shift emphasizes students' active role in assessment and learning as seen by self-assessment, peer assessment, and

the use of formative assessments (Hattie, 2012). Black and William (1998) shared a recent shift, "towards greater interest in the interactions between assessment and classroom learning" in hope "that improvement in classroom assessment will make a strong contribution to the improvement of learning" (p. 7).

The 1990 *Standards for Teacher Competence in Education Assessment of Students* (AFT, NCME, & NEA, 1990) called for teachers to be skilled in choosing and developing assessment methods appropriate for instructional decisions. Brookhart (2011) noted, "Teachers should have the skills to analyze classroom questions, test items, and performance assessment tasks to ascertain the specific knowledge and thinking skills required for students to do them (p. 8)." In 2014, New Jersey updated the Professional Standards for Teachers and School Leaders, which includes specific language requiring that "The teacher designs assessments that match learning objectives with assessment methods ... [and] engages learners in multiple ways of demonstrating knowledge and skill as part of the assessment process" (N.J.A.C. 6A:9-3.3). Additionally, teachers should be "... committed to using multiple types of assessment processes to support, verify, and document learning" (N.J.A.C. 6A:9-3.3).

Local Contextual Perspectives

The district in this study, the Northern Burlington County Regional School District, is a comprehensive regional school district that serves students in four municipalities in grades seven through twelve in one middle school and one high school in Burlington County, New Jersey. The four municipalities include Chesterfield Township, Mansfield Township, North Hanover Township and Springfield Township, along with children of military personnel stationed at Joint Base McGuire–Dix–Lakehurst. As of the 2015-2016 school year, the district and its two schools had an enrollment of 2,079 students and 158.8 classroom teachers.

The researcher previously served as an assistant principal in the middle school and as the district's Director of Instruction for Mathematics and Science, and currently serves as the Director of Curriculum, Instruction and Professional Development. The researcher is a member of the district's Cabinet (Superintendent, Business Administrator, and two principals) and oversees the district's Academic Leadership Team (ALT) which includes two principals, three directors of instruction, the directors of special services, student personnel services, and athletics. The ALT is primarily responsible for teacher evaluation, curriculum development, and professional development. Over the last ten years, the district has implemented common summative evaluations, uniform grade book category weighting, consistent reporting of student progress, and benchmark assessments. While the development of benchmark assessments has included an analysis of the Depths of Knowledge, and standards have certainly informed assessment development, deep unpacking of standards has not been employed to design assessment items. Questions remain if teachers possess the knowledge and skills to design standards-aligned assessments that accurately measure intended learning outcomes.

Candidate's Leadership Perspectives

After over ten years as an educational leader in one school district in Burlington County, the researcher can attest that both professional development and department meeting time and have been devoted to developing common assessments. The researcher anticipates that this action research will expand knowledge about high-quality assessment design and inform district professional development. The district's recent focus on professional development on assessment has been met with resistance by some teachers. Teachers have shared that they have already completed professional development on assessment or know how to design assessments. Sadly, initial audits of assessments for alignment to standards by district administrators in collaboration

with teachers indicated room for growth. Supporting teachers in identifying their assessment knowledge to guide professional learning on assessment should improve the quality of assessments within the district.

Sergiovanni (2004) explains that part of a school's challenge is that competence is often divided among different people, and without collective intelligence, closing the achievement gap is wishful thinking. It was New Jersey's own, Dr. Tracey Severns, who recently pointed me in Sergiovanni's direction. While planning a professional development that she facilitated for the district, Tracey shared that all teachers must possess the same head, heart, and hand about assessment. She explained that the same knowledge (head), the same fundamental beliefs (heart), and the same skills to accomplish the task (hand) is imperative for a district to accomplish its goal (T. Severns, personal communication, September 17, 2018). The district's motto, "Inspire the Desire (for continued growth) One Student at a Time" certainly demonstrates worthiness for this important work. It is time to support teachers' efforts to live our motto through how we assess our students.

As an educational leader, the researcher embraces a constructivist approach to learning theory. The constructivist approach posits that people create their meaning by linking new information to previous experiences. The teachers' own experiences with assessments when they were students likely drive their assessment actions as classroom instructors. The active involvement of teachers in the audit of assessment design is expected to lead to improved quality. The teachers' ability to design assessments should similarly improve by using standards of high-quality assessments to evaluate existing assessments.

The researcher also espouses the servant and situational leadership styles. A servant leadership style will support the district's work in assessments as teachers see their leaders

rolling up their sleeves to join them in the task of improving assessments. However, as the work continues, evaluating progress and varying the level of support and direction will enable the leadership team to provide differentiated support.

Specific Problem of Practice

Teachers have varying levels of knowledge of assessment design principles that support student learning. There is resistance to professional development on assessment because of teachers' perspectives on assessment, as indicated by informal surveys following professional development experiences. The district cannot presently confirm that our assessments measure the intended knowledge and skills. The alignment between standards and assessment items has never been audited, and teachers' knowledge of assessment design principles that support student learning are varied. A gap exists between classroom assessment data and the ability to predict students' performance on standardized assessments. The district needs to be able to confirm that assessments measure intended outcomes and monitor students' progress relative to standards.

This problem of practice was recently confirmed in the planning of a teacher professional development focused on assessment and using high-impact instructional practices to accelerate learning. A survey for session proposals asked for teachers' input, creativity, expertise, and participation as possible presenters. Only thirty-five of the over one-hundred-fifty teachers in the district responded to the survey with only eight teachers interested in serving as presenters. Although the district has successfully hosted teacher-facilitated professional development in the past focused on technology, it was discovered through informal feedback that the usual volunteers were neither confident nor competent to facilitate professional development on assessment design. Teachers shared that they truly did not believe they had the knowledge or

skills to serve as trainers in assessment design. The Administrative Leadership Team (ALT) concluded a significant gap existed in this area of professional knowledge of assessment design.

The Academic Advisory Committee collaborates with district administrators on academic initiatives. Membership, by application, represents all disciplines by building. Even before the identified need for professional development on assessment design, district administrators were aware of this challenge. Therefore, it was determined that a focus on assessment will comprise the first few years of the committee's work. Twelve teachers worked with district directors for 2 days in August 2018 to begin a focused examination of assessment. Developing a common language of the philosophy of assessment and creating a definition of assessment focused the work for day one.

The Directors of Instruction facilitated a variety of activities for this professional development experience that engaged participants in deep reflection on the districts' assessment practices and their own beliefs relative to assessment. The second day of this initiative focused on unpacking standards using a protocol to identify what students should know. The development of Performance Scales was introduced on this day. The next steps of this committee will include expanding the work of the summer of 2018 to all staff while simultaneously finding time to continue developing this cadre of teacher leaders.

Research Questions

The following research questions will be addressed in this quantitative study:

1. How have approaches to classroom assessment practice varied among teachers of tested areas?
    a. How have approaches to classroom assessment aligned with theories regarding student learning among teachers of tested areas?

   b. How have approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas?

2. Which factors have influenced variations in assessment practices among teachers of tested areas?

Summary

This study is designed to identify the similarities and differences of the approaches to classroom assessment among teachers of tested content areas and its implications for improving their assessment practices. The teachers' knowledge of their approach to assessment is not only critical in the development and implementation of assessment practices but also influences the direction of district professional development on assessment. New Jersey State standards call for teachers to collaborate with peers to develop assessments and to include students as partners in the assessment process. Professional growth cannot be expected among teachers without a complete understanding of their assessment knowledge and skills relative to the expectations outlined in these professional standards. The district does not currently focus on teachers' assessment knowledge as a component of professional development. This study will provide teachers with an understanding of their knowledge of and approaches to assessment.

CHAPTER 2: REVIEW OF SUPPORTING SCHOLARSHIP

Review of the Educational Research Literature: Theoretical Sources

Introduction

As far back as 400 BC, the Greek teacher and father of Western philosophy, Socrates' espoused that knowledge and truth influenced the way many people view learning. Socrates believed that wisdom begins in admitting your ignorance, self-knowledge is the ultimate virtue, and knowledge arrives from questioning. Socrates recognized that his lack of knowledge set him apart from other thinkers, even stating, "I know nothing except the fact of my ignorance" (Cookson, 2009, p.8). This quest for knowledge and self-recognition is the foundation of educational systems today. Schools are the institutions entrusted by the public that prescribe the needed curricula for students to be taught by educators. Educators are trained to impart knowledge and assess the learning of students. School leaders provide support and oversight of the development of curriculum, instruction, and assessment.

In *The Evolution of Educational Assessment,* Pellegrino (1999) predicted that in the future student competence and achievement will be a seamless component of the teaching and learning process. Psychology drives many components of curricular and instructional decision-making in education, "... and the methods of assessment used by school personnel to document genuine learning" (Fosnot & Perry, 1996, p. 8). In 2018, Mayer observed that,

> "[E]ducational psychology is the link between assessment and instruction, by helping specify learning objectives and learning outcomes in terms of changes in specific knowledge, skills, and beliefs and by helping describe the characteristics of individual learners in terms that are relevant to instruction" (p. 174).

Educational psychology is the link between the assessment of learning outcomes and learning processes. In outlining a framework for the educational psychology of assessment, Tittle (1994) proposed that "teachers and learners construct schemas or integrate representations from assessments into existing views of the self, of teaching and learning, and of the curriculum" (p. 151). School systems may benefit from understanding such views by identifying the assessment profiles of teachers as part of continuous improvement and professional development.

Learning theories shed light on different aspects of the learning process and drive teachers' assessment techniques (Yilmaz, 2011; Pattalitan, 2016), and each theory supports different instructional strategies (Ouyang & Stanley, 2014). As theories of learning have evolved, they have influenced the development of educational practices, including assessment. James (2006) described the implications of the three prevalent learning theories on assessment practice:

> "[L]earning theorists themselves rarely make statements about how learning outcomes within their models should be assessed... This may account for the lack of an adequate theoretical base for some assessment practices and, conversely, for lack of development of assessments aligned with some of the most interesting new learning theory" (p. 47).

Behaviorist, cognitive, and constructivist theories of learning have contributed to the current approaches to assessment.

Presuming that learning is based on the conditioned response to external stimuli, including rewards, praise, punishments, or the withholding of rewards, behaviorists measure progress through observable outcomes on predetermined tasks (Fosnot & Perry, 1996). In cognitive theory, prior knowledge determines the student's capacity to learn new material and remove misunderstandings by reorganizing or revising experiences based on new insights. An

integral component of the teacher's practice, formative assessment provides the learner an opportunity to express his current understanding to apply concepts and strategies in novel situations (James, 2006). Finally, constructivists argue that since each person has individual experiences, learning is unique and different for everyone (Kelly, 2012), lending itself to personalized assessment.

Although James (2006) observed that these approaches, "do not necessarily claim to have a view about the implications for the construction of learning environments, for teaching, or for assessment" (p. 52), each is based on an explanation of what learning is (process) and how it occurs (product). Pattalitan (2016) further argued both behaviorist and cognitivist learning theories influence assessment design. Knowing the possible influences of these learning theories on teaching and assessment design may lead to stronger alignment and more accurate reporting of student performance.

Learning Theories and Implications for Teaching and Assessment

Behaviorist theory. The behaviorist theory of learning emerged in the 1930s and was a dominant perspective into the 1970s through the work of Pavlov, James Watson, B.F. Skinner, and Thorndike. As all knowledge is considered to exist apart from the learner himself, it is deconstructed, generalized, and defined independently of the activity of learning (Delandshere, 2002; Kelly, 2012). In this context, learning is based on the conditioned response to external stimuli including rewards, praise, punishments, or the withholding of rewards (Fosnot & Perry, 1996). Additionally, learning is the accumulation of skills, memorization of information (facts), and is demonstrated in the formation of habits that allow on-demand performance. (James, 2006).

The teacher's role in a behaviorist approach is to train students to respond to instruction accurately and quickly. Basic skills are prioritized in the curriculum and are introduced before complex skills. Feedback, via non-specific praise, and correction of mistakes, is used to make the connections between stimulus and response. The learning environment prioritizes homogenous groups according to skill level (James, 2006).

The implications for assessment in the behaviorist approach are to measure the ability to reproduce knowledge through observable outcomes on predetermined tasks (Fosnot & Perry, 1996; Delandshere, 2002) such as unseen timed tests, with items of progressive levels of skill difficulty. Performance is reported as either correct or incorrect. Poor performance is remedied by practice on incorrect items and revisiting basic skills (James, 2006). Assessment activities could include drill and repetitive practice and bonus and participation points as incentives (Kelly, 2012). "This conception of assessment still underlies the most practice of assessment today, whether in the form of end-of-unit tests, end-of-semester high school examinations, state- and district-mandated tests, college entrance examinations" (Delandshere, 2002, p.1463).

Although behaviorism explains how behaviors change, it fails to explain why and how individuals make sense of and process information and explore mental processes. The behaviorist theory does not explain how mental processes work or conceptual change occurs. Therefore, cognitivism, which views learning as an active process of knowledge development, began to compete with behaviorism (Yilmaz, 2011)

Cognitivist theory. The cognitive theory of learning, which began in the early twentieth century, is based on the work of Jean Piaget, Jerome Bruner, Chase Tolman, Lev Vygotsky, and German Gestalt. Cognitive information processing is based on the thought process behind the behavior. Humans process information that is received, and changes in behavior are observed

(Kelly, 2012). Prior knowledge and mental processes play a larger role than stimuli in developing a response, and intervene between the two, with an emphasis on understanding and eliminating misunderstanding (Yilmaz, 2011). Learning involves reorganizing experiences by obtaining new insights or revising existing ones. Otherwise, learning is a change in knowledge stored in memory, not just a change in behavior (Kelly, 2012). Learners play an active role in understanding and processing information received, to relate it to what is already known and stored in memory (James, 2006).

Instruction in the cognitive model should be authentic and real. The role of the teacher is to help learners improve their understanding of concepts and develop processing strategies to solve problems with ease (Yilmaz, 2011). A rich classroom environment that fosters learners' spontaneous exploration includes instructional experiences of classifying or chunking information, inquiry learning, discovery learning, problem-based learning, real-world examples, discussions, analogies, mnemonics, and visual representations (Yilmaz, 2011; Kelly, 2012).

Assessments that seamlessly integrate with both instruction and learning would meet the needs of this theory including assessment of prior knowledge, feedback, transfer, and self-assessment. The performance levels of achievement for an assessment (novice to expert) are based on the learner's ability to organize, retrieve, and use knowledge (James, 2006). Terms like aptitude, ability, achievement, competence, performance, and proficiency are all used to report learning as if they are interchangeable (Delandshere, 2002).

The cognitive theory is self-limiting by the nature of its assessment tasks. In the cognitive theory, if all students are administered the same assessment, at the same time, to determine if they attained the same outcomes, this would theoretically be plausible. The cognitive theory

provides that if students have all been taught the same thing, they will learn it in the same way at the same time (Delandshere, 2002).

Constructivist theory. The constructivist theory of learning is based on advancements in the work of Piaget and Bruner as well as that of John Dewey. This approach is based on the premise that humans develop their perspectives of the world, based on individual experiences and existing knowledge (Amineh & Asl, 2015; Kelly, 2012). Learning is a complex and nonlinear process (Fosnot & Perry, 1996), and is the result of how the individual interprets and makes meaning of experiences. Since each person has individual experiences, learning is unique and different for everyone (Kelly, 2012). Teachers must first consider their students' knowledge and allow them to put that knowledge into practice (Amineh & Asl, 2015).

Classroom practices in the constructivist learning theory require a shift in focus from the teacher as the imparter of knowledge, to the teacher as a facilitator or guide for students who are active participants in their learning (Amineh & Asl, 2015). Students share control of the design and management of learning activities and assessment criteria with the teacher (Ebrahimi, 2013). Instructional practices in the constructivist theory require learners to develop their questions, hypotheses, and models of explanation, to test them for viability, and defend and discuss with peers. Errors and misconceptions are critical in the learning process and are not to be avoided. Reflection through strategies such as journaling and discussion facilitates learning (Fosnot & Perry, 1996). Social constructivist approaches can include reciprocal teaching, peer collaboration, problem-based instruction, and any methods that involve learning with others (Schunk, 2000). Therefore, in constructivist classrooms, the environment is democratic, and peer interaction is critical to learning (Amineh & Asl, 2015).

Assessments in a constructivist mindset include real-world, purposeful, and rigorous performance tasks that allow learners to explore and generate multiple possibilities (Fosnot & Perry, 1996). Examples of assessment in constructivism include brainstorming, case studies, collaborative learning, problem-based learning, research projects and simulations (Kelly, 2012). Such assessments are relevant to students' everyday out-of-school experiences and provide students with opportunities to explain and justify their ideas and to critique the ideas of others (Ebrahimi, 2013).

Conclusion

There can be much overlap and intersection between views, classroom practices, and the purpose of assessment. "Constructivist rhetoric can be found in behaviorist approaches and the boundary between cognitivist constructivism and social constructivism is indistinct" (James, 2006, p. 52). While behaviorists employ self-testing and formative feedback, cognitivists examine graded questions to attain higher-order thinking skills (Pattalitan, 2016). To evolve from behaviorist to constructivist classrooms, teachers must adjust to more learner-centered classroom assessment practices to meet this shift (Shepard, 2000). Teachers who struggle to meet the changing assessment landscape rely on more traditional assessment practices (MacLellan, 2004; DeLuca & Klinger, 2010). In-service teachers may rely on previous knowledge of assessment practices, therefore limiting the consistency of assessment approaches as implemented in classrooms (Coombs, DeLuca, LaPointe-McEwan, & Chalas, 2018).

There is a place for each theory within instructional design and assessment, depending on the situation and environment (Mergel, 1998). James (2006) concluded, "In the end however decisions about which assessment practices are most appropriate should flow from educational judgments as to preferred learning outcomes" (p. 58). This forces teachers to assess and justify

the value of their assessments. A review of the empirical literature follows, which describes current research supporting these theories as related to the problem of practice.

Review of the Educational Research Literature: Empirical Sources

Introduction

Measuring and supporting teachers' assessment literacy through professional development have been the focus of educational policy and research since the early 1990s (Plake, Impara & Fager, 1993; Gotch & French 2014). Results from studies have indicated that teachers' assessment skills are generally weak (Brookhart, 2001). Assessment illiteracy has resulted in an inaccurate assessment of students which could prevent them from reaching their full potential (Stiggins, 2001). A disconnect often exists between teachers' perceptions of classroom assessment and their actual classroom assessment practices (Rahman, 2018). The influence of teacher experience, grade level, and subject area on assessment practice has also been identified as a variable (Bol, Stephenson, O'Connell, & Nunnery, 1998). Additionally, the qualities of the classroom assessment practices of instructors such as fairness, clarity of assignments, tests, and scoring, and clear descriptions of learning outcomes have been highlighted as important factors in empirical studies (Brookhart, 1999).

This review of the empirical literature on classroom assessment will first define the standards and measures of assessment literacy before examining the impact of the teacher's dispositions, career stage, and content area and grade level assignment (see Figure 2.1). The review concludes with an identification of the gaps in teacher training on assessment and how the content and practices of professional development and teacher evaluation can be designed to improve assessment literacy.

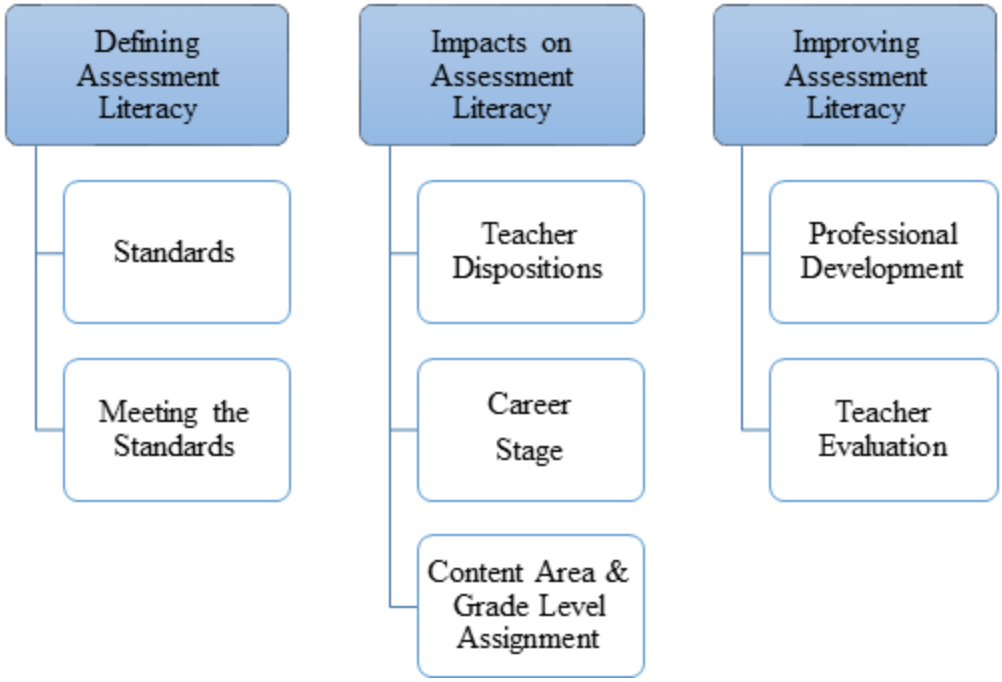


Figure 2.1. Concept Map of Three Streams of Empirical Sources prepared by Amy Stella

Defining Assessment Literacy Standards

Assessment literate individuals have a "basic understanding of the meaning of high- and low- quality assessment and are able to apply that knowledge to various measures of student achievement" (Stiggins, 1991a, p.535). Assessment literacy is "...needed by teachers for their long-term well-being, and for the educational well-being of their students" (Lian, Yew, & Meng, 2014, p.78). *The Standards for Teacher Competence in Education Assessment of Students* (AFT, NCME, & NEA, 1990) delineated the knowledge and skills expected of a teacher to select, develop, apply, use, communicate, and evaluate student assessment information and practices:

2. Select assessment methods appropriate for instructional decisions.
3. Develop assessment methods appropriate for instructional decisions.
4. Administer, score and interpret the results of both externally-produced and teacher-produced assessment methods.

5. Use assessment results to make decisions about individual students, lesson planning, curriculum development, and school improvement.
6. Develop valid student grading procedures that use student assessments.
7. Communicate assessment results to students, parents, other lay audiences, and other educators.
8. Recognize unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information.

Following an evaluation of teachers' performance relative to these standards, Zhang (1996) identified the need for training in the technical aspects of assessment. His research found that while teachers were able to easily communicate and analyze classroom assessment results, subsequent research by Brookhart (2011) found these standards needed to further address the teacher's knowledge and skills related to formative assessment. Additionally, the competencies did not fully describe the teacher's knowledge and skills needed to meet accountability requirements and the demands of standards-based assessment practices.

In 2014, the New Jersey Department of Education updated the Professional Standards for Teachers and School Leaders, which specified the performances, knowledge, and dispositions of teachers related to assessment. Standard Six states that the teacher must "...understand and use multiple methods of assessment to engage learners in examining their growth, to monitor learner progress, and to guide the teacher's and learner's decision-making" (N.J.A.C. 6A:9-3.3). Concerning professional development (Standard Nine), the teacher is responsible for engaging in "... ongoing individual and collaborative professional learning designed to impact practice in ways that lead to improved learning for each student, using evidence of student achievement …" (N.J.A.C. 6A:9-3.3).

The consensus of the research reviewed by Xu and Brown (2016) supported the findings that teacher assessment knowledge was generally inadequate relative to the standards. In 2016, DeLuca et al. published a review of teacher assessment literacy standards and post-1990 assessment literacy measures. Their research concluded there was value in developing and establishing "... sound measures that accurately characterize teachers' strengths and weaknesses in assessment" (DeLuca, et al., 2016b, p. 267). These measures, in turn, could be the basis for professional development to enhance teachers' assessment literacy to ultimately improve classroom assessment practices. assessment results, interpreting standardized test data, and using assessment results in decision-making posed challenges.

In 2015, the Joint Committee on Standards for Educational Evaluation (JCSEE) released the Classroom Assessment Standards: Sound Assessment Practices for PK-12 (see Appendix A). The six Foundation standards focus on the development and implementation of solid and equitable classroom assessment practices where the teacher selects appropriate types and methods of assessment based upon a deep understanding of the learning objectives. The five Use standards target the communication and use of the assessment results with acknowledgment of the importance of involving students through all phases as decision-makers in the classroom. The five Quality standards describe how accurate, reliable, and bias-free results are possible with quality assessments by teachers who review, reflect upon, and revise their assessment practices (Klinger, et al., 2015).

The State of Teacher Assessment Literacy: Meeting the Standards

Three years after the publication of the *Standards for Teacher Competence in Education Assessment of Students*, a study by Plake et al. (1993) found that teachers performed the highest on administering, scoring and interpreting results (Standard 3) and the lowest on communicating

test results (Standard 6). However, these results must be considered in light of work by Gullickson (1993) who found that lacking the requisite skills,

> "… test correction and scoring constitute the only activities the typical teacher takes to assess instructional quality, to assess test quality, and to prepare feedback for the students … [which] cannot adequately serve either the formative purposes for student instruction or formative purposes for revision of instruction" (p. 7).

Freiberg (2002) noted that new teachers, in particular, possess only a limited set of formal and informal assessment strategies and little familiarity with alternative assessment approaches such as rubrics and portfolios needed to adequately evaluate student learning.

DeLuca and Klinger (2010) identified gaps in the training of new teachers indicating the need for direct instruction in assessment topics including reporting achievement, modifying assessments, developing constructed-response items, determining item reliability and validity, and articulating a philosophy of assessment. Siegel and Wisseher (2011) found that while new secondary science teachers understood the need to align assessments with learning goals and instructional strategies and to use a variety of assessments, their classroom assessments did not fully align with their philosophies. Traditional forms of assessment were used more frequently than a variety of assessments. The study concluded that teacher education programs must place greater emphasis on developing assessment literacy.

Subsequent results of a study by DeLuca and Bellara (2013) also noted the need for increased alignment of assessment curriculum in new teacher training to professional standards and the incorporation of assessment literacy as a critical teaching construct. DeLuca, Valiquette, Coombs, LaPointe-McEwan, Luhanga (2018) concluded that professional development is challenging given that the approaches to assessment by teachers are largely fixed and, "...

provide valuable insight into how teachers understand and implement assessments in their classrooms" (p. 372). The challenge is developing an effective program of ongoing professional development that addressed the wide range of factors influencing the teacher's knowledge and skills of assessment and learning.

Impact of Teacher Disposition on Assessment Literacy

McMillan and Nash (2000) analyzed six themes in their research of teachers' beliefs and values, classroom realities, external factors, the rationale of decision making, and assessment and grading practices. The results of the study suggested a disconnect and ongoing internal struggle between teachers' beliefs and values (philosophy of teaching and learning) and the realities of the classroom and imposed external factors (high stakes tests, state mandates, and parents) of the educational system. The researchers concluded that, "This constant state of tension may help explain why teachers view assessment and grading as a fluid set of principles that change each year" (McMillan & Nash, 2000, p. 31).

The study concluded that the beliefs and values of teachers, the practicalities of the classroom, and external influences impact the decision-making process concerning specific classroom assessment and grading practices. Of these factors, one's philosophy of teaching and learning appeared to justify the practice of modifying assessments or making allowances for submissions of graded assignments for the sake of ensuring student success. "[T]eachers believed that students need to be meaningfully engaged in learning, and would use assessments and grading factors that would enhance this engagement" (McMillan & Nash, 2000, p. 10). One general assumption seemed to provide a rationale for such decisions which was a highly individualized, idiosyncratic process for teachers. Assessment and grading decisions appeared to be based upon the teacher's overall professional experience, the content area learning objectives,

the perceived belief to use a range of practices, the importance of constructed-response assessments, and the importance of homework.

Similarly, Shepard (2000) identified the impact of learning theories on teacher assessment practices. While behaviorist theory influenced the summative assessment practices of teachers, the constructivist approach impacted their approaches to the use of formative assessments. Both theories yield diverse approaches which when coupled with a contemporary focus actively involve the learner in assessments. Upon reviewing classroom assessment practices, Zhang and Burry-Stock (2003) confirmed that teachers trained in measurement have higher self-perceived assessment skills. These teachers reported greater confidence using performance assessments, interpreting standardized test scores, revising their assessments, modifying their instruction based on assessment results, and communicating assessment results.

In introducing a new, comprehensive conceptual model on teacher assessment competence integrating assessment knowledge, process, and product, Herrpich, et al. (2017) proposed that differences in competent teachers' cognitive dispositions impact their ability to master a wide range of assessment situations and differences. For example, a teacher may have knowledge of typical student misconceptions, but might not be as skilled in test development. In this regard, DeLuca et al. (2018) recently found teachers gave priority to communicating assessments' purposes and processes, using formative assessment results to guide instruction, and creating fair assessment conditions for students. Conversely, constructing, administering, scoring and interpreting assessment results were identified in their study as less important.

