



Preparing Teachers for Assessment within Diverse Classrooms: An Analysis of Teacher Candidates' Conceptualizations

By Christopher DeLuca & Chi Yan Lam

Under the current standards-based framework of public education in the US, and in other parts of the world, teachers are required to purposefully use assessments to individualize instruction for students with diverse learning needs (Darling-Hammond & Bransford, 2005; Ryan & Feller, 2009). This standards-based framework was initiated through the No Child Left Behind legislation (NCLB, 2002) and more recently reinscribed through the Blueprint for Reform act (USDOE, 2010). Underlying these public policies is the belief that every student can achieve state educational standards when provided with sufficient instructional support and, if necessary, provisions for accommodation.

Teachers are currently expected to use data from student assessments, both classroom-based and large-scale, to inform instruction for diverse students. Across these policy directives, diversity is primarily understood as differences in student ability (i.e., disability or giftedness), culture and race, and English language proficiency as well as considerations of other student characteristics including learning styles, gender, socio-economic status, sexual orientation, religious affiliation, body image, and interests. For many school districts, data-informed instruction has been enacted, in part, through a Response to Intervention (RTI) approach that emphasizes

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tracking of learner progress in relation to tiered interventions of instructional supports and learning environments for students working below grade level standards (Barnes & Wade-Woolley, 2007; Batsche et al., 2007). Inclusive, standards-based mandates and RTI is also a prevalent component of other educational systems including those in UK, Canada, Australia, and New Zealand (Armstrong & Cheryl, 2011; Hutchinson, 2009; Miles & Singal, 2010).

Underpinning teacher effectiveness within a standards-based framework and, more specifically within a RTI approach, is teachers' ability to integrate knowledge of both educational assessment and student diversity as related to cognitive development, learning abilities, and students' social and behavioral backgrounds. Not only are teachers expected to assess student learning to satisfy accountability concerns, but they are also expected to engage in both summative and formative assessment practices to gather ongoing information about learner progress in relation to students' individual learning profiles. Accordingly, effective preparation of teachers for an inclusive, standards-based context of education must not only prepare teacher candidates with competence in the areas of student assessment and student diversity, but more importantly, in the intersection of these two aspects of teaching.

However, to date, the majority of research on pre-service and early-career teachers has addressed these competencies in isolation (Cochran-Smith, Davis, & Fries, 2003; Crocker & Dibbon, 2008; Hollins & Guzman, 2005). This bifurcation in research is not surprising as teacher candidates typically learn about topics in assessment and student diversity within separate pre-service courses, that is, under a discrete course delivery model (Crocker & Dibbon, 2008; DeLuca, 2012a, 2