Impact of Teacher Age on Assessment Literacy

Findings on the effect of the age of teachers on their perceptions of assessment have been varied owing to the contributions of other factors. Brown's 2004 study of New Zealand primary

school teachers' perceptions of the purpose of assessment, for example, found no statistically significant differences in mean scale questionnaire scores regardless of teacher age. The survey examined factors related to improvement of teaching and learning, school accountability, student accountability, and treating assessment as irrelevant.

The results of a recent study by Alotaibi (2019) examining teachers' perceptions of factors influencing assessment practices among 210 teachers in 15 schools in Saudi Arabia found significant differences between teacher groups by age. Teachers in the 50-59 years age group slightly agreed more frequently than teachers in any other age group, while teachers in the 20-29 years age group agreed less often. Alotaibi's study identified the greatest difference between teachers in the 20-29-year age group with each of the other age groups. An increase in the age of teachers resulted in a higher frequency of agreeability with factors impacting assessment.

Impact of Teacher Career Stage on Assessment Literacy

Multiple studies have compared various components of assessment practices of experienced teachers versus teachers in earlier career stages[1]. Findings have been inconsistent depending upon the specific components of assessment practice examined by the researchers. Neither Brown (2004), in examining teachers' conceptions of the purpose of assessment, nor Zhang and Burry-Stock (2003), in studying assessment practices and self-perception of assessment abilities, found significant differences between teachers' career stages. Conversely, Birenbaum and Rosenau (2006), Mertler (2004), Wen, Tsai, and Chang (2006) identified a strong influence of career stage on components of assessment literacy.

[1] In these studies, initial pre-service, beginning in-service, and early in-service are considered as "new" teachers with less than five years of full-time employment, while established in-service teachers are categorized as "experienced" with more than five years of teaching.

Comparing the responses of 67 new and 197 experienced secondary teachers on the *Classroom Assessment Inventory (CALI),* Mertler (2004) inquired if classroom experience makes a difference in assessment literacy. New teachers scored highest in choosing appropriate assessment methods and lowest in developing valid grading procedures. While experienced teachers scored lowest on the same standard, their highest score was reported in administering, scoring and interpreting assessment results. With significant differences in five of seven competencies as well as in their total scores, the researchers concluded that more experienced teachers possess greater knowledge of assessment theory and classroom practices.

In analyzing scripts from 30 new teachers, Maclellan (2004) found that although new teachers knew the purpose of assessment to support learning and for accountability, they lacked an understanding of how to determine the reliability and validity of assessments. Focusing on how the assessment theories and practices of new teachers change over time, Graham (2005) found that they were strongly influenced by professional dialogue about planning and assessment. Specifically, the teachers expressed concerns about designing goals; the relationship between grading and fairness and motivation; the validity of assessments; and the use of rubrics.

Wen et al. (2006) examined the use of peer assessment as an alternative method of assessment in classrooms among 280 new teachers and 108 experienced teachers. A difference in attitude was found between new and experienced teachers insofar as the latter viewed peer assessment as a learning aid, while the more experienced teachers placed greater value on peer assessment classroom activities. Birenbaum and Rosenau's (2006) study of the learning strategies and assessment preferences of 180 new verses 180 experienced teachers suggested that more experienced teachers exhibit deeper approaches to learning and assessment. From a study of 213 teachers, Alkharusi (2011) likewise found that those more experienced reported higher

levels of self-perceived skills in analyzing and writing test items, communicating assessment results, using performance assessment, and grading than new teachers.

Coombs et al. (2018) examined the relationship between teachers' approaches to assessment and career stage by analyzing data from the *Approaches to Classroom Assessment Inventory (ACAI)* completed by 727 new and experienced teachers. The study found a slight impact on teachers' approaches to assessment depending upon their career stage and provided empirical support for differences in teachers' approaches to assessment both within and between career stages. The researchers concluded that a thorough understanding of how the career stage influences teacher's approaches to assessment is problematic.

In a separate study using the same inventory, DeLuca et al. (2018) surveyed 404 teachers representing diverse demographic groups by career stage and previous education on assessment. The researchers measured teachers' approaches to assessment, perceived skill in assessment tasks and responsibilities, and professional learning preferences and priorities. The results indicated significant differences based on career stage and previous assessment education in terms of approach to assessment fairness and perceived skill, but not to the assessment approach. The researchers concluded that new teachers employ more standardized assessments, while experienced teachers have greater perceived skill in assessment practices and implement more differentiated responses to issues of fairness in assessment.

Impact of Content Area and Grade Level on Assessment Literacy

Bol et al. (1998) found that elementary school teachers use authentic assessments such as performance-based, self-assessment, and portfolios more frequently than high school teachers. The researchers also reported that mathematics teachers use traditional methods of assessment such as close-ended and multiple-choice items much less often than all other subject area

teachers. Examining the differences between elementary and secondary teachers' experiences with standardized assessments, Quilter and Gallini (2000) found although secondary teachers had more familiarity, no differences existed between the groups in their attitudes towards the use of standardized, classroom, or alternate assessments.

Zhang and Burry-Stock (2003) confirmed that teachers' assessment practices were influenced by their assigned subject areas. The results of this study found that mathematics and science teachers reported grading on non-achievement factors more often than teachers of social studies and non-academic subjects. While teachers in higher grade levels utilized objective tests more frequently, elementary school teachers commonly administered performance assessments. Additionally, secondary teachers were more concerned about the quality of assessments.

Alkharusi (2011) similarly found that science teachers reported higher levels of self-perceived skill than English language arts and fine arts teachers in analyzing and writing test items, using performance assessments, and grading. English teachers reported a lower level of skills than fine arts and science teachers in communicating assessment results. There was no statistically significant difference between English and fine arts teachers in their skills in analyzing and writing test items, using performance assessment, and grading. No notable differences were evident between science and fine arts teachers in their ability to communicate assessment results.

Concerning grade level assignment, Alkharusi (2011) confirmed the results of Bol et al. (1998) and Zhang and Burry-Stock (2003) when comparing 6th, 8th, and 10th-grade teachers. Grade 6 teachers reported higher levels of self-perceived skill than Grade 10 teachers in analyzing test items and grading. Grade 6 teachers viewed themselves as more skilled in using

performance assessments than both Grade 8 and Grade 10 teachers, while Grade 10 teachers expressed greater skill in communicating assessment results than Grade 8 teachers. In contrast, more recently, DeLuca et al. (2018) did not find a significant difference in teachers' approaches to assessment based on grade level assignment.

Professional Development to Improve Assessment Literacy

Brookhart (1998) recommended that classroom assessment be taught as an integrated component of classroom practices through a combination of direct instruction and scenarios for discussion. Stiggins (1999) proposed program evaluation criteria to examine the nature and quality of assessment training for teachers. Maclellan (2004) concluded that teacher education programs should enable new "... teachers to develop greater cognitive complexity in their thinking about assessment" (p. 533) by interacting with reading material that will expand their knowledge of assessment. In this vain, Popham (2004) suggested identifying assessment trade books written specifically for practitioners; sampling a few chapters from each text for the most relevant resources; and, devoting time to a collegial book study.

McMillan (2000) introduced eleven knowledge and skills components to guide the assessment training and professional development of teachers and administrators regardless of the content area or grade level assignment. For McMillan, assessment involves professional judgment, principles of measurement and evaluation, and a series of tensions. Additionally, assessment serves to enhance instruction, influence student motivation, and learning and incorporates technology. Finally, good assessments are efficient, valid, fair, and ethical, while admittedly not error-free.

In 2009, Mertler examined teachers' perceptions of the impact of intensive professional development on classroom assessment. This study examined the effectiveness of a two-week

classroom assessment workshop based on the *Standards for Teacher Competence in Educational Assessment of Students.* The methods included discussion, practice, and practical application through performance assessment tasks. Mertler concluded that "performance-based in-service training sessions, which focused on *applied* assessment decision-making, could prove to be beneficial to a majority of classroom teachers" (2009, p. 112). While the intensive format proved beneficial, Mertler concluded that the extent to which such training facilitates a lasting impact on teachers' classroom assessment practices remains to be seen.

Koh (2011) conducted a longitudinal, quasi-experimental study of teachers' assessment literacy over two school years. The intervention group participated in ongoing, sustained professional development and were engaged in a variety of workshops focused on authentic assessment design and rubric development. During monthly meetings, teachers met to discuss issues regarding the implementation of authentic assessment tasks and rubrics. Their subjects also participated in two sessions at the end of the school year to examine the quality of their assessment tasks and student work compared to established criteria. The results of the study suggest that ongoing, sustained professional development significantly increased assessment literacy in the second year. Additionally, the teachers in this study developed a better understanding of authentic assessment.

Developing a strong understanding of assessment literacy and its measurement is needed to support teachers in their professional responsibility (Popham, 2009; DeLuca, et al., 2016a). Yamtim and Wongwanich (2014) suggested a developmental approach to improve classroom assessment literacy through cooperative learning and teamwork using mentors during the teaching practicum. DeLuca, Klinger, Pyper, and Woods (2015) examined the implementation of an instructional rounds professional learning model that engaged both teachers and leaders in

collaborative learning and implementing strategies to develop systemic capacity in assessment. The results of this study indicated positive changes in teachers' and principals' conceptions and implementation of assessment.

DeLuca et al. (2018) found that, "assessment education helps teachers become aware of the complexities associated with assessment literacy, and points to the need for ongoing, job-embedded professional learning initiatives …" (p. 371). This study also concluded that job-embedded professional learning in assessment needs to be targeted and differentiated based on career stage and previous assessment education. Job-embedded examples include mentor teachers, informal learning through implementation and experimentation, collaborative inquiry with expert support, and instructional rounds.

Teacher Evaluation to Improve Assessment Literacy

In New Jersey, teachers are evaluated relative to standards and competencies (N.J.A.C. 6A:10-4.4). Teacher evaluation systems can lead to meaningful reforms for teacher effectiveness (Center for Teaching Quality, 2013). Various research-based instruments measure and identify ways to improve teachers' practices. Stabler-Havener (2018) shared the importance of developing comprehensive methods to accurately evaluate teachers' assessment competencies to support the improvement of practice.

Under the standard for Assessment of/for Learning in the Teacher Effectiveness Evaluation System by James Stronge, "The teacher systematically gathers, analyzes, and uses relevant data to measure student progress, guide instructional content and delivery methods, and provide timely feedback to students, parents, and stakeholders" (Stronge, 2015, p. 43). The teacher is evaluated as to his/her degree of effectiveness relative to a preponderance of the evidence in demonstrating these performance indicators:

- Uses pre-assessment data to develop expectations for students, to differentiate instruction, and to document learning.
- Involves students in setting learning goals and monitoring their progress.
- Uses a variety of formal and informal assessment strategies and instruments that are valid and appropriate for the content and the student population.
- Uses high-quality questioning to gauge student understanding.
- Uses assessment tools for both formative and summative purposes to inform, guide, and adjust students' learning.
- Collaborates with others to develop common assessments, when appropriate.
- Aligns student assessment with approved curriculum standards and benchmarks.
- Collects and maintains a record of sufficient assessment data to support accurate reporting of student progress.
- Communicates constructive and frequent feedback on student learning to students, parents, and other stakeholders (e.g. other teachers, administration, community members, as appropriate) (Stronge, 2015, p. 43).

The Causal Teacher Evaluation Model by Robert Marzano aligns with the Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards by providing direction for teachers concerning their daily practice. Within the InTASC standard for assessment, "The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making" (Marzano, 2011, p. 21). The standard lists the performance, essential knowledge, and critical dispositions expected of the teacher as follows:

- Performances

- The teacher balances the use of formative and summative assessment as appropriate to support, verify, and document learning.
- The teacher designs assessments that match learning objectives with assessment methods and minimizes sources of bias that can distort assessment results.
- The teacher works independently and collaboratively to examine tests and other performance data to understand each learner's progress and to guide planning.
- The teacher engages learners in understanding and identifying quality work and provides them with effective descriptive feedback to guide their progress toward that work.
- The teacher engages learners in multiple ways of demonstrating knowledge and skill as part of the assessment process.
- The teacher models and structures processes that guide learners in examining their thinking and learning as well as the performance of others.
- The teacher effectively uses multiple and appropriate types of assessment data to identify each student's learning needs and to develop differentiated learning experiences.
- The teacher prepares all learners for the demands of particular assessment formats and makes appropriate accommodations in assessments or testing conditions, especially for learners with disabilities and language learning needs.
- The teacher continually seeks appropriate ways to employ technology to support assessment practice both to engage learners more fully and to assess and address learner needs.

- Essential Knowledge

    - The teacher understands the differences between formative and summative applications of assessment and knows how and when to use each.
    - The teacher understands the range of types and multiple purposes of assessment and how to design, adapt, or select appropriate assessments to address specific learning goals and individual differences, and to minimize sources of bias.
    - The teacher knows how to analyze assessment data to understand patterns and gaps in learning, to guide planning and instruction, and to provide meaningful feedback to all learners.
    - The teacher knows when and how to engage learners in analyzing their assessment results and in helping to set goals for their learning.
    - The teacher understands the positive impact of effective descriptive feedback for learners and knows a variety of strategies for communicating this feedback.
    - The teacher knows when and how to evaluate and report learner progress against standards.
    - The teacher understands how to prepare learners for assessments and how to make accommodations in assessments and testing conditions, especially for learners with disabilities and language learning needs.
- Critical Dispositions
    - The teacher is committed to engaging learners actively in assessment processes and developing each learner's capacity to review and communicate about their progress and learning.
    - The teacher takes responsibility for aligning instruction and assessment with learning goals.

- The teacher is committed to providing timely and effective descriptive feedback to learners on their progress.
- The teacher is committed to using multiple types of assessment processes to support, verify, and document learning.
- The teacher is committed to making accommodations in assessments and testing conditions, especially for learners with disabilities and language learning needs.
- The teacher is committed to the ethical use of various assessments and assessment data to identify learner strengths and needs to promote learner growth (Marzano, 2011, p. 21-23).

According to Charlotte Danielson (2013), "Good teaching requires both assessment of learning and assessment for learning" (p.27) to ensure that students have met the intended outcomes. The indicators of *Designing Student Assessments* in this model include:

- Lesson plans indicating correspondence between assessments and instructional outcomes
- Assessment types suitable for the style of outcome
- Variety of performance opportunities for students
- Modified assessments available for individual students as needed
- Expectations clearly written with descriptors for each level of performance
- Formative assessments designed to inform minute-to-minute decision making by the teacher during instruction (Danielson, 2013, p.27).

Additionally, teachers must monitor student progress and provide feedback where appropriate. The indicators of *Using Assessment in Instruction* in this model include:

- The teacher paying close attention to evidence of student understanding

- The teacher posing specifically created questions to elicit evidence of student understanding
- The teacher circulating to monitor student learning and to offer feedback
- Students assessing their work against established criteria (Danielson, 2013, p. 71).

Conclusion

This literature review provided both theoretical and empirical research to support this study. The theoretical literature review provided the basis of three theories that explain the rationale behind teachers' assessment practices. The empirical literature review supported various contributing factors to teachers' assessment knowledge including the standards against which to measure assessment knowledge, the impact of career stage, content area, grade level assigned, and teacher disposition on assessment practices. Finally, the empirical literature supports the professional development needed to improve assessment literacy as well as the available support from components of established teacher evaluation models. Artifacts from the district presented in the next section will support the need for this research.

Existing Documents: Data from Relevant Stakeholders and the Organization

Introduction

The topic of assessment at Northern Burlington has been memorialized in minutes from meetings, records of professional development time, emails, district policy regarding student assessment and goal statements, and student achievement data, among other forms of documentation. According to Marshall and Rossman (2006a), the review of existing archival sources can be "an unobtrusive method, rich in portraying the values and beliefs of participants in the setting" (p. 107). Although content analysis of these sources allows the researcher to

determine the focus of gathered artifacts, care must be taken as the methodology can be susceptible to inferential reasoning (Marshall & Rossman, 2006b).

2010-2012 District Goals

By policy, the superintendent is required to "develop and implement a systematic plan for the continuous evaluation of the educational program against the educational goals" (District Board of Education Policy 2610). The 2010-2011 district-wide department goal was to improve student achievement by increasing alignment in the guaranteed curriculum and by providing teachers time and guidance to (a) develop common formative, summative, and benchmark assessments; (b) analyze common assessments results, and (c) share strategies and modify instruction to increase student learning and to ensure the attainment of essential skills and understanding. The 2011-2012 goal continued the ongoing commitment to raise the quality of assessments, advance student learning, and improve instruction through the use of common assessments. Teachers would continue to work collaboratively in content teams to develop assessments and across departments to standardize grading procedures and processes to more accurately represent all students' progress toward attaining proficiency in courses.

Professional development. In support of the district goals, teachers were provided with training on "Effective Common Assessments" facilitated by ASCD national keynote speaker, Ms. Janie Ray Smith and on the topics of assessment and grading practices by Rick Wormeli of the AEI Speakers Bureau. To prepare for the in-service day, teachers read "Reporting Student Learning" by Ken O'Connor and Rick Wormeli and "Staying Focused on Formative Assessment" by Rick Wormeli. During the professional development sessions, teachers received checklists for creating common assessments and were introduced to the process of designing performance assessment tasks. During 2010-2012, content teams reviewed and revised existing

assessments and developed additional common assessments. Prioritized content area academic expectations (Power Standards) were identified and correlated to current common assessments.

Stakeholder concerns. While incremental progress was made in creating and analyzing assessments, uncertainty continued among members of the administrative team regarding the nature of benchmark assessments as noted in an email from the Assistant Superintendent to the Directors of Instruction in 2012, "Benchmark assessments are assessments administered periodically throughout the school year, at specified times during a curriculum sequence, to evaluate students' knowledge and skills relative to an explicit set of longer-term learning goals." A similar lack of clarity among teachers prompted an email from a Director of Instruction to a department:

> "At our department meeting last Wednesday, you requested some reading regarding benchmark assessments. The website linked in this email is one of the best I've found in terms of situating benchmarks within a comprehensive assessment system. It discusses how benchmarks fit in with more frequent formative assessments as well as summative unit assessments...The critical purpose of our benchmark assessments is to have assessments grounded in the Language Arts standards to monitor and evaluate student learning/proficiency concerning those standards and to inform our instruction."

The matter of common benchmark assessments was problematic when applied to students with disabilities as expressed by one teacher in an email:

> "I am concerned about the benchmark exams because of the difference in what the replacement Algebra classes are doing when compared to the in-class support (ICS) and mainstream Algebra classes. Although we follow the same curriculum, the replacement classes are going at a much slower pace than the mainstream and ICS classes. Although the teachers collaborate and are on the same page, we are nowhere near what other classes have covered so far. This is concerning if my classes take the same test like the

others, the results would definitely be skewed since my students have yet to be exposed to the same material. I have no problem working either by myself or with others in the department to develop a benchmark exam for the replacement classes."

District response. Following two years of department work on the aforementioned goals, the district elevated the priority of assessments in the 2012-2013 district goal focusing on continuous improvement through the development and implementation of standards-based assessments and the analysis of results. The goal indicated that teachers would identify critical standards and align assessments to these standards. Additionally, content teams would develop and implement benchmark assessments that reflect the big ideas of the course and identify minimum proficiency rates.

As the district charted its course with the development of benchmarks, a guidance document was developed which included these points:

- Benchmark assessment must be common when the course is taught by more than one teacher as with any other assessments. Benchmark assessments are based on the identified Power Standards/Big Ideas.
- Every full-year course is expected to administer 3 benchmark assessments during prescribed time frames.
- Benchmark assessments must count as a major assessment within the assigned quarter. Every student is expected to reach a minimum proficiency of 75%. Collaborate with content team colleagues to facilitate retakes of assessments. Analyze results collaboratively with the content team.
- Parents must be informed of the introduction of benchmark assessments at Back to School Night and contacted immediately with any challenges.

2013-2015 District Goals

The overarching goal for 2013-2015 was to increase student achievement by understanding the course big ideas and mastery of standards through the integration of evidence-based instructional strategies and a balanced assessment system. This was to be accomplished by identifying critical/power standards per course, and by administering and analyzing the results of rigorous, locally developed, common course benchmark assessments. Teachers would further implement instructional strategies linked to evidence of increased student learning. Teachers were expected to refine three to five benchmark assessments tied to the course big ideas and to develop accompanying scoring guides and/or rubrics. Additionally, teachers were to develop consistent practices for re-assessment and provide feedback to peers on the assessments.

In August 2014, the district developed a Balanced Assessment System (Figure 2.2) to consistently report student progress by standardizing weighted grade book categories per course by Evaluation (50%), Assessment (40%), and Practice (10%). Cumulative semester exams (midterms and finals) were eliminated which previously counted as 20% of each semester grade.

The product of assessment and practice, two evaluations of learning outcomes were to be administered per marking period as indicators of the student's mastery of knowledge and skills at a particular point during the course. Benchmark assessments with retake opportunities determined by each department would provide students with multiple and varied ways to demonstrate knowledge and skill within appropriately chunked lessons and units of study. As practice can inform preparation for assessments and indicates progress toward desired daily learning targets, students would have frequent opportunities to apply skills and knowledge to various experiences inside and outside of the classroom.

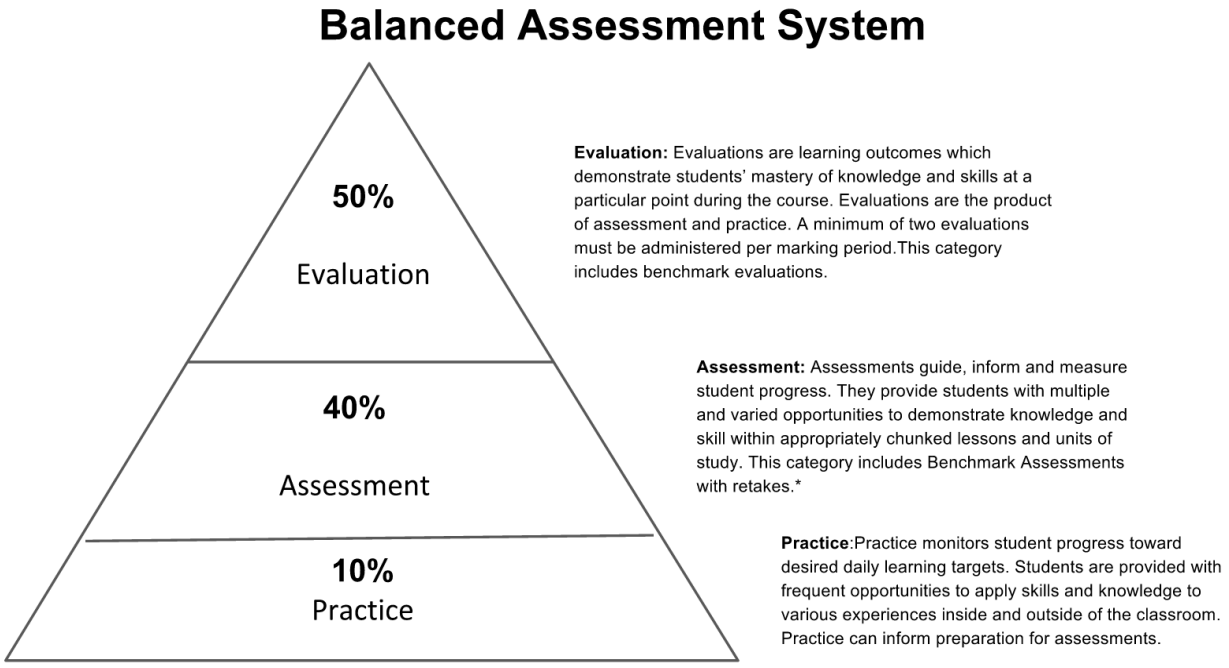


Figure 2.2. Balanced Assessment System

Of note, the district's locally-developed Teacher Summative Evaluation Instrument includes only one element devoted to evidence of the teacher's adherence to the Balanced Assessment System. Teachers are not currently evaluated about the quality of their assessments. A review of the ratings for 2015-2018 indicates that 100% of teachers received a rating of Effective or Highly Effective in this assessment element.

Professional development. During the first year, time was allocated for teachers to work collaboratively in content teams to continue creating benchmark assessments and evaluations; to determine proficiency levels, and to draft Student Growth Objectives (SGOs). Administrators supported each content team by providing feedback to guide progress. During the second year, teachers collaboratively reviewed benchmarks, reassessment strategies, and results. The reflections on three guiding questions by the content teams are generalized as follows:

- How can the administration of your benchmark be improved?

Teachers responded that September was too early in the school year to administer the first benchmark assessment. Four benchmarks should be administered instead of five. These assessment scores should not be included in the marking period grade for students.

- What conclusions can be drawn from the benchmark data?

  Conclusions gathered from benchmark data varied greatly by department. For example, Mathematics teachers reported improvement in skills in error analysis and explanations by students. Social Studies teachers concluded that using primary source documents was no longer a skill needing attention. Science teachers found positive gains in the ability of students to cite textual evidence in other assignments throughout the year.

- How did you address benchmark re-teaching and the reassessment process?

  Representatives of all departments expressed challenges with the re-teaching and reassessment process citing that the district schedule did not provide contact time with students outside of the regular class periods. Respondents commented that re-teaching and reassessment requirements caused a loss of instructional time.

Stakeholder concerns. Teachers expressed concerns regarding the district's expectations for Student Growth Objectives. In an email, the Assistant Superintendent addressed this matter following a meeting with the high school mathematics department who experienced significant challenges in setting these goals:

> "It was a pleasure to meet with you yesterday and I appreciated the opportunity to engage in informative discussion regarding the implementation of the student growth objective (SGO) process. Your candid and thoughtful remarks will serve to provide additional guidance as we move forward and continue to learn together how to most effectively implement this initiative. To summarize the meeting outcomes, we confirmed that SGO's

> are academic goals identified in accordance with the most pressing needs for student improvement. Academic goals are aligned to both standards (knowledge) and practices (process/skills). In order to continue the development and implementation process meaningfully, I am requesting your support and I need your help here."

The district continued to press forward regarding assessments as noted in this email from the Assistant Superintendent to the Directors of Instruction in 2014 which began with a quote from Rick Stiggins:

> "Teachers must be well versed in Assessment Literacy (Stiggins) 'Knowledge and skills needed to…gather accurate information about student achievement, and use the assessment process and its results effectively to improve student achievement.' Overall, such an on-going student outcomes assessment process works to improve institutional effectiveness. This process uses multiple measures of valid, reliable, and relevant assessment procedures, both quantitative and qualitative, to monitor and improve courses, services, and programs. The data collected over time will provide information for curriculum reform, broad-based planning, resource allocation, organizational leadership, institutional governance, and staff and student development. This information is used to improve instruction, student, and community services, and to certify academic excellence for the college clientele and constituencies."

District response. The district developed an Assessment Analysis and Approval template (see Appendix B) which content teams were required to submit with each benchmark assessment. The rubric asked teachers to identify the rigor of questions using Webb's Depth of Knowledge progressive levels of recall, concept, strategic thinking, and extended thinking. According to NJ Achieve, "An assessment that accurately reflects the range of rigor of the course

and instruction increases the validity of inferences educators can make about student learning [and] provides access points to students of varying ability" (NJ Achieve SGO PowerPoint, Slide 37).

Additionally, the district responded to teacher concerns regarding expectations for SGO ratings by pre-populating each rating level with the specific percentage groups of students that would qualify as "meeting" the goal (see Table 1). The number of students for each population was examined and adjusted to place a larger number of students in the rating "3" level. For example, for one teacher's SGO, the original percentage calculation required 5 students to achieve a rating of "3" and 6 students instead of 3 to achieve a rating of "4". The percentages in each level for this population were adjusted to include a larger group of students in level "3" as shown.

Table 1
Example SGO calculation

SGO Rating	4	3	2	1
Number of Students	49-47 (3 students)	46-39 (8 students)	38-32 (7 students)	31-0
Percent of Students	100% - 96%	94% - 80%	77% - 65%	63% - 0%

2016-2018 District Goals

After multiple years focused on the elements of assessment and student reporting, the goals for this period was to further refine teachers' practices by successfully implementing research-based instructional strategies and a balanced assessment system to ensure all students achieve desired learning outcomes in each course. Department content teams would continue to collaborate to develop and analyze common classroom lessons and activities; develop formative and summative assessments; and examine student outcomes to facilitate continuous instructional improvement and enhance student achievement. Additionally, teachers would further work to

standardize grading procedures and to ensure uniformity of grading processes to more accurately represent all students' progress toward attaining proficiency in the course.

The district's current strategic plan, which began in 2015, calls for students by June of 2023 to demonstrate a greater degree of success in the mastery of challenging curricula as indicated by a 2% growth of students who achieve a score of proficient or above on district benchmark evaluations in English, Social Studies, Math, Science, and World Language (see Table 2). Based on the data from 2016-2018, a gap exists between students' performance on locally developed district benchmark evaluations and students' performance on state standardized assessments (see Table 2).

Table 2
Percentage of students with proficient achievement on subject area benchmark evaluations

Content Area	May 2016	May 2017	May 2018
English	91%	90%	93% (Met Goal)
Social Studies	93%	93%	94%
Math	87%	92% (Met Goal)	90%
Science	89%	91% (Met Goal)	92%
World Language	80%	86% (Met Goal)	92% (Met Goal)

Table 3
Percentage of students meeting or exceeding PARCC ELA and Math expectations

	2015-2016		2016-2017		2017-2018	
Subject-Grade Level	School-wide Performance	Statewide Percentile	School-wide Performance	Statewide Percentile	School-wide Performance	Statewide Percentile
ELA-Middle School	61.8	61	72.9	54.9	75.7	56.7
Mathematics-Middle School	55.6	61.3	66.5	43.5	64.6	45
ELA-High School	47.7	47.1	51.7	54.9	56.3	56.7

Mathematics-High School	36.5	65.4	29.8	43.5	35.4	45

Note. Green highlighted values indicate achievement exceeding expectations. Orange highlighted values indicate achievement below expectations.

Professional development. When not facilitated by district leaders, professional development time was purposed for content teams to refine benchmarks and collaboratively grade assignments. In September 2018, the district solicited teacher input regarding professional development time planned for October. The survey asked teachers to identify which session most met their professional development needs and their interest in facilitating training. Of the thirty-six teachers completing the survey, only eight respondents were willing to lead any of these sessions:

- Formal and informal assessment practices
- How do you measure learning?
- Meaningful formative assessments
- Using instructional strategies to facilitate learning
- Using technology to facilitate assessment (Padlet, Nearpod, GAFE)
- What does assessment mean to you?

After reviewing the survey results, members of the Academic Advisory Committee determined that additional professional development was needed before teachers serving as facilitators including:

- Clear expectations from the administration about what high-quality assessments look like.
- Strategies to make assessments more meaningful and less grade focused.
- Strategies for making assessments accessible for all individuals.
- Examples of varied assessments that fit into the district's Balanced Assessment System.

- Examples of feedback for learning.

Stakeholder concerns. Despite much attention and progress, parents continued to express various concerns regarding assessments. Several key points were addressed by one parent in an email from November 2018 to a Director of Instruction. The matter of instructional time devoted to strategies evaluated on assessments was questioned:

> "I am writing regarding a matter that concerns me and hoping to attain some level of understanding of the benchmark assessment practice. I went in for conferences and learned that my daughter's benchmark assessment indicates she is struggling significantly with reading comprehension and strategies in Social Studies. When I asked the teacher about how much time is spent in class on teaching students reading strategies, she remarked that the students complete Newsela homework assignments. My daughter received full credit for those assignments. The teacher then stated that they do slightly touch upon reading in class, but not every day."

The parent inquired as to how she was expected to assist her daughter when a copy of the assessment is unavailable for review by the parent:

> "I was pleased that the teacher, after my request, was willing to show me the assessment so I can better understand where the gaps are in her skills. The assessment indicated that my daughter was struggling with readings skills. I wouldn't have known this information without requesting to see the assessment. When I asked for a copy said she would print me a copy since the assessment is on the computer. I asked the same of her English teacher and he agreed to print out a copy and send it home this week. I am also requesting if you can explain what the policy is on parents viewing the Benchmark Assessments? "

The matter of the relative weighting of the assessment and the reporting of the score was another area of concern:

> "Further, I am trying to understand why is so much weight placed on an assessment when it appears that little instructional time or deliberate teacher practice is spent teaching those assessed skills. Can you shed light on this concern? Moreover, I want to know that students are being set up for success on these assessments so they can be inspired to take charge and lead their own learning. It was also concerning to me that the score was reported out as a 75% and that the assessment was not reported out in the grade book in a manner that would effectively communicate to parents the skills assessed and how my daughter performed on those skills. Given the weight of these assessments, they are clearly significant for students' learning and teacher planning. Why are they not reported out in a more meaningful fashion to help parents understand how their child is progressing?"

Finally, the parent expressed her interest in ensuring the integrity and rigor of the curriculum in light of the long-term success of students:

> "I am looking to achieve some understanding of these matters as a parent who would like to be assured that opportunities for critical reading and thinking are guaranteed in the curriculum. I believe such a commitment would ensure a focus on literacy learning and promote lifelong learning. In addition, this would set up more students for long term success and opportunities for advanced level courses when they reach high school."

In January 2019 another parent emailed the district questioning why first marking period benchmark scores are included in the evaluation category for the course grade when students are being assessed on the content not yet presented by the teacher:

> "While I understand the role of Benchmarks, both as a tool to evaluate student progress and to assess teachers, I do not understand why the grades on these benchmarks count towards the students' final grade, particularly in the first marking period. Students are being graded on things they have not yet learned, and this counts as an evaluation grade. It is inevitable that students will do poorly on the first Benchmark evaluation (Marking Period 1), as the test covers material/concepts that have barely been introduced and will be taught throughout the year/semester. Conscientious students who want to do their best and are concerned about their grades are penalized by the Benchmark and then spend the rest of the marking period trying to dig out of the hole created by an unfair test. What is the rationale for counting the first Benchmark, particularly, why is it weighted so heavily? There are often only a few evaluation grades each marking period, especially at the beginning of the school year, and a poor grade on the Benchmark can be almost impossible to overcome. How is this helping students?"

The parent noted an apparent inconsistency when weighting second marking period benchmark tests in the category of assessments which now included the opportunity for a retake:

> "Marking Period 2 Benchmarks were taken in December, but this time they were considered assessments and could be retaken if the students did not do well. Why is the second marking period Benchmark weighted as an assessment instead of an evaluation and why can it be retaken? Shouldn't the process be consistent throughout the school year? If Benchmarks are going to count towards the students' grade, allowing them to retake them at least allows them to meet with the teacher and understand where they made mistakes and provides an opportunity for them to learn from those mistakes while not ruining their grade for the marking period."

While the third marking period benchmarks follow the same format, the parent pointed out that the fourth marking period tests return to the evaluation category without retakes as was the case in the first marking period:

> "As I understand it, I believe third marking period Benchmarks are similar to the second marking period and are considered assessments and can be retaken (so same questions as above) while Marking Period 4 Benchmarks are evaluations and cannot be retaken. I understand why the end of year/semester Benchmark is important, as this shows whether the student learned what he/she should have learned throughout the class, similar to a "final" exam, but again, why does it need to be weighted so heavily? The teachers are evaluating the students throughout the year with appropriate assessments, evaluations, and other assignments."

The parent concluded the email by expressing the unneeded stress placed upon students and claiming differences in assessment practices of other school districts:

> "These Benchmarks are causing unnecessary stress and anxiety on students. The current practice does not benefit the students but instead is taking away valuable instruction time. This process needs to change. I have spoken to friends who teach in other NJ school districts and while their schools participate in a Benchmark-type evaluation process, Benchmarks do not count as a grade, but are only used to assess student progress during the year (and primarily as part of the teacher's evaluation process)."

District response. Clearly communicating district assessment practices is an ongoing focus of the Directors of Instruction as evidenced by this December 2018 email to the team following a meeting with a parent:

"1. Parents need to hear that they can and should have access to graded assignments to see feedback and support the academic goals of the teachers. We need to tell our teachers the same.

2. There are some programs that may be "grading" students on material they do not yet know at the beginning of the year. Our conversation pointed out English and World Language as examples.

3. We should publish a graphic illustrating how GPA is calculated compared to the weighted GPA in an effort to convince students to elect to challenge themselves.

4. Interested outside stakeholders (parents) should be connected to the AAC (Academic Advisory Committee) in some way. Perhaps 2-3 times a year we provide updates."

Summary

This chapter began with a review of the learning theories of behaviorism, cognitivism, and constructivism, and the impact of each on assessment design and teachers' assessment practices. The empirical literature review described current research supporting these theories as related to the problem of practice. These sources focused on various factors contributing to teachers' assessment knowledge including the standards against which to measure assessment knowledge; the impact of career stage, content area, and grade level assignment; and, the teacher's disposition on assessment practices.

The empirical literature further provided evidence for the need for professional development to improve assessment literacy as well as the relevance of assessment components in teacher evaluation models. The final section of this chapter presented district artifacts illustrating multiple years of goals related to the assessment and reporting of student progress.

Additional evidence described professional development provided to support district goals; student performance data (where appropriate); and responses to stakeholder concerns.

The sources of actionable knowledge reviewed warrant claims about the Problem of Practice. The cited documentation illustrates that a gap exists between classroom assessment data and the district's ability to predict students' performance on standardized assessments. The data presented indicate that the district cannot presently confirm that course assessments measure the intended knowledge and skills. As noted in the theoretical literature review, teacher dispositions towards approaches to learning drive the methods of assessment used by school personnel to document student learning.

The teachers' knowledge of assessment design principles that support student learning is varied according to the evidence presented in this chapter. An understanding of the factors that impact assessment decisions made by teachers is key to ensuring continuous improvement and providing meaningful professional development. The sources reviewed justify the problem's significance to the organization. The next chapter will outline the research methods used to answer the questions of how have approaches to classroom assessment practice varied among teachers of tested areas and which factors have influenced these variations.

CHAPTER 3: METHODS AND DESIGN FOR ACTION

Introduction

Research estimates that teachers spend up to 40 percent of their instructional time on assessment activities (Stiggens, 1988), yet there are few opportunities for teachers to develop their concepts of assessment or to learn how to assess to inform instruction and support student learning (Webb, 2009). Although assessment of student academic performance is a key responsibility of every content area teacher (Mertler & Campbell, 2005) as required by New Jersey administrative code (N.J.A.C. 6A:9-3.3), few teachers have the training, experience, or adequate time to become proficient in this area (Barrette, 2017; Stiggins, 2018). Studies suggest that when assessment practices are consonant with the teacher's approaches to teaching and learning, students are motivated and engaged by both formal and informal forms of formative and summative feedback (McMillan, 2000).

The following research questions were addressed in this quasi-experimental action research:

1. How have approaches to classroom assessment practice varied among teachers of tested areas?
    a. How have approaches to classroom assessment aligned with theories regarding student learning among teachers of tested areas?
    b. How have approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas?
2. Which factors have influenced variations in assessment practices among teachers of tested areas?

This chapter describes the research design and methods of inquiry in this program evaluation. An explanation is given as to how the design addresses each research question. The data collection instruments and sources of data are presented along with a discussion of the alignment of the data to each research question (see Table 4). The chapter concludes with an explanation of the practices being monitored and the criteria used to define improvement.

Table 4
Research question connection to data

Problem, Purpose, Action	Research Questions	Data Collection Tools	Data Source	Data Analysis
Audits of district assessments indicate a disconnect between assessment items and intended learning outcomes.	1: How have approaches to classroom assessment practice varied among teachers of tested areas?	Approaches to Classroom Assessment Inventory (ACAI)	Dr. Andrew Coombs, Queen's University Spreadsheet	Inferential descriptive statistics Frequency distributions, percentages
	a. How have approaches to classroom assessment aligned with theories regarding student learning among teachers of tested areas?	Assessment Practices Survey (APS)	Spreadsheet	
	b. How have approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas?	Approaches to Classroom Assessment Inventory (ACAI)	Dr. Andrew Coombs, Queen's University Spreadsheet	
Identifying teachers' knowledge of assessment is critical to ensure accurate reporting of student learning.	2: Which factors have influenced variations in assessment practices among teachers of tested areas?	Approaches to Classroom Assessment Inventory (ACAI)	Dr. Andrew Coombs, Queen's University Spreadsheet	

Participants in the Study

Teachers of tested content areas (English, mathematics, science, and special education teachers of these content areas) in the Northern Burlington County Regional School District,

Grades 7-12, were invited to participate in the study. The maximum possible population size was 84 individuals, with an average of 11 years of teaching experience in the district (see Table 5).

Table 5
Potential target population distribution

Department	Number of Teachers			Average Years Teaching Experience in District
	High School	Middle School	Total	
English	16	11	27	8
Mathematics	16	12	28	12
Science	10	6	16	11
Special Education	7	6	13	12
			84	11

A single-stage non-probability convenience sample (Creswell & Creswell, 2017) was used for the study as the researcher has direct easy access to the target population, whose members were available and willing to participate in the surveys. (Etikan, Musa, & Alkassim, 2016). These teachers were part of the design for improvement since the locally developed assessments administered in these disciplines could be used to measure student performance relative to standards and predict student performance on state assessments.

In obtaining informed consent (see Appendix C), all participants were notified of the actions taken to guarantee their privacy and the confidentiality of any data gathered during the study. The consent form explained the purpose of the study, the criteria used for selecting participants, the purpose of the surveys, and any potential risks, benefits, or costs associated with their participation. This form was also intended to establish a relationship of trust between the teacher participants and the researcher.

Specific Practices that are Components of the Improvement Effort

Timeline

Upon securing IRB approval from Rider University, the two surveys were administered online during the first six weeks of the 2019-2020 school year during specific times during the teachers' contractual day. The timeline (see Table 6) outlined the analysis of the collected data from both surveys completed during the Fall of 2019. The survey results were considered with respect to information obtained from the literature review and district artifacts. In the final dissertation defense, the researcher offered recommendations for teachers, administrators, researchers and other policymakers regarding the impact of various factors on student assessment. Proposals for further research were presented to replicate and expand the findings of this study.

Table 6
Project timeline

Timeframe	Task
June 2019	Approval by Rider University's IRB
August 2019	Pilot surveys
September - October 2019	Administer surveys to participants
November - December 2019	Analyze data from surveys using SPSS
January - February 2020	Describe and discuss findings
March 2020	Dissertation Defense

Research Methods

Systematic empirical inquiry was used to determine whether any relationships exist between and among the identified variables addressed in the surveys. According to Walston, Redford, and Bhatt (2017), "Surveys are important in education research because they can provide quantitative descriptions of the characteristics, behaviors, and attitudes of students, teachers, principals, parents, district leaders, and other specific populations" (p.1). Cross-sectional data were collected from a convenience sampling of the target population of teachers through the administration of two online surveys.

Participants were asked to consent to be part of an educational research project led by Dr. Christopher DeLuca of Queens' University in Canada before completing the Approaches to Classroom Assessment Inventory (ACAI) survey (see Appendix D). Dr. DeLuca provided written permission for the instrument's use (see Appendix E). This instrument was used to obtain baseline data on teachers' approaches to classroom assessment; self-assess teachers' current confidence levels with assessment and prioritize teachers' preferred modes of professional development focused on assessment. Construct validity evidence for the ACAI survey was determined by the expert-panel method (DeLuca et al., 2016a).

In the first section of the approximately 20-minute ACAI survey, the teachers reviewed five scenarios about assessment practices and selected their most likely responses using a Likert scale. The second part asked participants to indicate their likelihood of action concerning 24 statements. Finally, respondents indicated their preferred professional development methods.

After completing the ACAI survey, teachers were invited to complete a follow-up Assessment Practices Survey (APS) (see Appendix F) approximately10 minutes in duration, designed by the researcher. This survey was piloted with a separate sample of district teachers to obtain feedback on needed changes in its design before administration to the target population. Teachers were required to supply the same anonymous "identifier" number entered into the ACAI survey so that the responses from both surveys could be linked for data analysis. Participants were asked to select Likert scale responses to questions regarding their approach to student learning and classroom practices after given the opportunity to review their "Personalized Assessment Profile" results from the ACAI survey.

Data collection. Participants accessed the Approaches to Classroom Assessment Inventory (ACAI) survey through a specific link created by the team led by Dr. Christopher

DeLuca for Northern Burlington participants. The researcher-created Assessment Practices Survey (APS) was conducted online using a Google Form. Both surveys generated raw numerical data downloadable in a spreadsheet format corresponding to the responses of the teachers. These specific data collection processes maintained respondent anonymity while providing concise and organized information for analysis.

Data analysis plan. Results were forwarded to the researcher from the data analysis team led by Dr. Christopher DeLuca depicting the assessment profiles of the participating survey respondents. The ACAI survey included 20 items aligned to each of the four assessment themes organized into five scenarios. Part 2 of the survey included 26 ordinal items measured on a 5-point scale of the teachers' confidence level concerning classroom assessment practices. Part 3 included two sections, one with 12 and the other with 14 items, designed to determine the teachers' professional learning priorities and preferences in assessment using a Likert-type scale.

The researcher analyzed the raw data from the APS and ACAI surveys through descriptive statistics. The use of a convenience sample limited the generalization of the research results to certified teachers of English, mathematics, and science within the district. Teachers and administrators of other content areas within the organization as well as those outside of the district with an interest in assessment may find value in the results.

Eliminating bias. A convenience sample by nature is a biased form of data gathering. The ability to recognize and limit both participant and researcher bias is important to ensure the precise and impartial collection of data and interpretation of research results when drawing conclusions. Maintaining the anonymity of survey results is critical for the researcher when honoring commitments of confidentiality and to minimize participant bias. The only identifiable characteristics collected were those needed to answer the research questions including content

area assignments (English, mathematics or science), grade level (middle school or high school), and career stage (0-5 years, 6-15 years, and greater than 15 years).

Researcher bias was minimized insofar as the participants were representatives of three large departments in two large schools from each of the three career stage categories. As a former teacher and current instructional leader, the researcher innately held assumptions about assessments. In this study, the researcher had to control for varied explanations about assessments and personal bias about the responses. She also needed the ability to generalize and replicate the results (Creswell & Creswell, 2017). Including all the data collected not only enables readers to draw their conclusions but also helps prevent misrepresentation of the information and the introduction of bias into the study. Finally, acknowledging the expectations of the researcher, and how those were confirmed or contradicted, enabled the researcher to share possible bias.

Targets and benchmarks used to monitor and evaluate improvement progress, improvement criteria, and measurement. The patterns and themes that emerged from the research data and its analysis enabled district leaders to define and develop the next steps for professional development on assessments. For this target, a district plan for improvement was developed based upon an understanding of the assessment profiles of the teachers and the relationships, if any, between identified variables (career stage, content area, grade level assigned) and teachers' assessment practices. The profiles will be used within the impacted departments to extend the dialogue about assessment design which is essential for supporting quality continuous professional development.

Various performance indicators documented the success of this initiative. The benchmarks to monitor and evaluate progress included:

- Teachers' awareness of their personal assessment profiles increased.
- Teachers' knowledge of varied assessment practices improved.
- Assessment plans for the impacted courses represent varied assessment practices.
- The district identified connections between teachers' assessment practices and the identified variables.
- Teachers produced high-quality common assessments by department that reflect and inform student learning.

Summary

This chapter described the research design and methods of the inquiry process used in this program evaluation. The data collection instruments and data sources were presented along with an explanation of how the data connects to each research question. After describing the study's participants, a brief discussion followed of the research methodology employing two online surveys. Following an overview of the data collection and analysis, the chapter concluded with the practices being monitored and the criteria that defined improvement. Chapter Four presents a detailed examination of the research findings, results, and interpretations of the data.

CHAPTER 4: DESCRIPTION OF FINDINGS

Introduction

This chapter presents a description of the findings of this action research study whose purpose was to determine the teachers' current assessment practices to improve district professional development on assessment. The data was gathered from the administration of two instruments: The Approaches to Classroom Assessment Inventory (ACAI) developed by DeLuca et al. (2016a), and the Assessment Practices Survey (APS), designed by the researcher. The ACAI is an "assessment literacy instrument to measure and support teachers' professional learning and practice in classroom assessment" (DeLuca et al., 2016a, p. 251). The APS was constructed to measure the teacher's approaches, concerns, and goals regarding student learning and assessment, as well as their wants and needs concerning professional development. The administration of both instruments was intended to promote individual self-reflection and foster conversations among content teams regarding assessment.

Problem of Practice and Research Questions

This quasi-experimental action research sought to develop an understanding of the current assessment practices of teachers of tested areas in the district of interest to target and differentiate the district's professional development on assessment. The following research questions focused the data analysis:

1. How have approaches to classroom assessment practice varied among teachers of tested areas?
    a. How have approaches to classroom assessment aligned with theories regarding student learning among teachers of tested areas?

b. How have approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas?

2. Which factors have influenced variations in assessment practices among teachers of tested areas?

Research Methodology

Instruments

The Approaches to Classroom Assessment Inventory (ACAI) included three sections: (1) five scenarios each followed by four questions which asked participants to select a response indicating their likelihood of performing each of three possible actions based on their teaching context; (2) questions about classroom practices; and (3) questions targeting professional learning. The results of the first section yielded a personalized assessment profile of the respondents' current approach to classroom assessment in relation to the dimensions of assessment purpose, process, fairness and theory (see Table 7). Each dimension included three approaches to assessment which were prioritized based upon the individual's responses in section one of the inventory.

Table 7
ACAI: Descriptions of approaches under each assessment dimension

Dimension	Approach	Description
Assessment Purpose	Assessment of Learning	Teachers use of evidence to summate student learning and assign a grade in relation to student's achievement of learning objectives.
	Assessment for Learning	Teachers and students use evidence of learning to provide feedback on progress towards learning objectives (i.e., inform next steps for learning and instruction). Involves both teacher-directed and student-centered approaches to formative assessment.

	Assessment as Learning	Teachers and students focus on how the student is learning by providing feedback or experiences that foster students' metacognitive abilities and learning skills (e.g., self-assessment, goal-setting, learning plans). This approach involves teachers but is primarily student-centered.
Assessment Processes	Design	Teachers emphasize the development and design of reliable assessments and test questions that measure student learning in relation to learning objectives.
	Administration and Scoring	Teachers focus on the adjustment and use of scoring protocols and grading schemes to respond to assessment scenarios.
	Communication	Teachers prioritize the interpretation of assessment results and feedback through purposeful communication to students and parents.
Assessment Fairness	Standard	Teachers employ equal assessment protocols for all students.
	Equitable	Teachers differentiate assessment protocols for formally identified students (i.e., special education or English language learners) using accommodations and/or modifications.
	Personalized	Teachers individualize learning opportunities and assessments that address each student's unique learning needs and goals.
Assessment Theory	Consistent	Teachers work to ensure reliability in assessment results throughout the assessment process including consistent scoring, design, and administration of assessments.
	Contextual	Teachers work to ensure assessments aligns with curriculum expectation and accurately reflect students' classroom learning and experience. Teachers purposefully consider learner and learning context when interpreting assessment results.
	Balanced	Teachers consider the reliability of assessments to ensure consistency in measuring student learning as well as the validity of assessment to ensure assessment aligns with the taught curriculum.

Note. From *Approaches to Classroom Assessment Inventory* (ACAI) by DeLuca, LaPointe-McEwan, and Luhanga

The Assessment Practices Survey (APS) included six sections where teachers reported their responses using Likert scales to various items:

1. frequency (daily, weekly, twice a week, monthly, never) of their use of types of assessment tasks;
2. priority (1 = highest priority through 5 = lowest priority) of self-reflective questions considered after administering a classroom assessment;
3. priority (1= highest priority through 7 = lowest priority) of their goals concerning all forms of assessment used in their courses;
4. frequency (1= most frequently to 7 = least frequently) of formal forms of assessment used in their courses;
5. ranking of their ability to implement assessment practices (novice, advanced beginner, competent, proficient, or expert); and
6. level of interest (extremely interested, very interested, moderately interested, slightly interested, not at all interested) in participating in professional development on various assessment topics.

Adjustments were made to the wording and formatting of items in the APS after piloting the instrument with five administrators and four teachers from the district. Based upon feedback from the pilot group, the decision was made to schedule the administration of the APS two weeks after the ACAI. Piloting the APS allowed, "... the researcher to identify whether respondents understand the questions and instructions and whether the meaning of questions is the same for all respondents [and] ... whether sufficient response categories are available, and whether any questions are systematically missed by respondents" (Kelley, Clark, Brown & Sitzia, 2003, p. 263).

Analysis of Data Sources

Cross-sectional data were collected from a convenience sample of the target population of teachers through the online administration of the Approaches to Classroom Assessment Inventory (ACAI), developed by DeLuca et al. (2016a), and the Assessment Practices Survey (APS), designed by the researcher. Demographic information collected from the ACAI included such items as the respondents' gender, age, years as a professional educator, content area specialty, and grade level assignment, were used as data filters for analysis. Participants were also asked to enter the last five digits of their phone number which allowed the researcher to link the ACAI and APS responses.

Frequency distributions of the responses from the participants were filtered by specific demographic factors from both surveys and presented in the form of pie-charts and tables. Where necessary, Likert scale descriptors were assigned ordinal numerical values that were used in the calculation of weighted totals for a given category. "The frequency distribution is the basic building block of statistical analytical methods … It helps researchers (a) organize and summarize the survey data in a tabular format, (b) interpret the data, and (c) detect outliers (extreme values) in the survey data set" (Lavrakas, 2008, p. 293).

Background Information on Participants

The ACAI was administered electronically to all teachers in the district during the opening days of the 2019-2020 school year. Of the 137 teachers who completed the inventory, only the 72 English language arts, mathematics, science, and special education content area teachers were subsequently invited to complete the web-based APS between September 15, 2019, and October 1, 2019. From the 36 teachers who completed this survey, only the 26

individuals who also fully responded to the ACAI were selected as a convenience sample for this action research data analysis (see Table 8).

Table 8
Convenience sample participants (N=26)

Grade Level	Content Area	Years of Experience	Age
Middle School [12]	ELA [6]	1-5 years [4]	20-29 years old [5]
High School [14]	Mathematics [9]	6-10 years [5]	30-39 years old [9]
	Science [8]	11-20 years [12]	40-49 years old [8]
	Special Education [3]	21-30 years [5]	50-59 years old [4]

Presentation of Data

Learning Theories

Cognitivism. Nearly two-thirds (62%) of surveyed teachers indicated a preference towards a cognitivist approach to learning (see Figure 4.1) based upon eight out of the ten identified behaviors being exhibited each day (see Table 9). The greatest frequency variability was recorded in the time devoted to student self-assessment which was undertaken most often (38%) every month.

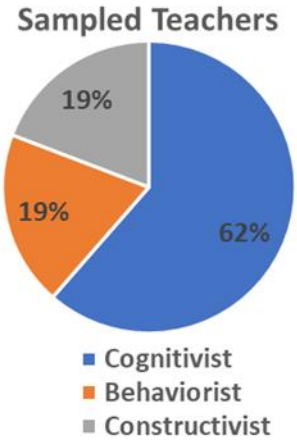


Figure 4.1. Distribution of learning approaches among sampled teachers

Table 9
Cognitive behaviors

Frequency	All students take the same test at the same time	Information is categorized or chunked for students during instruction	Inquiry & Discovery learning is utilized during instruction	Problem-based learning & real-world examples are utilized during instructio n	Class discussions are utilized during instruction	Analogies, mnemonics, or visual representations are utilized during instruction	Students complete self-assessments	Students need prior knowledge to understand new content	Students transfer or apply learning to new situations	Students organize, retrieve, and use knowledge
Never	8%	4%	0%	0%	0%	0%	0%	4%	0%	0%
Daily	0%	85%	42%	62%	73%	65%	23%	54%	58%	81%
Weekly	62%	12%	38%	31%	0%	35%	27%	35%	35%	0%
2-Weekly	0%	4%	8%	0%	4%	0%	12%	0%	0%	4%
Monthly	31%	4%	12%	8%	23%	0%	38%	8%	8%	15%

Behaviorism. Only 19% of sampled teachers indicated a preference for the behaviorist approach to learning (see Figure 4.1). Survey respondents reported never exhibiting three out of seven of the identified behaviors including the use of timed tests and providing or withholding rewards based on academic performance (see Table 10). Nearly three-quarters (73%) of teachers did praise students daily for their academic accomplishments.

Table 10
Behaviorist behaviors

Frequency	Timed tests are used	Responses are graded as either correct or incorrect	Students are praised for academic performance	Students are required to remember important facts	Rewards (homework passes, extra credit) are provided based on academic performance	Rewards (homework passes, extra credit) are withheld based on academic performance	Students are required to give quick and accurate responses
Never	42%	8%	0%	0%	73%	77%	15%
Daily	0%	12%	73%	23%	4%	0%	27%
Weekly	15%	19%	19%	58%	0%	0%	12%
2-Weekly	4%	0%	4%	4%	12%	8%	27%
Monthly	38%	62%	4%	15%	12%	15%	12%

Constructivism. An identical percentage (19%) of surveyed teachers indicated a preference towards constructivism as an approach to learning (see Figure 4.1). Among the nine

identified behaviors, teachers reported never using case studies and simulations as assessments or assisting students to determine assessment criteria or in their selection of learning activities. Daily, participants claimed to guide and facilitate student learning; provide opportunities for students to demonstrate learning in various ways, and to learn from each other (see Table 11). Of note, there was a near-even (48% ± 2%) percentage of teachers who either never or once-a-month helped students create their own assessments.

Table 11
Constructivist behaviors

Frequency	Assessment items have multiple correct answers	Student learning is guided and facilitated by me	Research projects are used as assessments	Case studies and simulations are used as assessments	Students can demonstrate learning in varied ways	Students help determine the assessment criteria	Students help select learning activities	Students are provided opportunities to learn from each other	Students help create their assessments
Never	27%	4%	35%	54%	0%	65%	42%	0%	42%
Daily	4%	62%	0%	0%	69%	0%	4%	62%	4%
Weekly	19%	19%	0%	4%	23%	0%	15%	27%	4%
2-Weekly	8%	15%	8%	8%	0%	12%	8%	8%	4%
Monthly	42%	0%	58%	35%	8%	23%	31%	4%	46%

Teacher Characteristics

Age 20-29 years. The results of the researcher's survey suggest two-thirds of teachers 20-29 years of age subscribe to a cognitivist approach to learning (see Figure 4.2). Of the remaining 34% of teachers in this age group, 26% of this population demonstrated a behaviorist approach, while only 8% presented as constructivists. The results of the ACAI survey show a near equal weighting of preferences in each of the subcategories of the assessment profiles in the sample group.

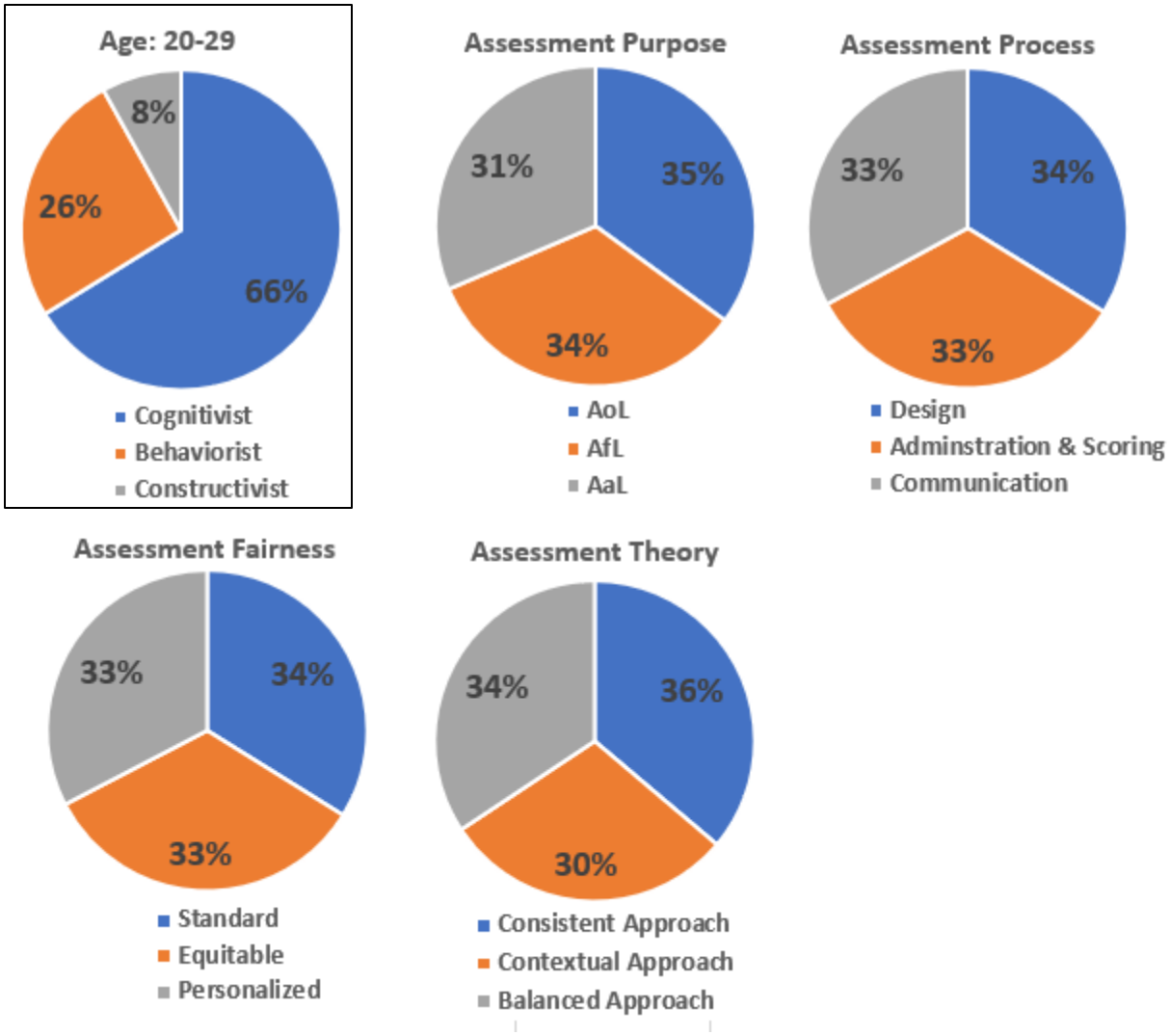


Figure 4.2 Approaches to learning and assessment for surveyed teachers 20-29 years of age (N=5)

Age 30-39 years. The researcher's survey suggests that slightly over half (56%) of teachers 30-39 years of age hold to a cognitivist approach to learning. Compared to their younger colleagues, a greater percentage (26% versus 8%) lean towards a constructivist philosophy (see Figure 4.3). Although the ACAI data shows a near equal weighting of preferences in each of the subcategories similar to the 20-29-year-old teachers, there is a greater emphasis on assessment design and communication over administration and scoring.

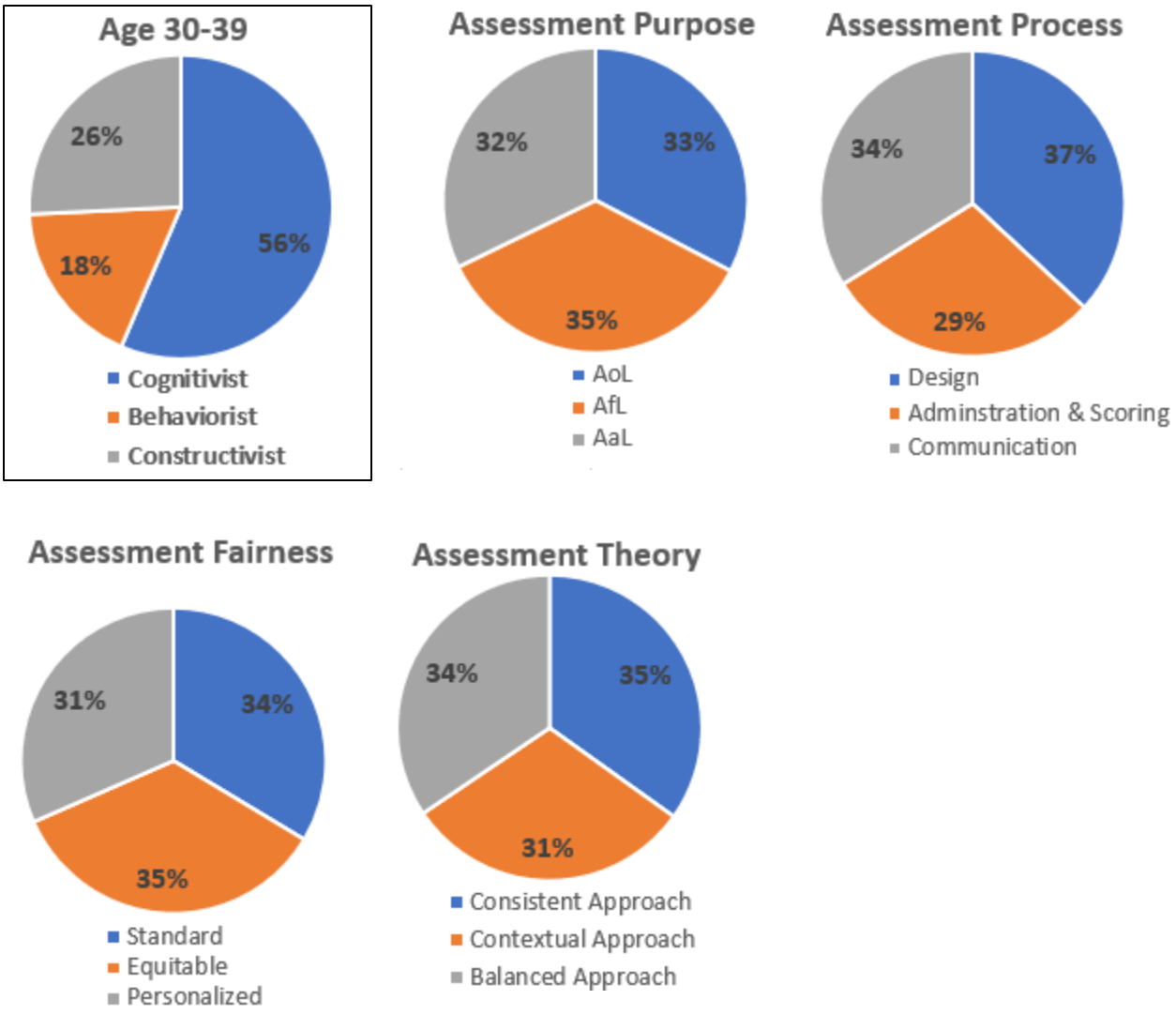


Figure 4.3. Approaches to learning and assessment for surveyed teachers 30-39 years of age (N=9)

Age 40-49 years. The researcher's survey suggests that nearly three-quarters (71%) of teachers 40-49 years of age are cognitivists in their approach to learning similar to their 20-29-year-old and 30-39-year-old colleagues (see Figure 4.4). The results of the ACAI survey show leanings towards equitable assessment practices (36%) and the design process (37%) which aligns with the lower emphasis placed on assessment as learning (28%) by the sample group. Overall the subcategories are less evenly weighted in each ACAI assessment profile.

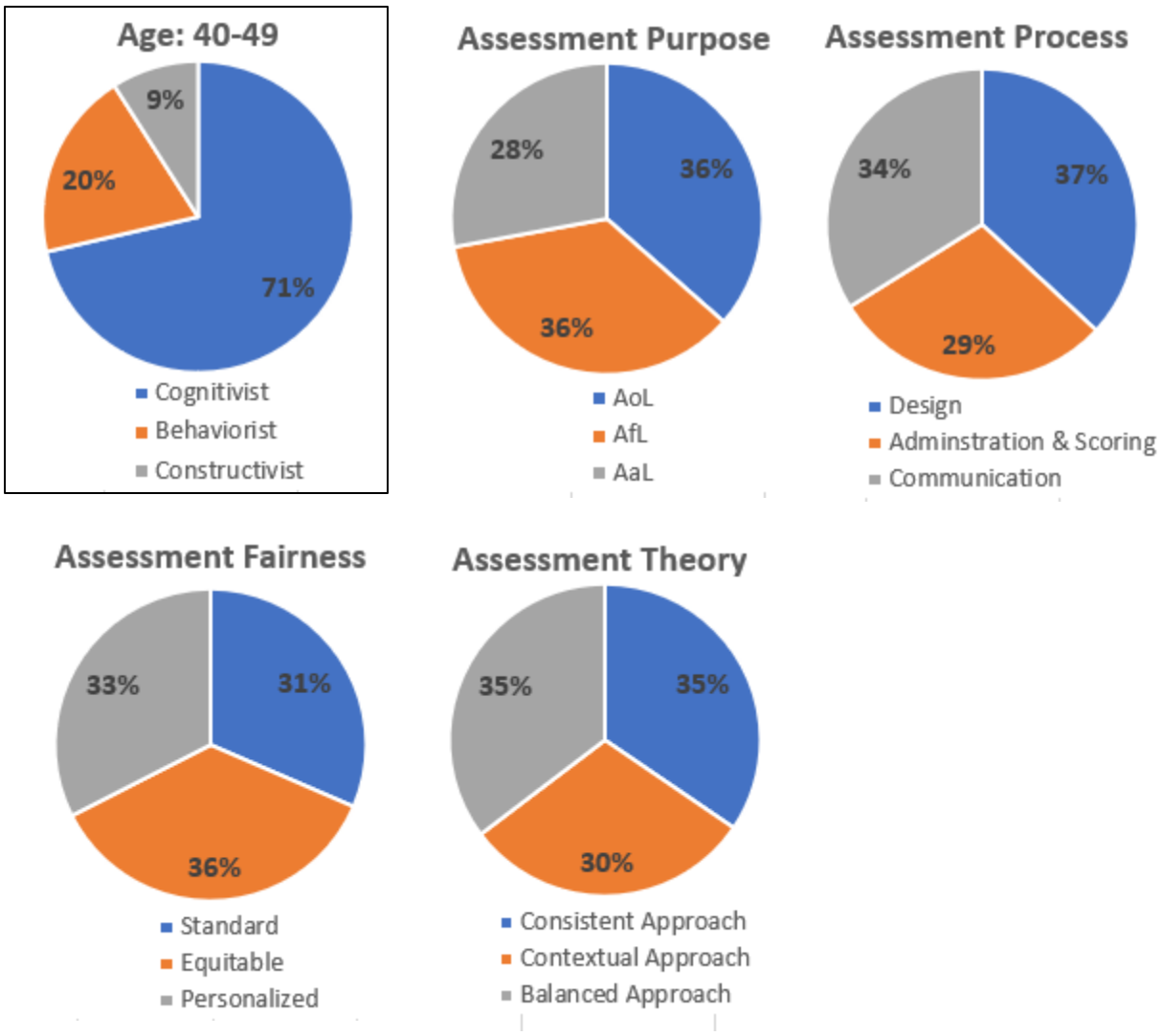


Figure 4.4. Approaches to learning and assessment for surveyed teachers 40-49 years of age (N=8)

Age 50-59 years. The researcher's survey suggests that this age group shares similar distributions in their approaches to learning to 30-39-year-olds with 57% subscribing to cognitivism (see Figure 4.5). The results of the ACAI survey show leanings towards standardized assessment practices (37%) and the design process (36%) which aligns with the lower emphasis placed on assessment as learning (29%) by the sample group. Overall the subcategories are less evenly weighted in each ACAI assessment profile.

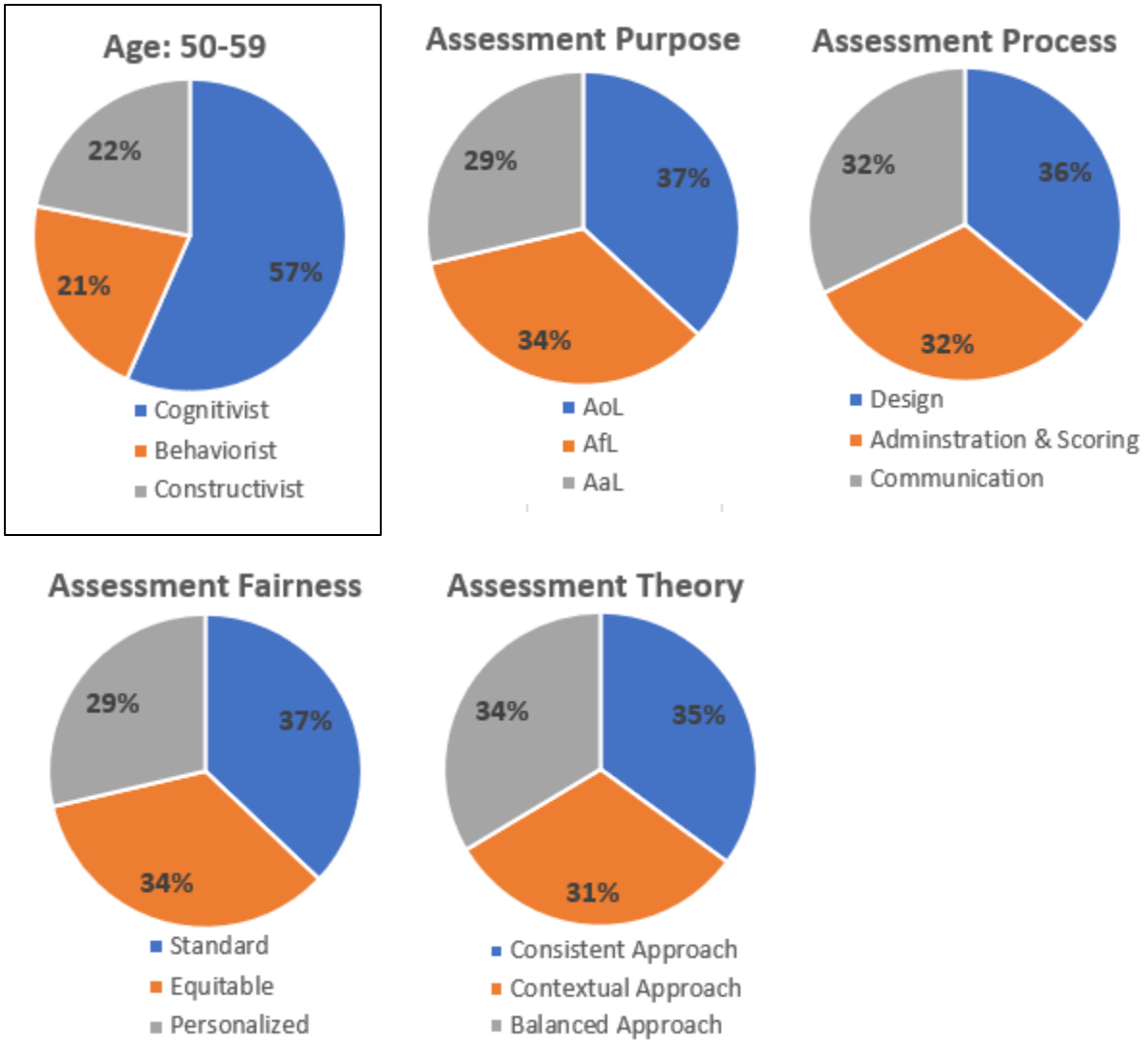


Figure 4.5. Approaches to learning and assessment for surveyed teachers 50-59 years of age (N=4)

Priorities by Age. Five categories of data from the APS of teachers' priorities relative to assessment were reviewed for each of the age groups of teachers: teachers' concerns, teachers' goals, assessment methods, assessment goals and professional development needs (see Table 12). Regardless of age, between 60%-78% of respondents were highly concerned about the need to modify their teaching strategies with over three-quarters of 50-59-year-olds equally focused on the students' ability to apply knowledge. Although over 60% of participants had as a goal identifying student strengths and weaknesses through assessment, some age groups equally

prioritized self-assessing their own teaching effectiveness (20-29-year-olds) or providing students with self-feedback (50-59-year-olds). While project-based assessments were favored by 20-39-year-old teachers, 40-49-year-olds preferred free-response items and direct observations using rubrics, with the latter assessment method given high priority by all 50-59-year-olds.

Although 20-49-year-olds considered analyzing assessment data to guide planning as a goal to varying degrees (78%-100%), all surveyed 50-59-year-olds viewed implementing differentiated learning experiences and using multiple data sources to identify student needs as high priority assessment goals. Of note, every 20-29-year-old respondent cited the alignment of assessments with learning goals as a key concern. Developing high-quality assessments was viewed as the greatest need for professional development among at least three-quarters of 29-39-year-old teachers, while every 40-59-year-old respondent sought further training in using digital tools for assessment. Despite district professional development for over two years in the unpacking, prioritizing, or alignment to standards, all age groups of teachers overwhelmingly (less than 25%) reported this training as a low priority.

Table 12
Priorities by age group

Age	Category	Highest Priority/Frequency	Lowest Priority/Frequency
20-29	Teacher Concerns	Modify Teaching Strategies (60%)	Students Using Thinking Skills (0%) Students Self-Reflecting (0%) Students Applying New Knowledge (0%)
	Teacher Goals	Identify Student Strengths & Weaknesses (60%) Self-Assessing Teacher Effectiveness (60%)	Improving Student Awareness of Progress (0%) Engaging Students in Self-Assessment (0%)
	Assessment Methods	Product-Based Projects (100%) Gaming/Interactive Tool (80%)	Free Response Items (40%)
	Assessment Goals	Align Assessments w/Learning Goals (100%) Assessment Data to Guide Planning (100%) Model Ways for Students to Self-Assess (80%)	Balance Formative/Summative Assessments (40%) Feedback to Students on Quality Work (40%) Multiple Ways Students Show Knowledge/Skills (40%) Multiple Data to Identify Student Needs (40%) Implement Differentiated Learning Experiences (40%) Students Self-Assess & Set Goals (40%) Evaluate/Report Progress Against Standards (40%)
	PD Needs	Developing High-Quality Assessments (80%)	Prioritizing Standards (0%) Unpacking Standards (0%)

30-39	Teacher Concerns	Need to Modify Teaching Strategies (78%) Students Meeting Learning Goals (67%)	Students Using Thinking Skills (33%) Students Self-Reflecting (33%)
	Teacher Goals	Identify Student Strengths & Weaknesses (56%)	Communicating Learning Goals (11%)
	Assessment Methods	Product-Based Projects (67%) Oral/Written Presentation (56%) Multiple Choice/Free Response Items (56%) Direct Observation w/Rubric (56%)	Multiple Choice Items (33%) Gaming/Interactive Tool (33%)
	Assessment Goals	Assessment Data to Guide Planning (78%) Model Ways for Students to Self-Assess (67%)	Balance Formative/Summative Assessments (33%)
	PD Needs	Developing High-Quality Assessments (78%) Using Digital Tools for Assessment (67%)	Prioritizing Standards (0%)
40-49	Teacher Concerns	Need to Modify Teaching Strategies (63%)	Students Using Thinking Skills (13%)
	Teacher Goals	Identify Student Strengths & Weaknesses (63%)	Gauging Student Prior Knowledge (0%)
	Assessment Methods	Free Response Items (88%) Direct Observation w/Rubric (75%)	Multiple Choice Items (13%)
	Assessment Goals	Ways Students Show Knowledge/Skills (88%) Feedback to Students on Quality Work (75%) Assessment Data to Guide Planning (75%) Align Assessments w/Learning Goals (75%)	Students Self-Assess &Set Goals (38%)
	PD Needs	Using Digital Tools for Assessment (100%)	Prioritizing Standards (25%)
50-59	Teacher Concerns	Need to Modify Teaching Strategies (75%) Students Applying New Knowledge (75%)	Students Using Thinking Skills (50%) Students Self-Reflecting (50%) Students Meeting Learning Goals (50%)
	Teacher Goals	Self-Assessing Teacher Effectiveness (75%) Providing Student & Self Feedback (75%)	Gauging Student Prior Knowledge (0%)
	Assessment Methods	Direct Observation w/Rubric (100%)	Free Response Items (50%) Product-Based Projects (50%) Oral/Written Presentation (50%)
	Assessment Goals	Differentiated Learning Experiences (100%) Multiple Data to Identify Student Needs (100%)	Assessment Data to Guide Planning (50%) Data to Identify Gaps & Provide Feedback (50%) Evaluate/Report Progress Against Standards (50%)
	PD Needs	Using Digital Tools for Assessment (100%)	Prioritizing Standards (25%) Unpacking Standards (25%) Aligning to Standards (25%)

Career Stage (Years of Teaching Experience)

Except for those survey participants with 11-20 years of teaching experience, making up 46% of the sample, the remaining subgroups included teachers closely aligned to the previously described age breakdowns. The 11-20-year experienced group leans more towards a constructivist approach (25%) compared to the total population (19%) despite expressing

primarily cognitivist learning preferences (see Figure 4.6). The ACAI data shows a near equal weighting of preferences in each of the subcategories.

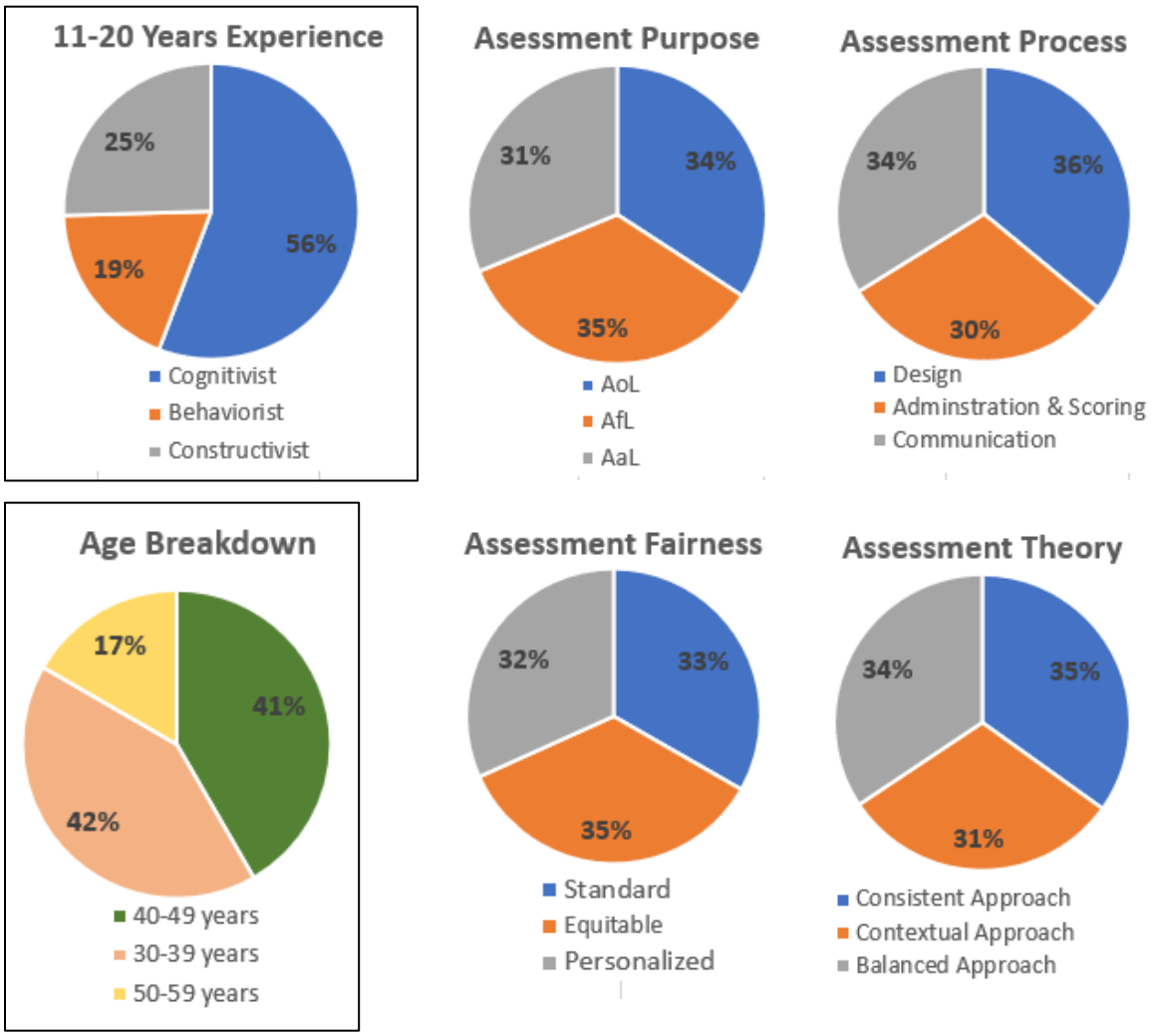


Figure 4.6. Approaches to learning and assessment for teachers 11-20 years of experience (N=12)

Priorities by Career Stage. Seventy-five percent of teachers with 11-20 years of experience reported their highest priority was modifying their teaching strategies over that of having students self-reflect (33%) on their learning (see Table 13). This group equally prioritized (42%) as goals providing feedback to their students and themselves as well as self-assessing their

own effectiveness. None of the teachers reported as a priority gauging their students' prior knowledge.

Table 13
Priorities by teaching experience (11-20 years)

Category	Highest Priority/Frequency	Lowest Priority/Frequency
Teacher Concerns	Need to Modify Teaching Strategies (75%)	Students Self-Reflecting (33%)
Teacher Goals	Providing Student & Self Feedback (42%) Self-Assessing Teacher Effectiveness (42%)	Gauging Student Prior Knowledge (0%)
Assessment Methods	Multiple Choice/Free Response Items (75%)	Free Response Items (25%)
Assessment Goals	Ways Students Show Knowledge/Skills (83%)	Identify Gaps & Provide Feedback (58%) Students Self-Assess & Set Learning Goals (58%)
PD Needs	Using Digital Tools for Assessment (92%)	Prioritizing Standards (17%)

This group highly valued (92%) further professional development in using digital tools for assessment. Few teachers (17%) sought additional training in prioritizing learning standards. A combination of multiple-choice/free-response items was the most frequently (75%) used method of assessment by this group over free-response items alone (25%). In terms of assessment goals, teachers with 11-20 years of experience prioritized providing multiple ways for students to show knowledge/skills (83%). Lower priority (58%) was attributed to analyzing assessment data to identify gaps and providing feedback and engaging students in self-assessment and self-setting learning goals.

Grade Level

High School level. Grade 9-12 teachers, comprising 54% of the sample, overwhelming follow a cognitivist learning approach (74%) with virtually no preference for constructivism (2%). The majority (43%) are 30-39 years of age with 11-20 years of teaching experience (50%). Although there is some preference for a consistent assessment approach, the ACAI data overall shows a near equal weighting of preferences in each of the subcategories (see Figure 4.7).

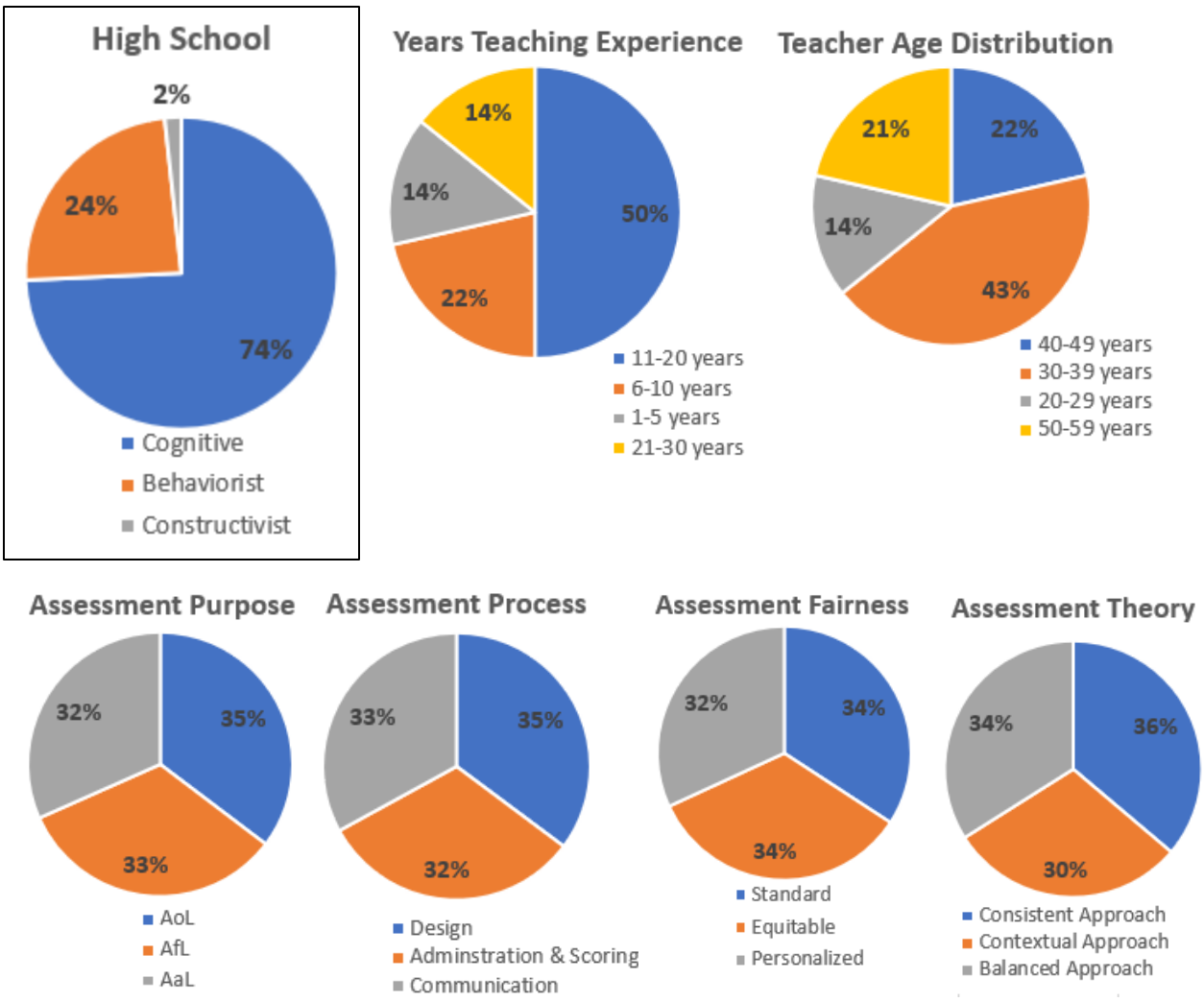


Figure 4.7. Approaches to learning and assessment for high school teachers (N=14)

Middle School level. Grade 6-8 teachers, comprising 46% of the sample group, subscribe to a cognitivist learning approach (57%) closely matching the weighting of preferences expressed by the entire surveyed population. The majority (42%) were 40-49 years of age with 11-20 years of teaching experience (41%). Although there was less emphasis on assessment as learning, the ACAI data overall shows a near equal weighting of preferences in each of the subcategories (see Figure 4.8).

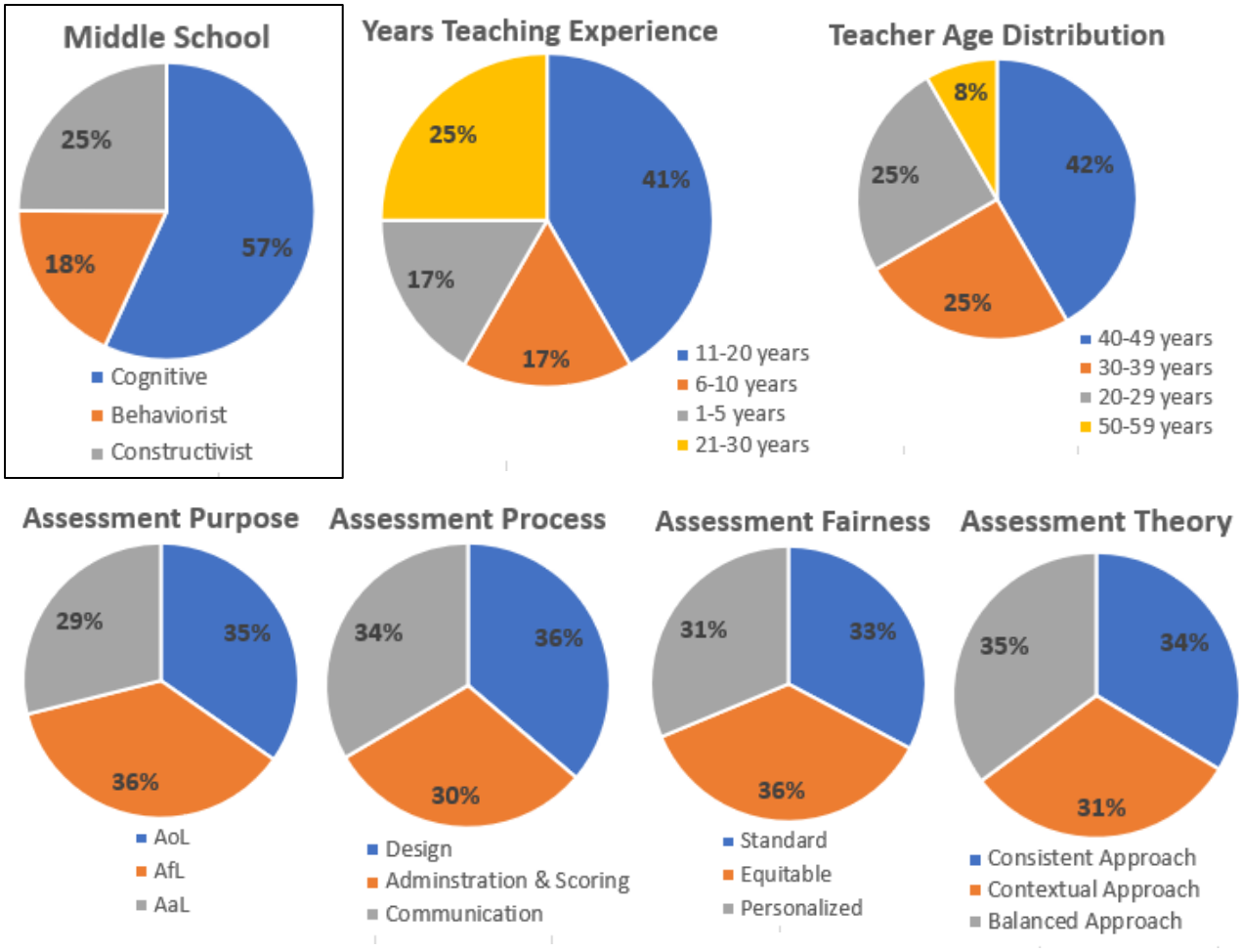


Figure 4.8. Approaches to learning and assessment for middle school teachers (N=12)

Priorities by Grade Level. Teachers of both middle and high school levels closely prioritized the teacher concern of modifying teaching strategies (75% MS and 71% HS); the teacher goal of identifying student strengths and weakness (58% MS and 57% HS); and the professional development needs of using digital tools for assessment (83% MS and 85% HS) (see Table 14). These populations differed in their priorities concerning assessment methods. Middle-level teachers favored direct observation with rubrics (83%), while high school teachers preferred multiple-choice/free-response items (79%) and oral/written presentation (71%). Middle-level teachers focused their assessment goals on analyzing assessment data to guide

planning (92%) and modeling ways for students to self-assess (92%), while high school teachers concentrated on aligning assessments with learning goals (71%).

The elements of assessment that surfaced as the lowest frequency or priority were also examined for the same categories (see Table 14). Teachers of both levels rated gauging student prior knowledge through assessment as a low priority goal (14% high school and 8% middle school). There were minimal concerns for assessing how students using thinking skills (0% middle school) and self-reflected on their learning (29% high school). The data indicated that middle-level teachers less frequently employed free-response items (25%), while high school level teachers (21%) rarely engaged students in self-assessment. Both middle and high school level teachers (17% and 7% respectively) preferred no additional professional development on unpacking standards.

Table 14
Priorities by grade level

Level	Category	Highest Priority/Frequency	Lowest Priority/Frequency
Middle School	Teacher Concerns	Modify Teaching Strategies (75%)	Students Using Thinking Skills (0%)
	Teacher Goals	Identify Student Strengths & Weaknesses (58%)	Gauging Student Prior Knowledge (8%)
	Assessment Methods	Direct Observation w/Rubric (83%)	Free Response Items (25%)
	Assessment Goals	Analyze Data to Guide Planning (92%) Model Ways for Students to Self-Assess (92%)	Balance Formative/Summative Assessments (41%)
	PD Needs	Use Digital Tools for Assessment (83%)	Unpacking Standards (17%)
High School	Teacher Concerns	Modify Teaching Strategies (71%)	Students Self-Reflecting (29%)
	Teacher Goals	Identify Student Strengths & Weaknesses (57%)	Gauging Student Prior Knowledge (14%)
	Assessment Methods	Multiple Choice/Free Response Items (79%) Oral/Written Presentations (71%)	Engage Students in Self-Assessment (21%)
	Assessment Goals	Align Assessments w/Learning Goals (71%)	Provide Feedback to Students on Quality Work (50%) Model Ways for Students to Self-Assess (50%) Use Data to Identify Student Needs (50%) Differentiated Learning Experiences (50%) Evaluate/Report Progress Against Standards (50%) Students Self-Assess & Set Learning Goals (50%)
	PD Needs	Use Digital Tools for Assessment (85%)	Prioritizing Standards (7%) Unpacking Standards (7%)

Content Area

English/Language Arts (ELA) content area. Although cognitivists (55%) as a whole, compared to other surveyed content areas, ELA teachers (27%) are second only to Special Education teachers (28%) in their leaning towards constructivism. The ACAI data shows a near equal weighting of preferences in each of the subcategories (see Figure 4.9) despite a slight emphasis on assessment for learning (36%).

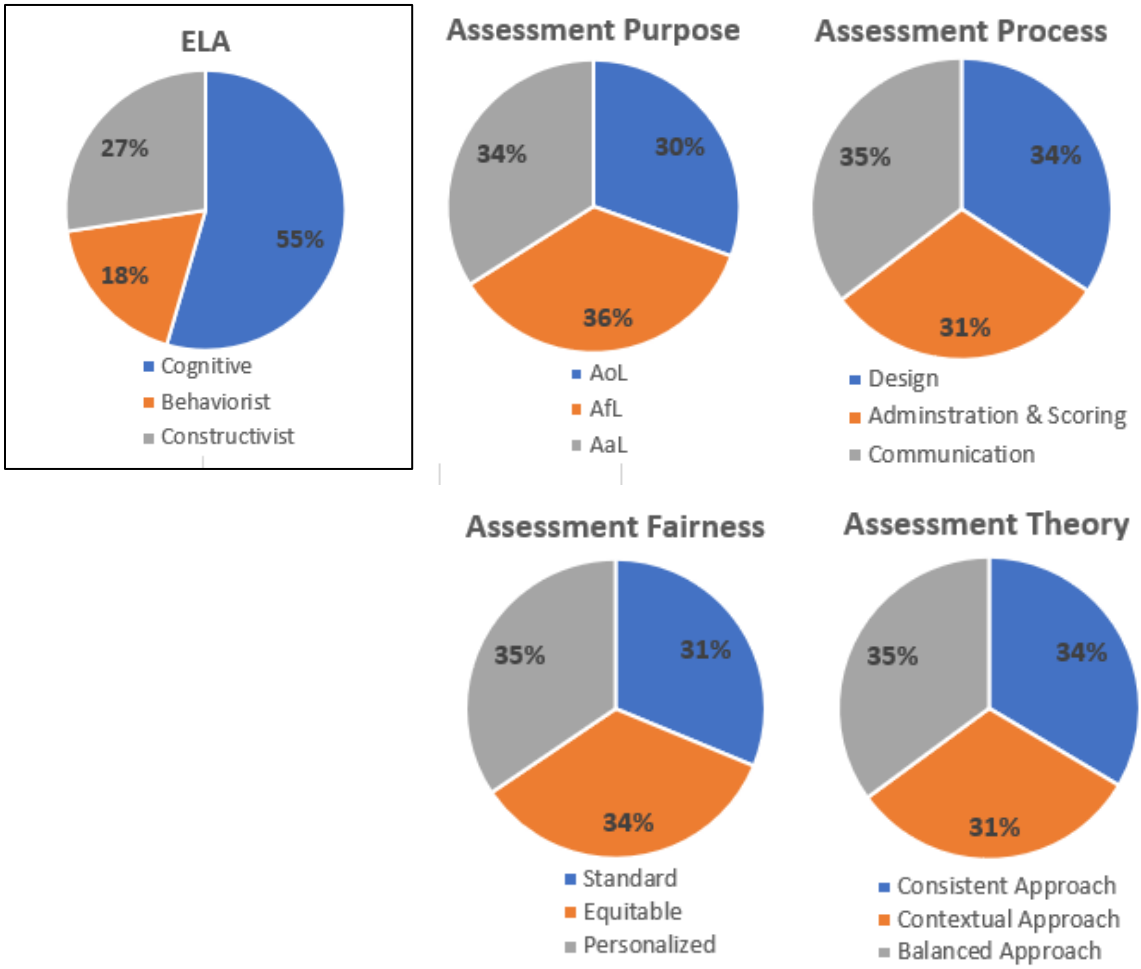


Figure 4.9. Approaches to learning and assessment for ELA teachers (N=6)

Mathematics content area. Paralleling their surveyed ELA colleagues, Mathematics teachers are cognitivists (58%) as a whole with slight leanings towards constructivism (23%).

The ACAI data shows equal 36% weightings towards a theoretical consistent approach to assessment, assessment for learning, and assessment design and fairness (see Figure 4.10).

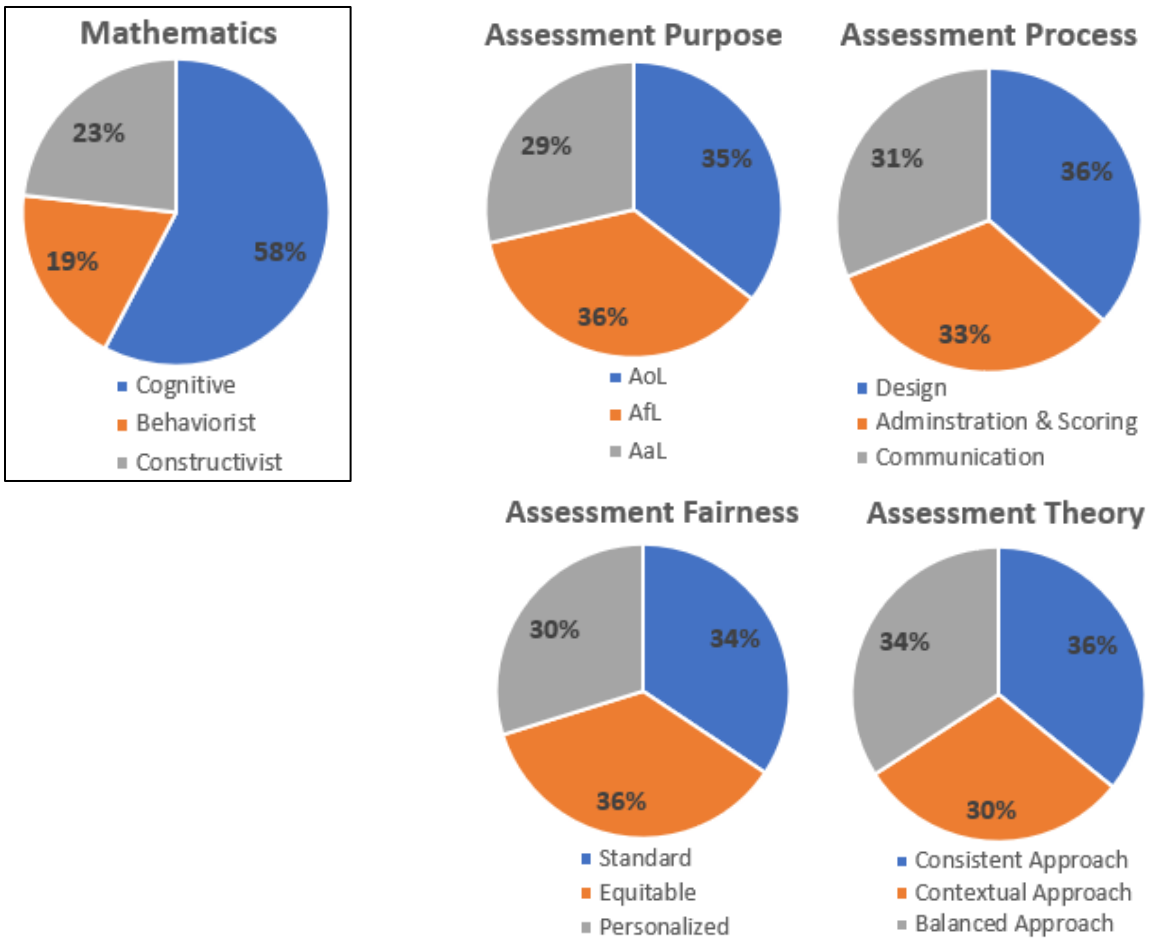


Figure 4.10. Approaches to learning and assessment for Mathematics teachers (N=9)

Science content area. Compared to other surveyed content areas (55% ± 3%), Science teachers subscribe predominantly (72%) to a cognitivist approach. The ACAI data shows a near equal weighting of preferences in each of the subcategories (see Figure 4.11) although less of a theoretical preference towards a contextual approach to assessment (29%). Science teachers tend to slightly favor assessment design (36%) and assessment of learning (37%) over other factors within those subcategories.

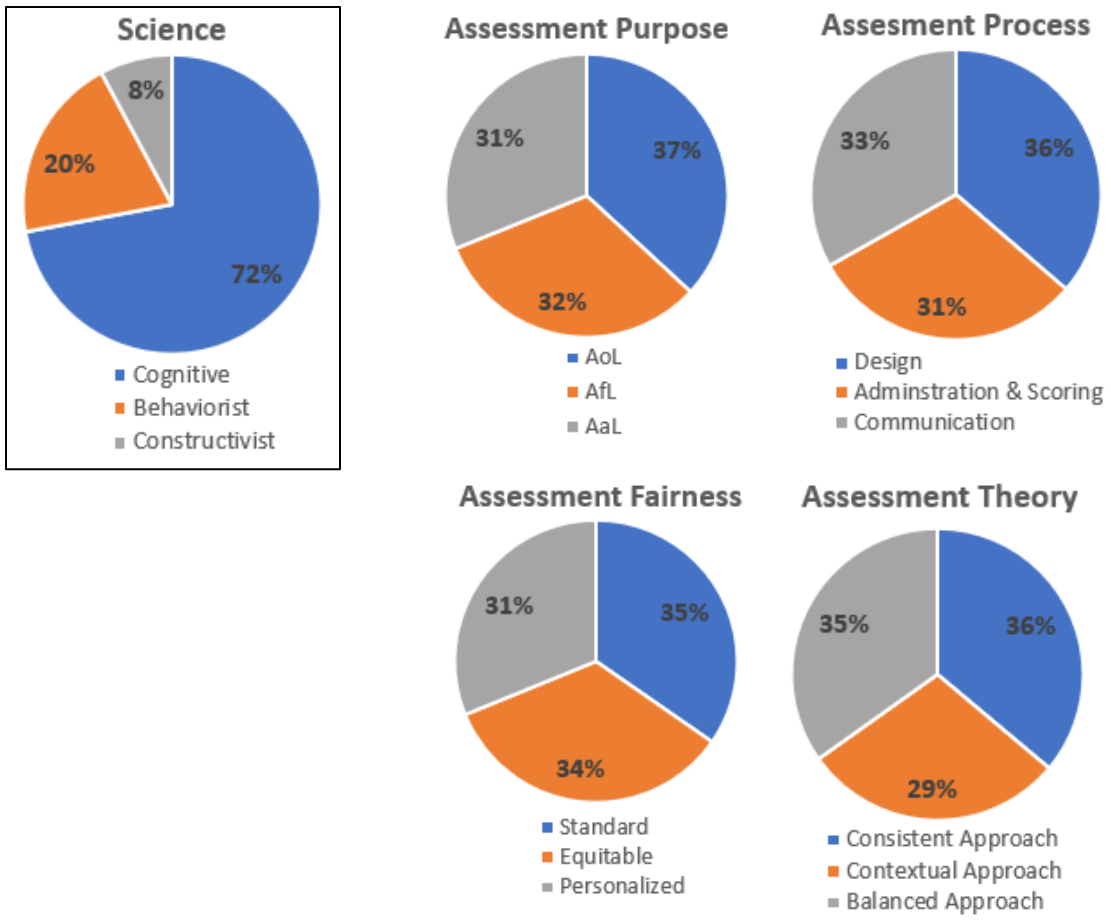


Figure 4.11. Approaches to learning and assessment for Science teachers (N=8)

Special Education content area. Despite the highest leaning towards constructivism (28%), Special Education teachers remain cognitivists (53%) in general as a group (see Figure 4.12). The ACAI data shows nearly equal weightings in all subcategories with slight favoritism towards the assessment of learning (36%) and communication as the purpose of assessment (37%).

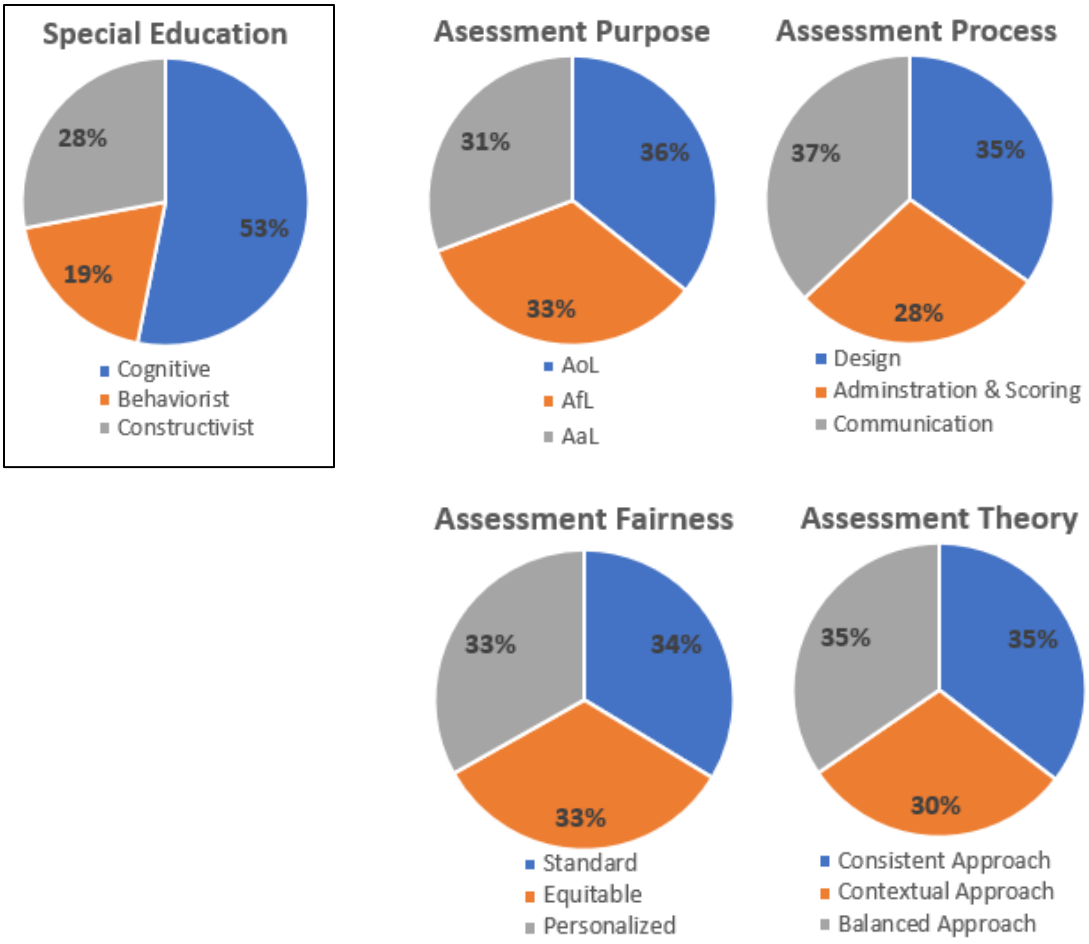


Figure 4.12. Approaches to learning and assessment for Special Education teachers (N=3)

Priorities by Content Area. The need to modify teaching strategies was a high priority for Math (56%) and Science (88%) teachers, whereas ELA teachers (57%) focused their main attention on students meeting learning goals (see Table 15). The three content area respondents had a minimal concern (0%-38%) for students' use of thinking skills. While ELA (71%) and Science (75%) teachers shared as a goal for assessment identifying student strengths and weaknesses, Math teachers prioritized assessing their effectiveness (45%). Regardless of the content area, survey participants valued the use of a combination of multiple choice and free response items as a frequent assessment method. Math teachers favored direct observation using

rubrics (88%), while Science teachers rated oral/written presentations (88%) on par with the use of multiple-choice/free-response items.

While ELA and Science respondents shared analyzing assessment data to guide planning as a goal, Math teachers equally weighted (89%) alignment of assessments with learning goals, providing multiple ways for students to show knowledge/skills, modeling ways for students to self-assess, and making accommodations in assessments as goals of their assessment practices. The respondents across all three content areas indicated a significant need (77%-86%) for professional development in using digital tools for assessment and minimal interest (0%-33%) in prioritizing and unpacking standards.

Table 15
Priorities by content areas

Level	Category	Highest Priority/Frequency	Lowest Priority/Frequency
ELA	Teacher Concerns	Students Meeting Learning Goals (57%)	Students Using Thinking Skills (14%)
	Teacher Goals	Identify Student Strengths & Weaknesses (71%)	Self-Assessing Teacher Effectiveness (14%) Improving Student Awareness of Progress (14%) Engaging Students in Self-Assessment (14%)
	Assessment Methods	Multiple Choice/Free Response Items (71%)	Multiple Choice Items (29%)
	Assessment Goals	Analyze Data to Guide Planning (100%) Model Ways for Students to Self-Assess (100%)	Balance Formative/Summative Assessments (29%)
	PD Needs	Use Digital Tools for Assessment (86%)	Prioritizing Standards (0%) Unpacking Standards (0%)
Math	Teacher Concerns	Modify Teaching Strategies (56%)	Students Using Thinking Skills (0%)
	Teacher Goals	Self-Assessing Teacher Effectiveness (45%)	Gauging Student Prior Knowledge (0%) Communicating Learning Goals (0%) Improving Student Awareness of Progress (0%)
	Assessment Methods	Direct Observation w/Rubric (88%) Multiple Choice/Free Response Items (67%)	Multiple Choice Items (22%) Oral/Written Presentation (22%)
	Assessment Goals	Align Assessments w/Learning Goals (89%) Students Show Knowledge/Skills (89%) Model Ways for Students to Self-Assess (89%) Make Accommodations in Assessments (89%)	Students Self-Assess & Set Learning Goals (56%)
	PD Needs	Develop High-Quality Assessments (89%) Use Digital Tools for Assessment (77%)	Prioritizing Standards (22%) Unpacking Standards (33%)
Science	Teacher Concerns	Modify Teaching Strategies (88%)	Students Using Thinking Skills (38%) Students Self-Reflecting (38%)
	Teacher Goals	Identify Student Strengths & Weaknesses (75%) Self-Assessing Teacher Effectiveness (75%)	Gauging Student Prior Knowledge (13%)

Assessment Methods	Multiple Choice/Free Response Items (88%) Oral/Written Presentation (88%)	Free Response Items (25%)
Assessment Goals	Analyze Data to Guide Planning (75%)	Evaluate/Report Progress Against Standards (25%)
PD Needs	Use Digital Tools for Assessment (88%) Develop High-Quality Assessments (75%)	Prioritizing Standards (13%) Unpacking Standards (13%)

Impacts on Approaches to Learning and Assessment

Impact of Learning Theories

Psychology drives many components of curricular and instructional decision-making in education, with educational psychology as the link between the assessment of learning outcomes and learning processes (Fosnot & Perry, 1996). Tittle (1994) proposed that "teachers and learners construct schemas or integrate representations from assessments into existing views of the self, of teaching and learning, and of the curriculum" (p. 151). Pattalitan (2016) argued both behaviorist and cognitivist learning theories influence assessment design. Knowing the possible influences of learning theories on teaching and assessment design may lead to stronger alignment and more accurate reporting of student performance. Since school systems can benefit from understanding views by identifying the assessment profiles of teachers as part of continuous improvement and professional development, the researcher first attempted to define the learning theories of the targeted population. Nearly two-thirds (62%) of surveyed teachers indicated a preference for a cognitivist approach to learning.

In cognitive theory, prior knowledge determines the student's capacity to learn new material and remove misunderstandings by reorganizing or revising experiences based on new insights. An integral component of the teacher's practice, formative assessment provides the learner an opportunity to express his current understanding to apply concepts and strategies in novel situations (James, 2006). Authentic assessments define the cognitive approach as learners

are active participants in the real world. Nearly all respondents employed inquiry/discovery and problem-based learning on a daily or weekly basis. The data from the respondents support the district's desire for assessments that seamlessly integrate with both instruction and learning.

Presuming that learning is based on the conditioned response to external stimuli, including rewards, praise, punishments, or the withholding of rewards, behaviorists measure progress through observable outcomes on predetermined tasks (Fosnot & Perry, 1996). The absence of a strong tendency toward behaviorism by the targeted population of teachers is consistent with the district's definition of assessment as "the process of gathering evidence of student learning to inform educational decisions" (Stiggins, 2017, p. 5). This definition was adopted during a summer 2019 professional development workshop with the district's Academic Advisory Committee (AAC). While the data indicated that teachers praise students' academic performance, they do not give tangible rewards such as extra credit. This is consistent with the guidance provided in the district's faculty handbook.

Constructivists argue that since each person has individual experiences, learning is unique and different for everyone, (Kelly, 2012) leading to personalized assessment. That being said, "Constructivist rhetoric can be found in behaviorist approaches and the boundary between cognitivist constructivism and social constructivism is indistinct" (James, 2006, p. 52). This overlap may explain why the respondents do not solely subscribe to a cognitivist approach, as the data shows some limited preferences towards aspects of the other two learning behaviors.

Impact of Teacher Characteristics

Impact of Age. While the cognitivist learning theory was predominant for all age groups among the surveyed participants, the percentage of the teachers favoring behaviorism and constructivism varied between age groups. Teachers in two age groups (20-29 and 40-49) tended

more toward behaviorism than constructivism, while the difference between these learning approaches was nearly balanced in the other two age groups (30-39 and 50-59). When examining the ACAI data by age group, teachers in every group tended towards Assessment of Learning and Assessment for Learning over Assessment as Learning with an emphasis on the assessment design process, and equitable and standardized assessment practices.

Alotaibi (2019) identified significant differences between teachers by age group in their perception of factors that influence formative assessment practices. The study identified the greatest discrepancies among teachers 20-29 years of age based on Likert scale responses to statements compared to the other age groups. As the age of teachers increased, there was a proportional rise in the frequency of agreeability with these factors. During interviews, the teachers in this study admitted using assessments to measure the students' learning abilities and skills, rather than achieving the intended learning outcomes.

The tendencies toward Assessment of Learning and Assessment for Learning support the observation by Shepard (2000) that behaviorists favor summative assessment practices, while cognitivists use more formative assessment. Additionally, Coombs et al. (2018) found that in-service (i.e. younger) teachers revert to their own experiences of assessment practices. While the data from this research does not indicate a prevalence of constructivism, teachers subscribing to constructivism would highly favor Assessment as Learning. Constructivist teachers serve as facilitators, guiding students in their learning (Amineh & Asl, 2015) who share in designing the assessment criteria (Ebrahimi, 2013).

Impact of Career Stage (Years of Teaching Experience). In research studies that compared various components of assessment practices of experienced teachers versus teachers in earlier career stages, findings have been inconsistent. Neither Brown (2004) nor Zhang and

Burry-Stock (2003) found significant differences between teachers' career stages, while Birenbaum and Rosenau (2006), Mertler (2004), Wen et al. (2006) identified a strong influence of career stage on components of assessment literacy. While data from this research study of participants with 11-20 years of experience demonstrated a stronger tendency toward constructivism, the majority aligned with the cognitivist approach regardless of their years of teaching experience.

Administration and scoring of assessments were reported as a lower priority over assessment design and communication from the results of the ACAI survey for teachers with 11-20 years of experience. This finding conflicts with Mertler's (2004) findings that experienced teachers scored highest for administration, scoring and interpreting assessment results. The ACAI data supports the outcomes of the APS which prioritized providing feedback to students and modifying teaching strategies over scoring of assessments. The results are in keeping the findings of Alkharusi (2011) that more experienced teachers reported higher self-perceived skills in analyzing and writing test items and communicating assessment results than new teachers.

Impact of Grade Level. While Alkharusi (2011), Bol et al. (1998), and Zhang and Burry-Stock (2003) identified differences in teachers' assessment skills by grade level, the data from this research study supports DeLuca et al. (2018) who found no significant difference in teachers' approaches to assessment based on grade level assignment. Slight differences did surface in the results from the ACAI with high school teachers prioritizing assessment design and middle school teachers favoring administration and scoring. These results were supported by the APS with high school teachers more frequently implementing multiple-choice, free response, and oral/written presentations as assessment methods, while middle school teachers favored using observations with rubrics. These two groups also had slightly varied priorities surrounding

assessment goals. Middle-level teachers prioritized the assessment goals of analyzing assessment data to guide planning and modeling ways for students to self-assess, while high school teachers prioritized aligning assessments with learning goals.

Impact of Content Area. Bol et al. (1998) reported that mathematics teachers use traditional methods of assessment such as close-ended and multiple-choice items much less often than all other subject area teachers. The participants of this research study embodied the cognitive learning theory and prioritized Assessment for Learning, which is consistent with previously documented findings. Zhang and Burry-Stock (2003) also confirmed that teachers' assessment practices were influenced by their assigned subject areas. Teachers in higher grade levels utilized objective tests more frequently and were more concerned about the quality of assessments. The data from this researcher's study supports this claim as evidenced by science teachers' slightly stronger emphasis on assessment design. Alkharusi (2011) found that science teachers reported higher levels of self-perceived skill than English language arts and fine arts teachers in analyzing and writing test items, using performance assessments, and grading.

Of the participants in this study, teachers of special education demonstrated a slight preference for communication (37%) as the purpose of assessment. Teachers of the other content areas rated this factor nearly equally (math 31%, English 35%, and science 33%). The data from this study is inconsistent with the findings of Alkharusi (2011), that English teachers reported a lower level of skills than fine arts and science teachers in communicating assessment results.

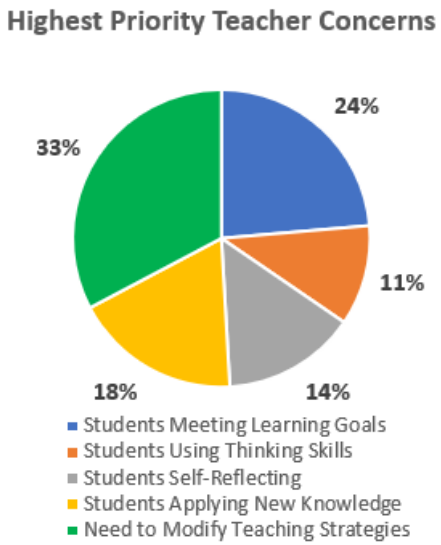
Results & Interpretation

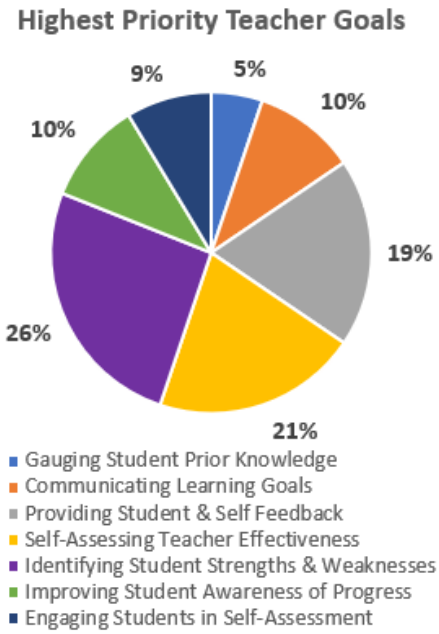
Results

A summary of the responses of the 26 surveyed teachers (see Figure 4.13), regardless of subgroupings, shows that teachers were concerned overall about modifying their teaching

strategies (33%) in line with their goal of assessing their effectiveness (21%) and identifying the strengths and weaknesses of the students (26%). The respondents less frequently used multiple-choice (9%) and free-response (10%) items alone in designing tests, preferring other forms of assessment ranging from combinations of these question types and direct observations with rubrics (18%) to oral presentations, interactive games, and projects (15%). Of note, however, few teachers (4%) rated themselves as an expert or proficient in providing multiple ways for students to demonstrate their knowledge and skills.

Despite having little interest in professional development concerning any aspect of learning standards, teachers self-reported being novices and advanced beginners when evaluating and reporting student progress against standards (17%). Teachers expressed a need for further training in using digital tools for assessments (26%) and developing high-quality assessments (21%). There was an equal (16%) need for professional development in writing task items and analyzing data gathered from assessments.





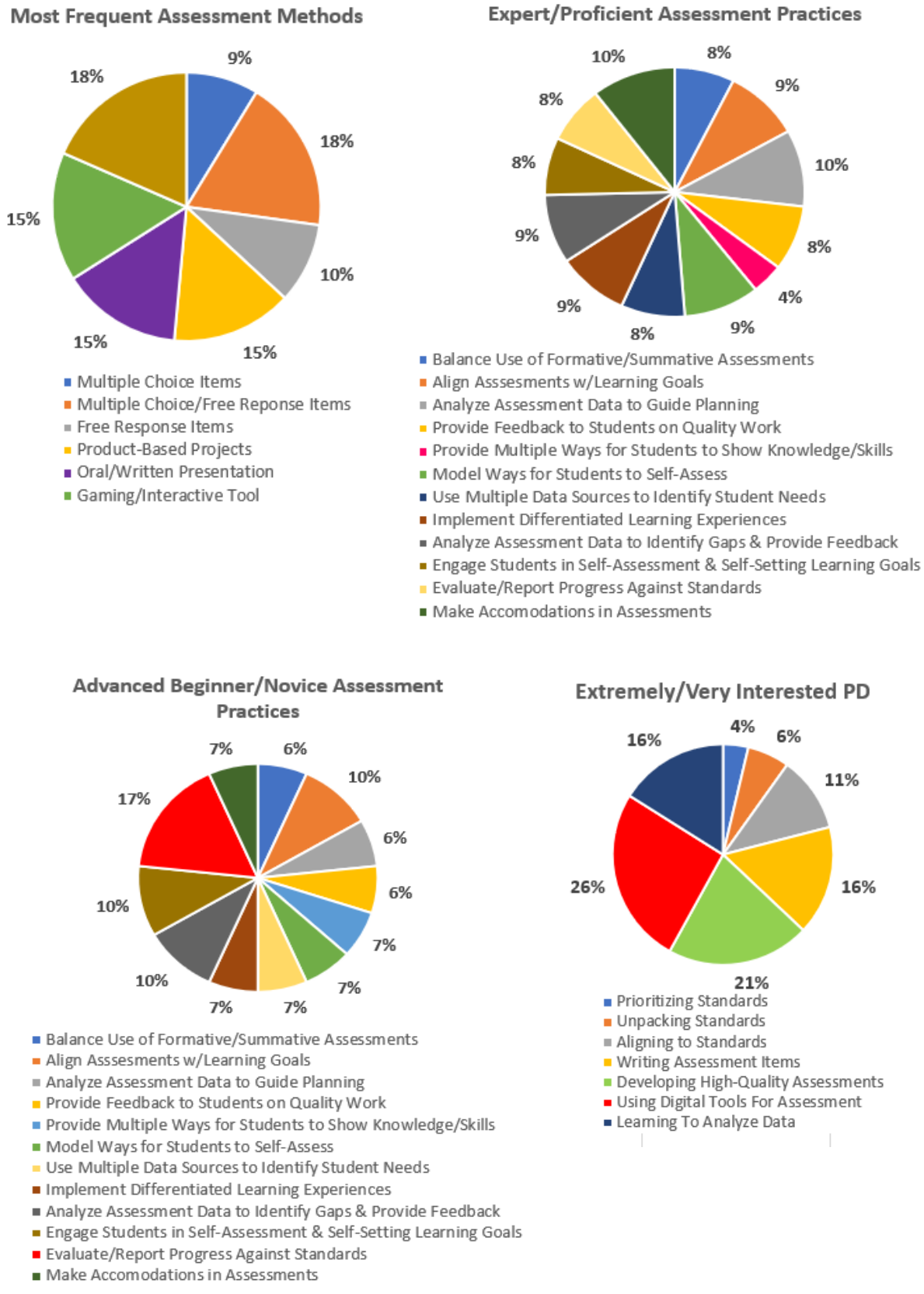


Figure 4.13. Summary APS responses

Interpretation

This action research was designed to determine how the approaches to classroom assessment practice varied among teachers. More specifically, how approaches to classroom assessment aligned with theories regarding student learning for teachers of tested subjects. How these approaches to classroom assessment influenced the classroom assessment practices of teachers in the targeted population was also of interest in this study. Likewise, the factors that influenced variations in assessment practices among teachers of tested areas were investigated as part of this research.

Approaches to classroom assessment aligned with theories regarding student learning among teachers of tested areas. According to the ACAI assessment profile for the surveyed population (see Figure 4.14), the teachers equally prioritized (35%) both Assessment for Learning (AfL) and Assessment of Learning (AoL) dimensions indicating a balanced use of formative and summative assessments. The purpose of assessment is not only to determine the current knowledge of the students as well as their future learning needs but also as a means for generating their grades. Teachers value assessments as a necessary classroom practice to direct instruction and guide student learning. The participants subscribed to a Design Approach (36%) with an emphasis on selecting and designing assessments, including scoring rubrics, aligned with student learning goals.

In this study, nearly two-thirds of surveyed teachers of tested areas indicated a preference towards a cognitivist approach to learning as opposed to a behaviorist or constructivist approach. From the results of the APS, an overwhelming number of identified cognitivist behaviors (see Table 9) were exhibited by teachers in this study including categorizing or chunking information for students during instruction; implementing strategies of inquiry/discovery; discussion and

problem-based learning; connecting content to students' prior knowledge; and, requiring students to transfer learning to new situations. These behaviors align closely with the approaches to classroom assessment identified through the ACAI instrument for the target population.

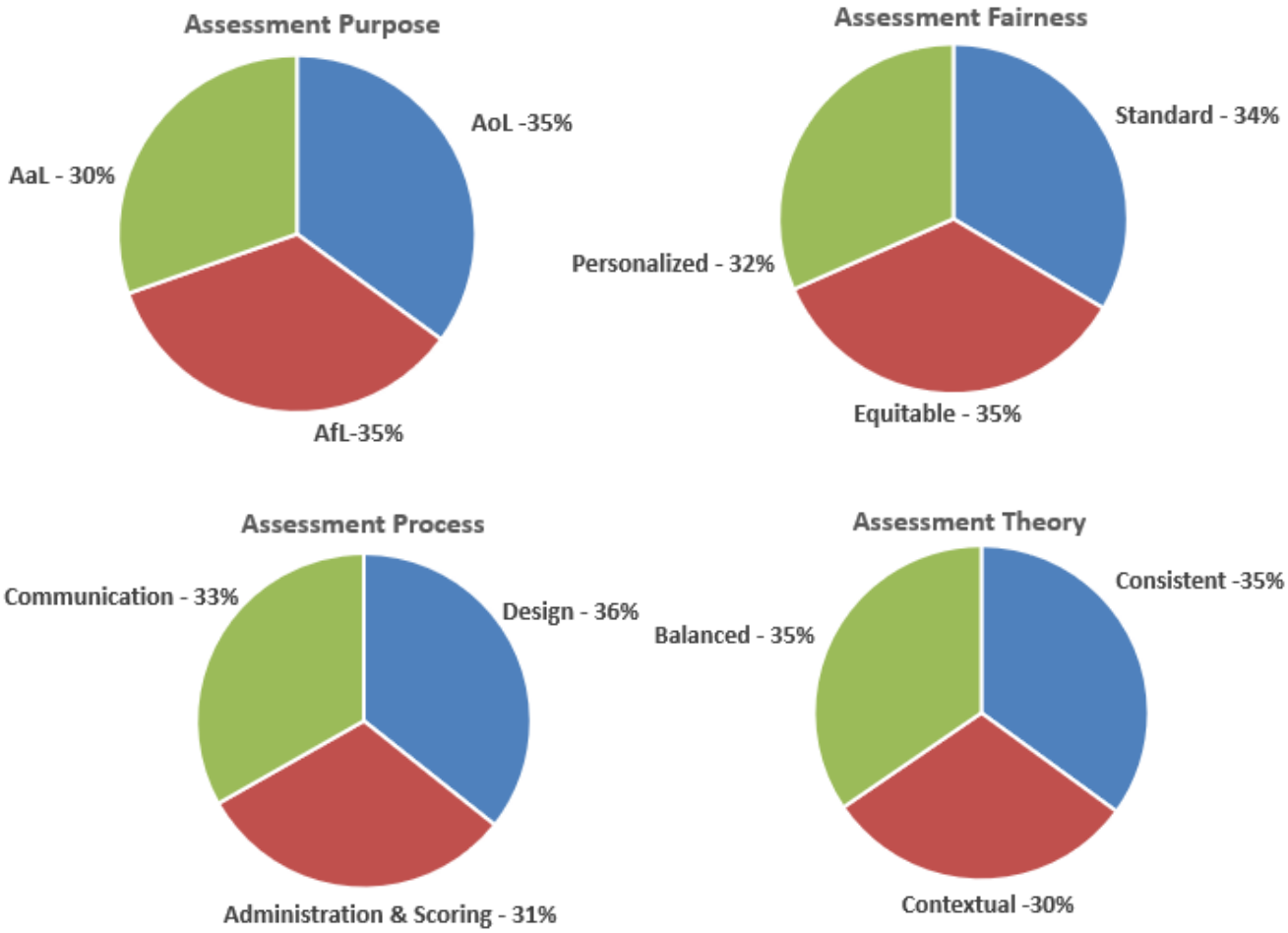


Figure 4.14 ACAI Composite Assessment Profile for Surveyed Study Participants

Approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas. From the ACAI survey, the teachers favored an Equitable Approach (35%), purposefully accommodating assessments for learners with specific and documented learning needs by designing assessments that provide equitable opportunities for students to demonstrate their learning and/or by adjusting scoring guides (see Figure 4.13). The study's participants equally prioritized (35%) a Consistent and Balanced Approach to assessment where

tasks are repeatedly administered and contextually reviewed to ensure test items map to learning goals and generate consistent and accurate scores. The teacher's judgments concerning student learning are based on the individual learner's situation and the limitations of the assessment task.

The APS data supported the ACAI profile insofar as the teachers were highly concerned with modifying their teaching strategies and with the students meeting learning goals, applying knowledge, self-reflecting, and using thinking skills (see Figure 4.13). The Equitable Approaches to assessment identified by the ACAI aligned with the results from the APS where teachers prioritized their assessment goals as identifying students' strengths and weaknesses, self- assessing their effectiveness, and providing feedback (see Figure 4.13). The profiles of both an Equitable and Balanced Approaches to assessment were further supported by the priority given by the participants to the use of multiple choice and free response, direct observation, oral and written presentations, gaming/interactive, product-based, free response, and multiple-choice items (see Figure 4.13) as methods of assessment.

Various factors have influenced variations in assessment practices among teachers of tested areas. The variables of teacher age, years of experience, grade level assigned, and content area of instruction was examined in this study to identify possible connections to assessment practices. The priorities of the teachers concerning assessment were reviewed for each of the variables including their general concerns and goals, assessment methods and goals, and professional development needs (see Tables 12-15).

Teacher age. Regardless of age, cognitivism surfaced as the key learning theory espoused by teachers from the results of the APS. While the ACAI assessment profiles of the teachers differed by age group, with teachers age 20-29 years showing a near equal weighting of preferences (see Figure 4.2), teachers age 30-39 years focused on assessment design and

communication over administration and scoring (see Figure 4.3). Profiles of teachers in the 40-49- and 50-59-year age groups were consistent with a lower emphasis on *assessment as learning* (see Figures 4.4 and 4.5). Overall study participants were highly concerned about the need to modify their teaching strategies and identify student strengths and weaknesses through assessment.

Despite similarities in the teachers' assessment priorities by age group on the APS, some differences surfaced as well. Teachers age 20-29 years prioritized self-assessing their effectiveness, analyzing data to guide planning, and the use of project-based assessments. Teachers age 40-49 years preferred to employ free-response items and direct observations as their assessment methods. Teachers age 50-59 years used multiple data sources to identify student needs and focused on the students' ability to apply knowledge.

Professional development needs for these groups also differed with teachers age 20-39 years wanting assistance on developing high-quality assessments, while 40-59-year old teachers sought training on the use of digital tools. One possible explanation may come from changes in the curriculum of teacher preparation programs with younger tech-savvy teachers favoring more authentic tasks to assess students. According to Roessingh and Chambers (2011), there has been an increasing shift in university and college programs towards an open-ended process-oriented model emphasizing problem-based and self-directed learning based on a constructivist approach.

Teacher experience. Comprised of participants from each age group, those with 11-20 years of teaching experience subscribed to a constructivist approach (see Figure 4.6). Although the ACAI data showed a near equal weighting of preferences in each of the subcategories, this group expressed the greatest variation in their responses on the APS. The data for the remaining subgroups closely aligned to the previously described age breakdowns. These teachers prioritized

modifying their teaching strategies over that of having students self-reflect on their learning (see Table 14). The group equally set as goals providing feedback to their students and themselves as well as self-assessing their effectiveness. None of the teachers reported as a priority gauging their students' prior knowledge.

These teachers valued providing multiple ways for students to show their knowledge and skills, favoring a combination of multiple-choice/free-response items as the most frequently used method of assessment over free-response items alone. Lower priority was attributed to analyzing assessment data to identify gaps and providing feedback as well as engaging students in self-assessment and setting their own learning goals. These findings appear to support the findings of Birenbaum and Rosenau's (2006) study which suggested that more experienced teachers exhibit deeper approaches to assessment. This group highly valued further professional development in using digital tools for assessment. Few teachers sought additional training in prioritizing learning standards.

Grade level assigned. Both middle and high school teachers identified with cognitivism and had a near equal weighting of preferences in each of the ACAI assessment profile domains (see Figures 4.7 and 4.8). Collectively the teachers were primarily concerned with modifying teaching strategies and identifying student strengths and weaknesses with common professional development needs for training in the use of digital tools for assessment (see Table 14). These populations differed in their priorities concerning assessment methods. Middle-level teachers favored direct observation with rubrics, while high school teachers preferred multiple-choice/free-response items and oral/written presentation. Middle-level teachers focused their assessment goals on analyzing assessment data to guide planning and modeling ways for

students to self- assess, while high school teachers concentrated on aligning assessments with learning goals.

The identified differences by grade level are interesting and expected in light of Bol et al.'s (1998) findings that elementary school teachers use authentic assessments such as performance-based, self-assessment, and portfolios more frequently than high school teachers. While teachers in higher grade levels utilize objective tests more frequently, elementary school teachers commonly administer performance assessments. Additionally, secondary teachers were more concerned about the quality of assessments (Zhang and Burry-Stock, 2003).

Content area of instruction. English/Language Arts (ELA), mathematics, science, and special education teachers associated with these content areas included on NJ state assessments were included in the study. While three of these content areas (ELA, math and special education) displayed some leaning toward constructivism, all of these groups primarily identified as cognitivists. Although the ACAI data showed a slight emphasis towards *assessment for learning* for all content areas (see Figures 9-12), the profile of math teachers showed a theoretical consistent approach to assessment, assessment design, and fairness (see Figure 4.10). Science teachers slightly favored assessment design (see Figure 11) and special education teachers also prioritizing communication as the purpose of assessment (see Figure 12).

The APS also revealed differences in assessment priorities by content area (see Table 15). Math and science teachers prioritized the need to modify teaching strategies, whereas ELA teachers focused on students meeting learning goals. While ELA and science teachers shared as a goal for assessment the identification of student strengths and weaknesses, math teachers focused on self-assessing their effectiveness. All three content area respondents gave minimal concern to students using thinking skills.

Regardless of the content area, survey participants valued the use of a combination of multiple choice and free response items as a frequent assessment method. Math teachers favored direct observation using rubrics, while science teachers rated oral/written presentations on par with the use of multiple-choice/free-response items. Bol et al. (1998) reported that mathematics teachers use traditional methods of assessment such as close-ended and multiple-choice items much less often than all other subject area teachers. Zhang and Burry-Stock (2003) concluded that teachers' assessment practices were influenced by their assigned subject areas.

ELA and science participants shared analyzing assessment data to guide planning as a goal. Math teachers equally weighted the goals of aligning assessments with learning goals, providing multiple ways for students to show knowledge/skills, modeling ways for students to self-assess, and making accommodations in assessments. Teachers across all three content areas indicated a significant need for professional development in using digital tools for assessment and minimal interest in prioritizing and unpacking standards.

Summary

This chapter presented and interpreted the data from this action research study designed to determine the teachers' current assessment practices to improve district professional development on assessment. The data was gathered from the administration of two instruments: The Approaches to Classroom Assessment Inventory (ACAI) developed by DeLuca et al., (2016a), and the Assessment Practices Survey (APS), designed by the researcher. Frequency distributions of the responses from the participants filtered by specific demographic factors from both surveys were presented in charts and tables. The researcher interpreted the data concerning its impact on learning and assessment by drawing connections to the empirical literature reviewed in Chapter Two.

Chapter Five will discuss how the action research and supporting empirical studies along with the researcher's leadership contributed to the stakeholders' capacity to improve specific practices leading to improvement. The researcher will further describe the contributions made to the overall understanding of the specific actionable problem and potential solutions. Recommendations will be offered to scholars and educational leaders when implementing similar initiatives given the limitations of this study. Finally, the researcher will reflect upon the lessons learned through this study as well as the next steps needed to improve one's understanding of the Problem of Practice.

CHAPTER 5: RECOMMENDED ACTIONS

Introduction

This quasi-experimental action research sought to develop an understanding of the current assessment practices of teachers of tested areas. The research sought to identify how the approaches to classroom assessment both aligned with theories regarding student learning and influenced classroom assessment practices. Factors, including the age, career stage, grade level assignment and content area of the teachers, which may have influenced variations in assessment practices were also examined through the analysis of participants' responses to the ACAI and APS surveys. The purpose of identifying current assessment practices considering such factors is to define and differentiate the district's professional development on assessment.

This chapter will discuss the results of the research study and propose changes in the district's approach to professional development on assessment based on those findings. Possible contributions and implications from this study to the field of educational leadership will be suggested as will future recommendations on how this research study could be implemented in other districts. The limitations of this study which impacted both the methodology and findings are presented to guide future research. The chapter concludes with the lessons learned by the researcher from this improvement initiative.

Discussion of Findings

While the theoretical literature review described three approaches to assessment based on learning theories, a review of the data from this study determined that nearly two-thirds of surveyed teachers in the district subscribe to cognitivism. The cognitive theory posits that learners play an active role in understanding and processing new information related to prior knowledge (James, 2006; Kelly, 2012). Instruction and assessment in the cognitive model should

support discovery learning through authentic experiences such as problem-based learning, real-world examples, discussions, and analogies (Kelly, 2012; Yilmaz, 2011).

Other empirical studies have identified differences in assessment approaches based on such demographic characteristics as teacher age, years of experience, grade level assignment, and content area. This study likewise revealed varying degrees of alignment between the cognitivist learning theory and the methods of assessment commonly used by district teachers based upon these same demographic factors. Regardless, there is a need for teachers to explore the use of research projects, case studies, or simulations as assessments and in partnering with students to select the most engaging learning activities and authentic assessments.

Teachers in all age groups viewed assessment *of* or *for* learning as their primary goal over assessment *as* learning. This is consistent with the current state of observed assessment practices within the district. Professional development is needed to increase the frequency of teachers assessing during instruction and in having students self-assess their progress after developing personal goals and working with teachers to prepare individual learning plans. Implementing a more student-centered approach to assessment is a key recommendation for improvement.

With the study showing a relationship between a teachers' preference for one of the three learning theories and their classroom assessment practices, the question portion of the APS will become a component of the district's New Teacher Induction and Orientation program. A learning theory question will also be added to the interview process to identify candidates with assessment skills aligned with the district's mission. This information will provide department supervisors with an understanding of how best to support and improve the assessment practices of new teachers. In keeping with the district motto to "Inspire the Desire (for continued growth) One Student at a Time", when teachers seamlessly integrate assessments into their instruction,

“the benefits of assessment for both students and teachers will be boundless” (Guskey, 2003, p. 10).

An examination of the data from this action research study indicates a need for professional development on assessment geared towards specific demographic groups. Preparing students for the challenges of the world after schooling is a district priority for the focus of assessment. Professional development is therefore needed for teachers to create authentic and personalized high-quality assessments. The district must differentiate professional development by providing instruction on the use of digital tools for assessment, particularly for older teachers with more years of experience, and on the creation of high-quality assessments, identified as a need by younger, less-experienced teachers. A move towards increased use of gamification and project-based assessments requires more sophisticated designs and analysis than that used for multiple-choice and free-response questions. This shift toward less traditional classroom assessments addresses the teachers' identified concerns about modifying their teaching strategies and assessing their effectiveness.

The results of this study indicate district teachers are disinterested in unpacking and aligning standards to assessment items, despite prior professional development opportunities in this area. While expressing little interest in professional development with respect to any aspect of learning standards, teachers self-reported being novices and advanced beginners when evaluating and reporting student progress against standards. Although speculative, one possible reason for this disinterest may be that the teachers lack knowledge of the importance of aligning test items to curriculum standards in order to confirm students’ attainment of learning goals.

With one purpose of assessment to confirm student learning, the design of the assessments must measure the intended learning outcomes, i.e. the standards. Since the district

has not thoroughly audited assessments to confirm they align to standards, and teachers are disinterested in focusing on standards, district leaders must explore tools to assist teachers in aligning assessments to standards. When assessment practices match teachers' approaches to teaching and learning, students can be motivated and engaged by both formal and informal forms of formative and summative feedback.

Contributions to the Field of Educational Leadership

Developing an understanding of teachers' current assessment practices is critical in the evaluation and advancement of assessment initiatives by districts. The hiring process is a district's first opportunity to onboard teachers with assessment practices that align with the cognitivist learning theory, and to advance the constructivist learning theory mindset. Incorporating dialogue into the teacher selection process that focuses on assessment will elevate the importance of this skill set. Rating candidates based on their tendencies toward "Assessment as Learning" and "Assessment for Learning" rather than a mindset fixed solely on "Assessment of Learning" is a step towards improvement.

DeLuca et al. (2016a) noted the importance of "track[ing] how teachers use data about their own assessment literacy to guide their professional learning in assessment" (p. 263) given the "variability in teachers' conceptions of assessment depending upon context and career stage" (p. 250). Following the teacher selection process, a comprehensive new teacher induction and orientation program that communicates the district's emphasis on assessment design will further support this effort. Differentiating professional development based on the identified teacher characteristics of age, years of teaching experience, grade level assigned, and content area of instruction will support growth in this area.

This study further supports the importance of including assessment practice as a component of teacher evaluation. The district's current summative teacher evaluation instrument (see Appendix F) rates teachers' adherence to the district's balanced assessment system on a four-point scale. While the district's system includes three weighted assessment categories, the quality of the assessments within each category needs further clarification. Additionally, with assessment "of", "for", and "as" learning merely implied within the categories, teachers do not currently equate each category with these specific processes. Holding teachers accountable through the evaluation process would better ensure high-quality assessments. Therefore, the researcher recommends the revision of the district's evaluation instrument or the adoption of a different instrument.

Recommendations and Implications for Educational Leadership

Identifying the teacher's knowledge of assessment practices is critical to ensure accurate evaluation and reporting of student learning. Educational leaders are encouraged to read *The Perfect Assessment System* (Stiggins, 2017) which calls for a ground-up redevelopment of assessments in the United States. Stiggins outlines the changes needed in practice and school culture to create specific evidence of individual mastery that supports sound instructional decision-making and improved learning in the classroom. A committee of teachers and leaders at this study's research site is using *The Perfect Assessment System* to develop a vision and purpose for assessment.

Change leaders would additionally benefit from reviewing the ongoing research by the Classroom Assessment Team led by Dr. Christopher DeLuca, Associate Professor of Classroom Assessment and graduate faculty member at Queen's University in Canada. The team continues to examine the complex intersection of curriculum, pedagogy, and assessment within the context

of school accountability and standards-based education. This work focuses on supporting teachers in navigating these critical areas of practice to enhance student learning experiences.

The results of this current study also can inform and guide the work of other educational leaders and practitioners who are interested in assessment improvement initiatives. While the ACAI generated individual assessment profiles, which were expected to encourage the reflective practice by district teachers, the similarities among the resulting profiles did not support differentiation or impact plans for professional growth. Past indoctrination with assessment jargon by district teachers may have skewed the results from this instrument. Therefore, before piloting this instrument, an alternate method of classifying teachers' assessment methods is recommended for other practitioners before they attempt similar studies.

While the study participants were teachers of tested areas, teachers of every discipline administer assessments and can benefit from the gathered feedback. Therefore, when replicating or advancing this study, researchers should consider including teachers of other content areas such as social studies, world language, health, and physical education, visual and performing arts, and career and technical education. Possible differences in the assessment profiles, demographic composition, and learning preferences of these teachers may yield additional insights into how these and other factors impact approaches to assessment.

The patterns and themes that emerge from the analysis of this research study's data will enable district leaders to define and develop the next steps for professional development on assessments. A district plan for improvement can be created based upon an understanding of the assessment profiles of the teachers and the relationships between identified variables and teachers' assessment practices. The profiles will be used within the impacted departments to

extend the dialogue about assessment design which is essential for supporting quality continuous professional development.

The following indicators will be used to gauge the impact and success of the professional development which may help other leaders with their improvement initiatives and accountability:

- Increase in teacher awareness of their personal assessment profiles;
- Improvement in the teachers' knowledge of various assessment practices;
- Alignment of assessment plans for the impacted courses with assessment practices;
- Identification of the connections between teachers' assessment practices and identified variables; and
- Production of high-quality common assessments by departments that reflect and inform student learning.

Limitations

There are situations or elements inherently outside the control of the researcher that can potentially impact the outcomes of a study. The limitations of this action research are outlined below:

- The generalizations made regarding the characteristics of teachers of tested areas that were examined in this study (age, years of experience, grade level assigned, and content area) could present evidential limitations. Evidential limitations may indicate a relationship between variables, but this could also identify a relationship to a common source, ". . . and there is no way of being sure which is true" (Spicker, 2018, p. 224). Every effort was made to examine survey data without any prior assumption of possible connections between demographic factors.

- The study population is specific to the Northern Burlington County Regional School District yielding results that may not necessarily be extrapolated beyond this district. Research methodology limits with any certainty that the procedure can be replicated in different contexts (Spicker, 2018).
- The participants responded to two self-reporting surveys, the externally-created ACAI and the APS prepared by the researcher. Instrumentation bias is possible in the questions that are included and how the questions are phrased, which may guide or influence the participants' responses (Leedy & Ormrod, 2016). An expert-panel method was used to collect construct validity evidence for the ACAI. The format of the APS was modified following review by an in-district pilot group of non-participating teachers.
- The teachers from the Math and Science departments completed the ACAI at the scheduled time in a group setting. Teachers from the remaining content areas completed the survey independently within two weeks. Podsakoff and Organ (1986) found that participants' responses could be influenced by activities, conversations, or other stimuli at work that occurred just before the data collection.
- The study participants may have harbored concerns about the researcher's intentions insofar as the researcher is a district-level administrator. Research participants may respond with socially desirable answers rather than their authentic beliefs or responses (Fisher, 2000). Participants were notified through the Informed Consent of the option to withdraw from the study and that their responses would remain anonymous.

Implications for Leadership Growth

The process of facilitating an action research study led to leadership growth opportunities within the district for the researcher currently employed as a central office administrator. The

success of this study affirmed for the researcher the importance of having maintained positive professional relationships and respect for everyone's time. This experience reinforced the value of determining needed resources; communicating a vision; planning out the entire journey; and keeping the big picture in mind, while incrementally revealing components to stakeholders. Finally, this study reaffirmed the researcher's servant leadership philosophy.

Michael Hyatt coined the saying, "What gets scheduled gets done" which has become a mantra for the researcher. Time did not permit all departments to complete the ACAI as planned within the given window. The delay in having some groups independently complete the ACAI may have impacted the results of the study. The administration of the researcher-created survey (APS) also posed challenges. Participants were invited to complete the survey independently yielding a lower than anticipated response rate. If both surveys had been scheduled as part of assigned department meeting activities increased participation would have been likely evident.

This improvement initiative was facilitated at a critical time in the district of focus. Beginning her third year as the director overseeing the Office of Academics, the researcher had recently implemented a major change to the district's assessment processes. Participants were interested in examining their individualized assessment profiles generated from the ACAI. While participants received this profile immediately following the electronic submission of the survey, the online format did not enable participants to easily save their results. The researcher had prepared directions in advance to complete this task and had also planned to facilitate a guided examination of the assessment profiles during subsequent professional development time. What was learned was the need to respect the participants' time to complete these tasks. Leaders must carefully plan each step of any initiative to the extent possible, even if only specific elements are revealed over time to participants.

This action research provided useful data for the district. Appropriately sharing this data with other district leaders, teachers, parents, students, the Board of Education and community members will result in a deeper understanding of the current status of assessment and justify the expenditure of funds and professional development time dedicated to this work. Drawing connections between the district's data, the established body of literature, and the district's work with assessments will bring transparency to the district's efforts.

Finally, in addition to growing in leadership skills from the facilitation of the study, the researcher developed useful tools for next-level work. The process of examining data from multiple sources to identify a problem of practice was overwhelming. Once a problem was identified, narrowing the focus through research questions intended to shed light on the problem was arduous. The researchers' skills in locating and summarizing both theoretical and empirical research were improved throughout this process. The ability to draw connections between gathered data and established literature to support recommended changes is a skill needed by all educational leaders.

Summary

"Assessment is the process of gathering information about student achievement to inform educational decisions" (Stiggins, 2017, p. 5). Assessments enable teachers to confirm that their students are learning provided the design of the assessments measures the intended learning outcomes. "Teachers who develop useful assessments, provide corrective instruction and give students second chances to demonstrate success can improve their instruction and help students learn" (Guskey, 2003, p. 6). The results of this study confirm that teachers' knowledge and skills with assessment vary greatly. Focused and differentiated professional development to improve

assessment practices is needed to provide all teachers with the knowledge and skills to design effective assessments.

References

Alkharusi, H. (2011). Teachers' classroom assessment skills: Influence of gender, subject area, grade level, teaching experience, and in-service assessment training. *Journal of Turkish Science Education (TUSED)*, 8(2). Retrieved from http://tused.org/index.php/tused/article/view/358

Alotaibi, K. A. (2019). Teachers' perceptions on factors influence adoption of formative assessment. *Journal of Education and Learning*, 8(1), 74–86. Retrieved from eric.ed.gov/?id=EJ1202092

American Federation of Teachers, National Council on Measurement in Education, & National Education Association (AFT, NCME, & NEA). (1990). Standards for teacher competence in educational assessment of students. *Educational Measurement: Issues and Practice,* 9(4), 30-32.

Amineh, R. J. & Asl, H., D. (2015). Review of constructivism and social constructivism. *Journal of Social Sciences, Literature, and Languages*, 1(1), 9-16.

Approaches to Classroom Assessment Inventory ACAI. https://educ.queensu.ca/cart

Barrette, C. M. (2017). Designing meaningful, accessible professional development in assessment. *Assessment Update,* 29(3), 6-15. https://doi.org/10.1002/au.30094

Birenbaum, M., & Rosenau, S. (2006). Assessment preferences, learning orientations, and learning strategies of pre-service and in-service teachers. *Journal of Education for Teaching*, 32(2), 213-225. doi: 10.1080/02607470600655300

Black, P., & William, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, *5*(1), 7-74. https://doi.org/10.1080/0969595980050102

Bloom, B. S., Hastings, J. T., & Madaus, G. (1971). *Handbook on formative and summative*

evaluation of student learning. New York: McGraw-Hill

Bol, L., Stephenson, P.L., O'Connell, A. A., & Nunnery, J.A. (1998). Influence of experience, grade level, and subject area on teachers' assessment practices. *The Journal of Educational Research*, *91*(6), 323.

Brookhart, S. M. (1998). Teaching about grading and communicating assessment results. Paper presented at the annual meeting of the National Council on Measurement in Education, San Diego, CA. (ERIC Document Reproduction Service No. 419838)

Brookhart, S. M. (1999). The art and science of classroom assessment: The missing part of pedagogy. *ERIC Digest.* https://eric.ed.gov/?id=ED432938

Brookhart, S. M. (2001). The "Standards" and Classroom Assessment Research. Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Dallas, TX. (ERIC Document Reproduction Service No. ED451189)

Brookhart, S. M. (2011). Educational assessment knowledge and skills for teachers. *Educational Measurement: Issues and Practice*, 30, 3–12. https://doi.org/10.1111/j.1745-3992.2010.00195.x

Brown, G. T. L. (2004). Teachers' conceptions of assessment: Implications for policy and professional development. *Assessment in Education: Principles, Policy & Practice*, 11(3), 301–318. https://doi.org/10.1080/0969594042000304609

Center for Teaching Quality. (2013). *Measuring learning, supporting teaching: Classroom experts' recommendations for an effective educator evaluation system. Center for Teaching Quality*. Center for Teaching Quality. https://eric.ed.gov/?id=ED544418

Cookson, Jr., P. W. (2009). What would Socrates say? *Educational Leadership*, 67(1), 8–14.

Coombs, A., DeLuca, C., LaPointe-McEwan, D., & Chalas, A. (2018). Changing approaches to

classroom assessment: An empirical study across teacher career stages. *Teaching and Teacher Education,* 134-144. https://doi.org/10.1016/j.tate.2017.12.010

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications, Inc.

Danielson, C. (2014). *The Framework for teaching evaluation instrument* 2013 edition. Princeton, NJ: The Danielson Group. Retrieved from http://danielsongroup.org/framework/

Delandshere, G. (2002). Assessment as inquiry. *Teachers College Record,* 104(7), 1461-1484. doi:10.1111/1467-9620.00210

DeLuca, C., & Bellara, A. (2013). The current state of assessment education: Aligning policy, standards, and teacher education curriculum. *Journal of Teacher Education,* 64(4), 356–372. https://doi.org/10.1177/0022487113488144

DeLuca, C., & Klinger, D. A. (2010). Assessment literacy development: Identifying gaps in teacher candidates' learning. *Assessment in Education: Principles, Policy & Practice,* 17(4), 419–438. https://doi.org/10.1080/0969594X.2010.516643

DeLuca, C., Klinger, D., Pyper, J., & Woods, J. (2015). Instructional rounds as a professional learning model for systemic implementation of assessment for learning. *Assessment in education: principles, policy & practice,* 22(1), 122-139. doi: 10.1080/0969594X.2014.967168

DeLuca, C., LaPointe-McEwan, D., and Luhanga, U. (2016a) Approaches to classroom assessment inventory: A new instrument to support teacher assessment literacy. *Educational Assessment,* 21(4), 248-266. https://doi.org/10.1080/10627197.2016.1236677

Deluca, C., LaPointe-McEwan, D., & Luhanga, U. (2016b). Teacher assessment literacy: A review of international standards and measures. *Educational Assessment, Evaluation, and Accountability, 28*(3), 251-272. http://dx.doi.org/10.1007/s11092-015-9233-6

DeLuca, C., Valiquette, A., Coombs, A., LaPointe-McEwan, D., & Luhanga, U. (2018). Teachers' approaches to classroom assessment: A large-scale survey. *Assessment in Education: Principles, Policy & Practice,* 25(4), 355-375. https://doi.org/10.1080/0969594X.2016.1244514

Ebrahimi, N. A. (2013). Constructivist translation classroom environment survey (CTLES): Development, validation, and application. *Translation & Interpreting*, *5*(2), 163-186. doi: ti.105202.2013.a10

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4. doi: 10.11648/j.ajtas.20160501.11

Fisher, R. J. (2000). The future of social-desirability bias research in marketing. *Psychology and Marketing*, 17(2), 73-77.

Fosnot, C. T., & Perry, R. S. (1996). Constructivism: A psychological theory of learning. *Constructivism: Theory, Perspectives, and Practice*, *2*, 8-33. New York: Teachers College Press.

Freiberg, H. J. (2002). Essential skills for new teachers. *Educational Leadership,* 59(6), 56-60.

Gotch, C. M., & French, B. F. (2014). A Systematic Review of Assessment Literacy Measures. *Educational Measurement: Issues and Practice*, 33(2), 14–18. doi: http://dx.doi.org/10.1111/emip.12030

Graham, P. (2005). Classroom-based assessment: Changing knowledge and practice through preservice teacher education. *Teaching and Teacher Education*, 21(6), 607-621. doi:10.1016/j.tate.2005.05.001

Greenberg J, Walsh K, McKee A, & National Council on Teacher Quality. (2014). 2014 Teacher prep review: A review of the nation's teacher preparation programs. *National Council On Teacher Quality*. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED545343&site=eds-live&scope=site

Gullickson, A. R. (1993). 1. Matching measurement instruction to classroom-based evaluation: Perceived discrepancies, needs, and challenges. Teacher Training in Measurement and Assessment Skills. *Teacher Training in Measurement and Assessment Skills.* 3. Retrieved from https://digitalcommons.unl.edu/burosteachertraining/3

Guskey, T. (2003). How classroom assessments improve learning. *Educational Leadership*, 60(5), 6-11. Retrieved from http://www.ascd.org/publications/educational-leadership/feb03/vol60/num05/How-Classroom-Assessments-Improve-Learning.aspx

Hattie, J. (2012). Know thy impact. *Educational Leadership*, 70(1), 18–23. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1002435&site=eds-live&scope=site

Herppich, S., Praetorius, A-K., Förster, N., Glogger-Frey, I., Karst, K., Leutner, D., Sudkamp, A. (2018). Teachers' assessment competence: Integrating knowledge-, process-, and product-oriented approaches into a competence-oriented conceptual model. *Teaching and Teacher Education*, 76, 181-193. doi: 10.1016/j.tate.2017.12.001

James, M. (2006). Assessment, teaching, and theories of learning. In J. Gardner (First Edition), Assessment and Learning (pp. 47-60). London, England: Sage Publications, Inc. doi:10.13140/2.1.5090.8960

Joint Committee on Standards for Educational Evaluation (JCSEE). (2003). *The student Evaluation standards: How to improve evaluation of students.* Newbury Park, CA: Corwin Press.

Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, 15(3), 261–266. https://doi.org/10.1093/intqhc/mzg031

Kelly, J. (2012). http://thepeakperformancecenter.com/educational-learning/learning/theories/

Kirkman, R. E. (1971). Reviewed work: Handbook on formative and summative evaluation of Student learning by Benjamine S. Bloom, J. Thomas Hastings, George F. Madaus. *Peabody Journal of Education*, 48(3) 248.

Klinger, Don & McDivitt, Patricia & Howard, Barbara & Munoz, Marco & Roger, W. & Wylie, E.. (2015). Classroom Assessment Standards for PreK-12 Teachers: Joint Committee on Standards for Educational Evaluation.

Koh, K. H. (2011). Improving teachers' assessment literacy through professional development. *Teaching Education*, 22(3), 255–276. Retrieved from doi:10.1080/10476210.2011.593164

Lavrakas, P. J. (2008). Encyclopedia of survey research methods. Thousand Oaks, CA: Sage Publications, Inc. doi: 10.4135/9781412963947

Leedy, P. D., & Ormrod, J. E. (2016). *Practical Research Planning and Design*. New York, NY: Pearson Education.

Lian, L. H., Yew, W. T., & Meng, C. C. (2014). Enhancing Malaysian teachers' assessment literacy. *International Education Studies*, 7(10), 74–81. doi:10.5539/ies.v7n10p74

Maclellan, E. (2004). Initial knowledge states about assessment: Novice teachers' conceptualisations. *Teaching & Teacher Education: An International Journal of Research and Studies*, 20(5), 523–535. http://dx.doi.org/10.1016/j.tate.2004.04.008

Marshall, C., & Rossman, G. B. (2006a). *Designing qualitative research*. Thousand Oaks, CA: Sage Publications Inc.

Marshall, C., & Rossman, G. (2006b). The how of the study: Building the research design. *Designing qualitative research*, 55-101.

Marzano, R. J. (2013). The Marzano teacher evaluation model. Retrieved from http://marzanoresearch.com

Mayer, R. E. (2018). Educational psychology's past and future contributions to the science of learning, science of instruction, and science of assessment. *Journal of Educational Psychology*, 110(2), 174–179.

McMillan, J. H. (2000). Fundamental assessment principles for teachers and school Administrators. *Practical Assessment, Research & Evaluation*, 8(1), 1-5. Retrieved from https://doaj.org/article/01b8c0cffcbe4942b3cb725a7daa570b

McMillan, J. H., & Nash, S. (2000). *Teacher classroom assessment and grading practices decision making*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. New Orleans, LA, April 25-27, 2000.

Mergel, B. (1998). Instructional design and learning theory. Retrieved from https://etad.usask.ca/802papers/mergel/mergel.pdf

Mertler, C. A. (2004). Secondary teachers' assessment literacy: Does classroom experience make a difference? *American Secondary Education,* 33(1), 49-64.

Mertler, C. A. (2009). Teachers' assessment knowledge and their perceptions of the impact of classroom assessment professional development. *Improving schools*, 12(2), 101-113. https://doi.org/10.1177/1365480209105575

Mertler, C. A., & Campbell, C. (2005). Measuring teachers' knowledge & application of classroom assessment concepts: Development of the "Assessment Literacy Inventory." *Online Submission.* Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, Apr 11-15, 2005). 27 pp. Retrieved from https://eric.ed.gov/?id=ED490355

New Jersey Department of Education, NJ Achieve, SGO PowerPoint Slide 37

New Jersey Professional Standards for Teachers (2014). *Standard 6: Assessment.* https://www.state.nj.us/education/profdev/profstand/ProfStandardsforTeachersAlignmentwithInTASC.pdf

Ouyang, J. R., & Stanley, N. (2014). Theories and research in educational technology and distance learning instruction through blackboard. *Universal Journal of Educational Research*, 2(2), 161–172. doi:10.13189/ujer.2014.020208

Pattalitan, Jr., A. P. (2016). The implications of learning theories to assessment and instructional scaffolding techniques. *American Journal of Educational Research,* 4(9), 695-700. doi:10.12691/education-4-9-9

Pellegrino, J. W. (1999). The evolution of educational assessment: Considering the past and

imagining the future. *Educational T*esting Service. Policy Evaluation and Research Center, Policy Information Center. Princeton, NJ. Retrieved from https://www.ets.org/Media/Research/pdf/PICANG6.pdf

Plake, B. S., Impara, J, & Fager, J. (1993). Assessment competencies of teachers: A national survey. *Educational Measurement: Issues and Practice.* 12, 10–12. doi: 10.1111/j.1745-3992.1993.tb00548.x

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and Prospects. *Journal of Management,* 72(4), 531-544. doi:10.1177/014920638601200408

Popham, W. J. (2004). Why assessment illiteracy is professional suicide. *Educational Leadership*, 62, 82–83.

Popham, W. J. (2009). Assessment literacy for teachers: Faddish or fundamental? *Theory into Practice*, 48(1), 4. doi: 10.1080/00405840802577536

Quilter, S. M., & Gallini, J. K. (2000). Teachers' assessment literacy and attitudes. *The Teacher Educator*, 36(2), 115-131. https://doi.org/10.1080/08878730009555257

Rahman, M. (2018). Teachers' perceptions and practices of classroom assessment in secondary school science classes in Bangladesh. *International Journal of Science and Research (IJSR)*, 7(6), 254-263. Retrieved from https://eric.ed.gov/?id=ED583759

Ramirez, A. (2013). The dark history of the multiple-choice test. *Edutopia*. https://www.edutopia.org/blog/dark-history-of-multiple-choice-ainissa-ramirez

Roessingh, H., & Chambers, W. (2011). Project-based learning and pedagogy in teacher preparation: Staking out the theoretical mid-ground. *International Journal of Teaching and Learning in Higher Education, 23*(1), 60–71.

Siegel, M. A., & Wissehr, C. (2011). Preparing for the plunge: Preservice teachers' assessment

literacy. *Journal of Science Teacher Education*, 22(4), 371-391. doi:10.1007/s10972-011-9231-6

Sergiovanni, T. J. (2004). Collaborative cultures & communities of practice. *Principal Leadership: High School Edition*, 5(1), 48-52. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ766859&site=eds-live&scope=site

Severns, T. (2018, September 17). Personal interview.

Shepard, L. A. (2000). The role of assessment in a learning culture. *Educational researcher*, 29(7), 4-14. https://doi.org/10.3102/0013189X029007004

Schunk, D. H. (2000). *Learning theories: An educational perspective* (3rd ed). Upper Saddle River, NJ: Prentice-Hall.

Spicker, P. (2018). The real dependent variable problem: The limitations of quantitative analysis in comparative policy studies. *Social Policy & Administration,* 52(1), 216.

Stabler-Havener, M. L. (2018). Defining, conceptualizing, problematizing, and assessing language teacher assessment literacy. *Working Papers in Applied Linguistics & TESOL*, *18*(1), 1–22.

Stiggins, R.J. (1988). Revitalizing classroom assessment: The highest instructional priority. *Phi Delta Kappan*, 69(5), 363-368.

Stiggins, R. J. (1991a). Assessment literacy. *Phi Delta Kappan,* 72(7), 534-539. Retrieved from https://www.jstor.org/stable/20404455

Stiggins, R. J. (1999). Evaluating classroom assessment training in teacher education programs. *Educational Measurement: Issues and Practice*, 18(1), 23–27.

Stiggins, R. J. (2001). The unfulfilled promise of classroom assessment. *Educational Measurement: Issues and Practice*, 20(3), 5-15.

Stiggins, R. (2017). *The perfect assessment system*. Alexandria, VA: ASCD.

Stiggins, R. (2018). Better assessments require better assessment literacy. *Educational Leadership*, 75(5), 18-19.

Stronge, J. H. (2012). *Teacher effectiveness performance evaluation system.* VA: Stronge and Associate Educational Consulting, LLC.

Tittle, C. K. (1994). Toward an educational psychology of assessment for teaching and learning: Theories, contexts, and validation arguments. *Educational Psychologist*, 29(3), 149–162. https://doi.org/10.1207/s15326985ep2903_4

Walston, J., Redford, J., & Bhatt, M. P. (2017). Workshop on survey methods in education research: Facilitator's guide and resources. REL 2017-214. *Regional Educational Laboratory Midwest*.

Webb, D.C. (2009). Designing professional development for assessment. *Educational Designer*, 1(2). Retrieved from https://www.educationaldesigner.org/ed/volume1/issue2/article6/

Wen, L. M., Tsai, C. C., & Chang, C. Y. (2006). Attitudes towards peer assessment: a comparison of the perspectives of pre-service and in-service teachers. *Innovations in Education and Teaching International*, 43(1), 83-92. doi: 10.1080/14703290500467640

Xu, Y., & Brown, G. T. (2016). Teacher assessment literacy in practice: A reconceptualization. *Teaching and Teacher Education*, 58, 149-162. doi: 10.1016/j.tate.2016.05.010

Yamtim, V., & Wongwanich, S. (2014). A study of classroom assessment literacy of primary school teachers. *Procedia-Social and Behavioral Sciences*, 116, 2998-3004.

https://doi.org/10.1016/j.sbspro.2014.01.696

Yilmaz, K. (2011). The cognitive perspective on learning: Its theoretical underpinnings and implications for classroom practices. *Clearing House*, 84(5), 204–212. https://doi.org/10.1080/00098655.2011.568989

Zhang, Z. (1996). Teacher assessment competency: A Rasch model analysis. Paper presented at the annual meeting of the American Educational Research Association, New York. (ERIC Document Number ED 400 322) https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED400322

Zhang, Z., & Burry-Stock, J. A. (2003). Classroom assessment practices and teachers' self-perceived assessment skills. *Applied Measurement in Education*, 16(4), 323-342. doi: 10.1207/S15324818AME1604_4

Appendix A: Classroom Assessment Standards (Draft #5 – Selected Sections)

Overview

Classroom assessment practices are an integral part of teaching and learning. Without sound assessment practices, we may not know if students are progressing as planned. Further, we may not be able to effectively plan for students' future learning opportunities. The Classroom Assessment Standards contains a set of standards and related guidelines accepted by professional organizations as indicative of consistent and accurate classroom assessment practices.1 The standards and related guidelines identify the issues to consider when exercising the professional judgment required for fair and equitable classroom formative, benchmark, and summative assessments for all students. The results from classroom assessments that adhere to these standards and guidelines can then be used with confidence by teachers, students, and, where appropriate, parents/guardians, to better foster student learning.

Prior to undertaking any form of assessment, it is essential that we develop a clear understanding of the following: (a) purpose of the assessment, including users, intent, and decisions to be influenced by the results; (b) what is to be assessed, in terms of learning targets or expectations; (c) the best method for conducting the assessment we have selected or developed, given the purpose and learning targets; (d) how to best communicate the assessment results and to whom; and (e) how to involve students in the assessment process.

These five basic considerations must guide us from the very start of planning the assessment and the instruction occurring alongside or leading up to it. The consideration of assessment purpose, learning expectations, assessment method, communication, and student involvement can positively benefit students' continuous learning.

Purposes and Nature of Classroom Assessment

Classroom assessments cover a range of purposes. The assessment of student learning might be used formatively to inform small adjustments or enhancements to on-going instruction or summatively to help determine end-of-year grades. The size and scope of the classroom assessment itself can vary, as can the degree of formality of the assessment. Three examples of classroom assessment practices that differ in their formality and consequences are:

1. Formative assessment to inform teachers and students about progress on learning intentions and to inform and direct subsequent learning and teaching.
2. Larger projects, such as an essay, a performance assessment, or a research project, that may end up with a summative grade but that have significant formative components to support student learning along the way, such as regular self-assessment of progress, feedback from peers or teachers, and drafts before a final version or product is submitted.
3. Assessments given to contribute to a grade for a unit or a course. While summative in nature, the information may be considered in future planning. Summative by nature

> implies that the learning opportunity for that aspect of the content has ended, and the student is being held accountable for demonstrating acquired knowledge or skills.

When conducting an assessment, consideration should be given to the consequences of the decisions to be made. The outcomes of some assessments may be more critical than others. For example, misinterpretation of the level of performance on an end-of-unit test may result in incorrectly holding a student from proceeding to the next instructional unit in a continuous progress situation. In such "high-stakes" situations, every effort should be made to ensure that the assessment method will yield consistent and accurate results. Low-stakes assessments such as question/answer during class or homework designed to determine current understanding of an ongoing unit of study may be less stringent. Low-stakes assessments are often repeated during the course of a reporting period using a variety of methods and should not be counted toward a grade for a reporting period. In contrast, high-stakes assessments are typically administered at selected times during the reporting period to determine the level at which students have achieved the learning expectations for a teaching unit or a series of teaching units. The results of classroom summative assessments should be aggregated to form a summary comment or grade for the reporting period.

Regardless of the purpose of the classroom assessment, adherence to the standards and guidelines presented in the Classroom Assessment Standards will help ensure that the information obtained from the classroom assessment and the interpretation of the information are accurate, allowing for follow-up activities designed to support continuous evidence-based learning.

This current revision of the standards is the product of a comprehensive effort to reach consensus on what constitutes sound principles that guide the fair assessment of students and foster learning in PK–12 classrooms – in the classroom, laboratory, gymnasium, or field trip. The standards should be considered neither exhaustive nor mandatory. However, educational organizations, institutions, and individual professionals who support them and/or endorse their use are committing themselves to fair and equitable classroom assessments for all students.

Organization of the Classroom Assessment Standards

The Classroom Assessment Standards statements are organized into three broad domains:

- Foundations
- Use
- Quality

The standards begin with the Foundations domain. The six Foundation standards encompass the basis for developing and implementing sound and fair classroom assessment practices that are focused on the students to be assessed. Within any particular classroom assessment context, the teacher needs to begin the assessment process with a clear understanding of the purpose and

objectives to be targeted. Based on this, the teacher selects the appropriate types and methods of classroom assessment to meet that purpose. In addition, the teacher should determine who will use the assessment results and how they will use them.

The five Use standards align with the assessment process and follow a logical progression from the selection and development of classroom assessments to the communication of the assessment results. It is important to understand what learning targets will be assessed and how achievement will be assessed given the purpose of the assessment; how the students' responses will be analyzed; and how the results will be communicated and used. Additionally, it is important to have student involvement through all phases since students are also important decision-makers in the classroom.

Teachers can use classroom assessment results with increased confidence when their classroom assessment practices meet the five Quality standards. Quality assessments yield results that are accurate and reliable, are free of bias and include all students. Additionally, it is important that teachers review their assessment practices and revise them so that they reflect current and best assessment practices.

Scope of the Classroom Assessment Standards

For the purposes of the Classroom Assessment Standards, the term "assessment" is used to encompass all of the strategies and techniques that a classroom teacher might use to collect information from students about their progress toward attaining the knowledge, skills, or behaviors to be learned or what students know and can do.

The Classroom Assessment Standards do not address the types of assessments that are given for accountability measures at the state or district level as these do not fall under the control of the classroom teacher. Standards for the developers and users of large-scale educational assessments are provided in the Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education, in review).

Uses of the Classroom Assessment Standards

The focus of the standards at the classroom level stems from the belief that strong and continuous learning requires consistent daily attention to gather, analyze, and effectively use accurate assessment information to guide instruction leading to student learning. The primary intended users are the PK-12 classroom teachers. Other users of these standards may include building-level and district-level administrators; staff developers; faculty in colleges of education and other pre-service programs for teachers; researchers in the field of assessment; and program evaluators. Parents and guardians, while users of assessment information, likely will not use the standards themselves. Likewise, students may benefit from being involved in a peer or self-

assessment in their classroom, but they are unlikely to become independent users of the standards.

The standard statements alone are helpful but not sufficient. Regardless of the purpose or intent of the user, the supporting explanations and guidelines offer clarity and definition to the standard statements. Reliance on individual interpretation of standard statements without the support of the research-based explanations and guidelines may result in well-intended but misguided applications of the standards. The explanations and guidelines are specific to each standard statement and provide the opportunity for educators to engage in rich discussions within the context of their school setting.

Examples of ways in which the standard statements supported by their guidelines can be used include, but are not limited to, the following:

- Individual teachers may use the Classroom Assessment Standards to develop, create, select, administer, and score classroom assessments that will yield more accurate interpretations of their students' performances. This, in turn, can be used to foster their students' further learning and, where needed, make an adjustment to instruction.
- Teacher groups, such as professional learning communities or learning teams, may use the Classroom Assessment Standards to evaluate their practices, shape plans for improvement, and share ideas for classroom assessment. The standards can provide a background for developing a common understanding among teachers as to appropriate strategies, uses, and interpretations of classroom assessments.
- Teachers, curriculum facilitators, and administrators may use the standards to develop, strengthen, and reflect on teacher levels of expertise and performance in conducting classroom assessments. This may inform continued professional development efforts.
- Building- and district-level administrators may work with teacher leaders to use the standards to develop written classroom assessment policies and guidelines for assessing students in their schools.
- Colleges of education may use the standards to inform the development of courses for pre-service educators in the area of assessment.
- Instructors of in-service programs may use the standards to identify and teach the important aspects of effective classroom assessment practices.
- Staff developers and consultants may use the standards to align their professional training programs with sound methods of classroom assessment.
- Educational researchers and program evaluators may find the standards helpful in developing assessments to be used within their work.

How and by whom the Classroom Assessment Standards are used should be determined within the specific educational context by the professionals involved. Educational settings vary widely across student populations, states, and regions. Professional judgment should be used to identify

which standards are most appropriate for each classroom assessment situation. The Joint Committee on Standards for Educational Evaluation (JCSEE) cautions that the individual standards are not equally applicable in all classroom assessment situations. Professional judgment should be used to identify which standards are most appropriate for each classroom assessment situation.

As stated earlier, these standards are intended to inform assessment practice at the classroom or building level, not the state or federal level. Standards for item and test developers of large- scale educational assessments are provided in the Standards for Educational and Psychological Testing (American Educational Research Association, American Psychological Association, and the National Council on Measurement in Education, in review).

Lastly, and in contrast to The Student Evaluation Standards (JCSEE, 2003), the Classroom Assessment Standards contain only standards, explanations, and guidelines. To create a more teacher-friendly and accessible document, the common errors and illustrative examples in The Student Evaluation Standards are not included in this version.

FOUNDATIONS

F1 Assessment Purpose: Classroom assessment practices should have a clear purpose that supports teaching and learning.

F2 Learning Expectations: Classroom assessment practices should align with the appropriate learning expectations and instruction intended for each student.

F3 Assessment Design: The types and methods of classroom assessment used should clearly allow students to demonstrate their learning.

F4 Student Engagement in Assessment: Students should be meaningfully engaged in the assessment process and use of the assessment evidence to enhance their learning.

F5 Assessment Preparation: Adequate teacher and student preparation in terms of resources, time and learning opportunities should be part of classroom assessment practices.

F6 Informed Students and Parents/Guardians: The purposes and uses of classroom assessment should be communicated to students and, when appropriate, parents/guardians.

USE

U1 Analysis of Student Performance: The methods for analyzing evidence of student learning should be appropriate for the assessment purpose and practice.

U2 Effective Feedback: Classroom assessment practices should provide timely and useful feedback to improve student learning.

U3 Instructional Follow-up: Analysis of student performance should inform instructional planning and next steps to support ongoing student learning.

U4 Grades and Summative Comments: Summative classroom assessment grades and comments should reflect student achievement of the learning expectations.

U5 Reporting: Student assessment reports should be based on a sufficient body of evidence and provide a summary of student learning in a clear, timely, accurate, and useful manner.

QUALITY

Q1 Cultural and Linguistic Diversity: Classroom assessment practices should be responsive to and respectful of the cultural and linguistic diversity of students and their communities.

Q2 Exceptionality and Special Education: Classroom assessment practices should be appropriately differentiated to meet the specific educational needs of all students.

Q3 Freedom from Bias: Classroom assessment practices and subsequent decisions should not be influenced by factors unrelated to the intended purposes of the assessment.

Q4 Validity: Classroom assessment practices should provide adequate and appropriate information that supports sound decisions about each student’s knowledge and skills.

Q5 Reliability: Classroom assessment practices should provide consistent, dependable information that supports sound decisions about each student’s knowledge and skills.

Q6 Reflection: Classroom assessment practices should be monitored and revised to improve their overall quality.

Appendix B: District Analysis & Approval Form 2013

Name of Assessment: _____
Content Team/Course: _____ **Grading Category:** _____

Directions: Classify the rigor of your assessment questions using this rubric. While not all questions need to be categorized, there must be sufficient examples of the highest levels of rigor. Teachers with common assessments need only complete one copy.

Level	Learner Action	Key Actions	Sample Question Stems	Question Numbers/ Portfolio Components
Level 1: Recall	Requires simple recall of such information as a fact, definition, term, or simple procedure.	List, Tell, Define, Label, Identify, Name, State, Write, Locate, Find, Match, Measure, Repeat	How many...? Label parts of the…. Which is true or false...?	
Level 2: Concept	Involves some mental skills, concepts, or processing beyond a habitual response; students must make some decisions about how to approach a problem or activity.	Estimate, Compare, Organize, Interpret, Modify, Predict, Cause/Effect, Summarize, Graph, Classify	Identify patterns in... Use context clues to... Predict what will happen when... What differences exist between...? If x occurs, y will….	
Level 3: Strategic Thinking	Requires reasoning, planning, using evidence, and thinking at a higher level.	Critique, Formulate, Hypothesize, Construct, Revise, Investigate, Differentiate, Compare	Construct a defense of…. Can you illustrate the concept of…? Apply the method used to determine...? Use evidence to support….	
Level 4: Extended Thinking	Requires complex reasoning, planning, developing, and thinking, most likely over an extended time. Cognitive demands are high, and students are required to make connections both within and among subject domains.	Design, Connect, Synthesize, Apply, Critique, Analyze, Create, Prove, Support	Design x in order to….. Develop a proposal to…. Create a model that…. Critique the notion that…	

___ Student Assessment Coversheet Completed and Attached

Signature of evaluator: _____ Date: _____

Modified from NJ Achieve

Appendix C: Informed Consent Form

This Informed Consent Form was created as part of the research portion of a doctoral dissertation for Rider University's Doctor of Education in Educational Leadership. The researcher is gathering data to identify similarities and differences of the approaches to classroom assessment among teachers of tested content areas and the implications for improving assessment practices. This study will inform district professional development in order to improve the design of classroom assessments.

Research Questions include:

1. How have approaches to classroom assessment practice varied among teachers of tested areas?
   a. How have approaches to classroom assessment aligned with theories regarding
      student learning among teachers of tested areas?
   b. How have approaches to classroom assessment influenced the classroom assessment practices of teachers of tested areas?
2. Which factors have influenced variations in assessment practices among teachers of tested areas?

The information used in this study will be collected by surveying teachers of tested content areas (English Language Arts, Mathematics, Science, and Special Education teachers of these content areas). Participants will be asked to engage in two surveys, The Approaches to Classroom Assessment Inventory (ACAI), approximately twenty minutes, and the Assessment Practices Survey (APS) approximately 10 minutes. The ACAI is part of an educational research

project led by Dr. Christopher DeLuca of Queens' University in Canada. Participants who complete the survey will also consent to participate in his research.

Email addresses of survey respondents will not be collected and names will be kept confidential. Survey data will be stored in a secure place by the researcher and not used for purposes other than the current study. Information that identifies individuals will only be used with their written permission.

There are no known risks to participating in this study. Participation in this study is voluntary. You are free to exit either survey at any time without your responses being recorded by closing your browser window or by not submitting your survey responses at the end of the surveys. Once you have submitted your responses to either survey, you will be unable to withdraw your data from the study. You may contact the researcher at any time with questions. Informed Consent: I have read the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this activity on the understanding that I may withdraw at any time without prejudice. I agree that the research data generated may be published provided my name is not used and that I am not otherwise identified.

Informed Consent *

_Affirmed (Checking this box affirms my consent to participate in this study)

_Denied (Checking this box denies my consent to participate in this study)

Date * _____

* Required

Appendix D: ACAI PARTS B & C

PART B: SCENARIO-BASED QUESTIONS

You will be presented with five scenarios in this section. Each scenario has 4 questions. Please respond to the scenario based on your own teaching context (i.e., grade, school, community). For each question, please identify *how likely you are to do each of the following actions*.

Scenario 1: You give your class a paper-pencil summative unit test with accommodations and modifications for identified learners. Sixteen of the 24 students fail.

Question 1: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1. Record the test grade as each student's summative assessment for the unit but reduce the weight of the test in the final grade.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2. Based on your analysis of the test, reteach parts of the unit focusing on items students struggled with, give students opportunities to apply their learning, and then re-test the material.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3. Ask students to reflect on their test preparation, analyze their test responses, and make a personal plan for re-learning the material. Then re-test the material.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 2: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1. Recognize that your test design may be flawed and design a revised unit test to give students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2. Remove test questions that most students failed and re-calculate student scores without those questions.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3. Schedule student conferences (individual or group) to discuss grades, areas of confusion, and next steps.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 3: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Allow all students to retake a similar test and average the two grades.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: For students with exceptionalities, who failed the test, discuss a new assessment that would appropriately demonstrate his/her learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Discuss with each student who failed the test a new assessment that would appropriately demonstrate his/her learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 4: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Analyze test questions that the majority of students consistently answered incorrectly. Then provide students with new questions to test those concepts.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Consider student test scores in light of previous, formative assessment information available for each student. Consider this information and adjust grades accordingly.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Reflect on student performance, considering item wording and student circumstances contributing to failure in relation to previous assessment information. Then adjust grades accordingly.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Scenario 2: You discover that one of your students has plagiarized some of his assignment (e.g., an essay, lab report).

Question 1: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Administer consequences in alignment with school policies on plagiarism.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Action 2: Have him highlight the plagiarized text and then rewrite the section in his own words. As a teacher, reflect on how this incident might inform your future teaching practice.	[ ] [ ] [ ] [ ] [ ] [ ]
Action 3: Ask him to document how he obtained and used reference materials for the assignment and what he would do differently next time. Have him write a work plan for re-doing the assignment.	[ ] [ ] [ ] [ ] [ ] [ ]

Question 2: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Reflect on how you as a teacher designed and presented the assignment. In future, ensure that you deliberately design opportunities for students to learn about plagiarism.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Grade aspects of student work that are original and deduct points for the plagiarized sections.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Talk with him about the severity of plagiarism and negotiate potential next steps for his learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 3: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Explain to him the policy on plagiarism and how you consistently apply the policy so that it is fair for all students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Consider his specific learning needs and exceptionalities before determining whether or not to apply the general plagiarism policy.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Conference with him to review the implications of plagiarizing and agree upon an appropriate alternate assignment.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 4: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Consult school policy on plagiarism and implement consequences consistent with the policy.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Consider the original aspects of the assignment and the plagiarized text to determine what he knows and does not appear to know about the content expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Examine extenuating circumstances that led to the plagiarism and then develop an alternative assignment to assess the expectations relevant to the plagiarized sections of the assignment.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Scenario 3: Out of 28 students in your class, 4 students are classified/identified with an exceptionality and have an Individual Education Plan (IEP) (i.e., each student requires accommodations but not a modified curriculum) as well as several other unidentified students with differentiated learning needs. You must decide how to accurately measure learning in your class.

Question 1: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Provide the 4 identified students with accommodations on all summative assessments.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Implement scaffolded formative assessments with all of your students based on their individual learning needs, leading up to the final accommodated unit test.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Allow each student to develop a personal learning plan based on his/her strengths, learning needs, and the learning goals.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 2: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6

Action 1: Design a variety of assessment tasks and allow students to choose how they will demonstrate their achievement of learning expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Accommodate your rubrics and scoring guides to reflect identified students' IEPs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Explain to students and parents the purpose of accommodations and how they will be implemented and communicated on students' report cards.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 3: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Grade students based on the same assessments including homework, quizzes, and a unit test.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Ensure students with identified learning exceptionalities are provided with accommodations on all assessment tasks.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Provide a variety of assessment options for all students based on their individual learning needs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 4: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Use the same scoring rubric for all students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Develop different scoring rubrics for identified students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Use the same scoring rubric for all students but use professional judgment to apply criteria differently based on individual student ability.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Scenario 4: You are planning a unit for your class.

Question 1: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Start by designing a summative evaluation and use backward planning to create your lesson plans.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Design formative assessments to be used during instruction. Use information from these assessments to guide the design of subsequent lessons, learning activities, and summative assessment tasks.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Start by reviewing the curriculum learning expectations with students and require each student to develop a personal learning and assessment plan for the unit.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 2: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Design a summative evaluation that covers all relevant curriculum expectations for the unit.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Consider how grades are determined in your class and the weighting of assignment. Then design assessments for the unit based on weighting decisions.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Co-construct learning goals and discuss assignments and grading criteria for the unit with your students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 3: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Plan class lessons and assessments that are the same for all students and encompass the curriculum expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Give all students a diagnostic assessment at the beginning of the unit to	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

group students for differentiated learning and assessment activities.	
Action 3: Give all students a diagnostic assessment at the beginning of the unit and have students use their results to select appropriate learning and assessment activities.	[ ] [ ] [ ] [ ] [ ] [ ]

Question 4: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Use externally generated quizzes and unit tests (i.e., professionally developed, online resources, peer teacher) to measure student learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Develop assessments based on the content and activities of your enacted lessons.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Develop assessments based on questions/activities that have worked well with other students like yours but adjust them to take into consideration the content and activities of your enacted lessons.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Scenario 5: A parent of one of your classified/identified students is concerned about an upcoming standardized test.

Question 1: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Tell the parent that a standardized test will provide important information on how the school system is working for all students and the results will allow school districts to invest resources where improvement is needed.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Tell the parent that the standardized test will provide feedback on her child's learning towards educational standards and help guide teaching and learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Action 3: Tell the parent that the standardized test will provide students an opportunity to develop learning strategies, test-preparation skills, and goals for their learning.	[ ] [ ] [ ] [ ] [ ] [ ]

Question 2: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Tell the parent that prior to the standardized test, all students will complete practice tests to prepare and become familiar with the standardized test format.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Tell the parent how the standardized test will (or will not) be incorporated into her child's report card grade and how it will facilitate instructional decisions.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Tell the parent that the purpose of standardized testing will be explained in detail to all students prior to taking the test and their test results will be explained to students and parents.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 3: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6
Action 1: Tell the parent that all eligible students in the class must complete the standardized test.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Tell the parent that her child's IEP will be consulted prior to testing and appropriate accommodations will be provided.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Tell the parent that standardized tests are required but classroom assessments can be fully accommodated for the student's individual learning needs.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Question 4: As a teacher in this situation, how likely are you to do each of the following actions?

	Not at all likely 1	2	unlikely 3	likely 4	5	Highly likely 6

Action 1: Tell the parent that standardized tests are designed to provide a measure of students' achievement across the school district.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 2: Tell the parent that report card grades allow parents to draw more valid conclusions than standardized tests about her child's growth and achievement in relation to curriculum expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Action 3: Tell the parent that standardized tests, in conjunction with report card grades, allow parents to draw more informed conclusions about their child's growth and achievement than either source alone can provide.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

PART C: QUESTIONS ABOUT CLASSROOM ASSESSMENT PRACTICES AND PROFESSIONAL LEARNING

Please indicate your level of agreement with the following statements about your assessment practices.

	Strongly Disagree 1	2	disagree 3	agree 4	5	Strongly Agree 6
I use student assessment data to inform instructional planning and next steps for individual students and the class as a whole.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I monitor and revise my assessment practices regularly.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I use a variety of formative assessment techniques (e.g., structured Q&A, quick-writes) and instruments (e.g., paper-pencil quizzes, personal-response systems) to check for understanding during instruction.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My summative course grades are based on a sufficient body of evidence to provide a dependable and meaningful representation of individual student learning as related to curriculum expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

I do not use a variety of summative assessment types, such as multiple choice type tests, essays, and performance-based assessments.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I engage students in monitoring their own learning and using assessment information to develop their learning skills.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I do not spend adequate time ensuring that my assessments are responsive to and respectful of the cultural and linguistic diversity of my students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I do not regularly engage students in assessment practices during teaching.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I do not explicitly communicate the purposes and uses of assessment to students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I provide timely feedback to students to improve their learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My determination of students' grades are primarily influenced by factors related to the intended purposes of the assessment or the curriculum expectation being measured.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I am not confident in my ability to analyze and make instructional decisions based upon my students' performance on external standardized assessments (e.g., AP tests, state accountability tests, district benchmark tests).	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I monitor and revise my assessment practices to improve the quality of my instructional practices.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My methods of assessing and the types of assessments I use allow students to demonstrate their learning in individualized ways.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I do not spend adequate time individualizing my assessment practices to meet the specific educational needs of each of my students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

I provide adequate resources, time, and accommodations to prepare students with special needs/exceptionalities for assessment.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
In my class, all students complete the same assignments, quizzes, and tests.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
When grading student work, I use the same rubric or scoring guide for all my students.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I map my assessment tasks/questions to learning objectives.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I am not confident that students' performance on my assessments are the best representations of what I really want them to learn.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I can select assessments from test banks, textbook series, and/or online teacher sharing sites that align with my learning objectives and dependably represent my students' learning.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I use multiple assessments to measure each learning objective so that I am confident in the grades I assign.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
My grades and feedback are grounded in the evidence I have collected about student achievement of learning expectations.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
I am not confident that I apply my scoring guides/rubrics consistently.	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Appendix E: Permission to Use ACAI

From: Christopher Deluca: cdeluca@queensu.ca Wed, Mar 20, 2019 at 7:09 PM
To: Amy Stella: stellaa@rider.edu Cc: Andrew Coombs: andrew.coombs@queensu.ca

Hi Amy,

Thanks for reaching back out. You can certainly use the ACAI and we are happy to help tailor some of the questions to your needs. I'll let you work with Andrew on the technical details. Please don't hesitate to reach out to me if you have any questions.

All the best,
Chris

Christopher DeLuca, PhD, Associate Professor
Acting Associate Dean, Graduate Studies & Research
Co-Editor, Canadian Journal of Education

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On Mar 20, 2019, at 2:19 PM, Amy Stella <stellaa@rider.edu> wrote:

Good afternoon Chris and Andrew,

Happy first day of Spring and I hope this message finds you well! Since our conversation in January, I've been working on the first two chapters of my dissertation and am preparing for IRB submission in the next few weeks. I created my own Informed Consent form, but also believe I should include your informed consent process on the ACAI in my submission. https://interceptum.com/s/en/acai. Please advise if this is okay with you and you agree.

Also, please confirm your permission for me to utilize your survey and that a unique URL will be created for my project. I still need to identify the demographic information I'd need included, but I don't recall completing the "permission" step.

Please let me know if you have any questions or concerns.

Thank you!
Sincerely,
Amy Stella
Doctoral Candidate, Rider University, New Jersey

Appendix F: Assessment Practices Survey

Northern Burlington is currently engaged in closely examining teachers' assessment practices and redefining components of the Balanced Assessment System (ie. benchmarks). This survey is intended to deepen NB's understanding of our teachers' current philosophies of assessment and identify the wants and needs of teachers with regard to professional development. Additionally, the survey should support individual self-reflection and foster conversation among content teams regarding assessment. As you take this survey, please do so from your perspective as a teacher at NB. This survey should take approximately 10-15 minutes to complete.

PART A: DEMOGRAPHICS

Please enter the SAME last 5 digits of your phone number that you entered for the ACAI survey. This information will be used to link responses if you take this survey multiple times and not for identification purposes.

Phone: (Last 5 digits) _____

My gender is:

- Female
- Male
- Other
- Prefer not to respond

My age is:

- 20-29 years
- 30-39 years
- 40-49 years
- 50-59 years

- 60-69 years

How many years have you been a professional educator as of September 2019?

- 1-5 years
- 6-10 years
- 11-20 years
- 21-30 years
- 31 years or more

Grade Level at which you currently teach:

- Middle School
- High School

Content area(s) of certification: Please select all that apply

- English/Language Arts
- Mathematics
- Science
- Special Education

PART B: SURVEY ITEMS

Instructional and Assessment Practices

How often do you implement the following actions? Please select: Daily, Weekly, Twice a Week, Monthly, Never

All students take the same test at the same time

1. Assessment items have multiple correct answers
2. Information is categorized or chunked for students during instruction
3. Student learning is guided/facilitated by me

4. Timed tests are used
5. Responses are graded as either correct or incorrect
6. Students are praised for academic performance
7. Students are required to remember important facts
8. Rewards (homework passes, extra credit) are provided based on academic performance
9. Research projects are used as assessments
10. Case studies and simulations are used as assessments
11. Inquiry/Discovery learning is utilized during instruction
12. Problem-based learning/real-world examples are utilized during instruction
13. Class discussions are utilized during instruction
14. Analogies, mnemonics, or visual representations are utilized during instruction
15. Rewards (homework passes, extra credit) are withheld based on academic performance
16. Students can demonstrate learning in varied ways
17. Students complete self-assessments
18. Students help determine the assessment criteria
19. Students help select learning activities
20. Students are provided opportunities to learn from each other.
21. Students help create their assessments
22. Students need prior knowledge to understand new content
23. Students transfer or apply learning to new situations
24. Students organize, retrieve, and use knowledge
25. Students are required to give quick and accurate responses

Which of the following self-reflective questions do you consider after administering a classroom assessment or evaluation? Rank order (1- highest priority, 5 - lowest priority)

_ How well are my students progressing towards my course learning goals?

_ Which thinking skills are my students using to process information in my course?

_ Are my students using reflection to improve their learning in my course?

_ How well are my students integrating and applying new information in my course?

_ Do my teaching strategies need to be modified in this course to improve student learning?

Which goals do you set with respect to all forms of assessment used in your course? Rank order (1- highest priority, 7 - lowest priority)

_Gauge students' prior knowledge

_Define and communicate learning goals to students

_Provide diagnostic feedback to myself and the students

_Assess and improve my teaching effectiveness

_Identify students' strengths and weaknesses

_ Improve students' awareness of learning progress

_ Engage students in self-assessment and communication of learning progress

Which formal forms of assessment or evaluation do you use in your course? Rank order (1- most frequently, 7- least frequently)

_paper-pencil or web-based tests with only multiple-choice questions

_paper-pencil or web-based tests with multiple-choice items and free-response questions

_paper-pencil or web-based tests with only free-response questions

_individual or small-group projects requiring fabrication of a product

_individual or small-group projects as written, electronic, oral presentation

_web-based simulation, game, or interactive tool yielding feedback (score/narrative)

_direct observation of a task/activity using a rubric or checklist

Self-evaluation of assessment practices

Read each statement carefully. Please rate yourself as Novice, Advanced Beginner, Competent, Proficient, or Expert.

1. I balance the use of formative and summative assessment as appropriate to support, verify, and document learning.
2. I design assessments that match learning objectives with assessment methods.
3. I work independently and collaboratively to examine test and other performance data to understand each learner's progress and to guide planning.
4. I provide learners with effective descriptive feedback to guide their progress toward understanding and identifying quality work.
5. I engage learners in multiple ways of demonstrating knowledge and skills as part of the assessment process.
6. I model and structure processes that guide learners in examining their own thinking and learning as well as the performance of others.
7. I effectively use multiple and appropriate types of assessment data to identify each student's learning needs.
8. I develop and implement differentiated learning experiences for students.
9. I know how to analyze assessment data to understand patterns and gaps in learning, to guide planning and instruction, and to provide meaningful feedback to all learners.
10. I know when and how to engage learners in analyzing their own assessment results and in helping to set goals for their own learning.

11. I know when and how to evaluate and report learner progress against standards.
12. I understand how to prepare learners for assessments and how to make accommodations in assessments and testing conditions, especially for learners with disabilities and language learning needs.

Professional Development Interests

Northern Burlington is providing focused professional development on assessment. Please indicate your level of interest in participating in professional development on various assessment topics if offered by Northern Burlington.

Please respond: Extremely interested, Very interested, Moderately interested, Slightly interested, Not at all interested

1. Prioritizing standards for instruction and assessment
2. Unpacking standards
3. Developing assessment items aligned to standards
4. Writing assessment items
5. Developing high-quality assessments
6. Using digital tools available to assist with assessment
7. Learning how to analyze data on assessments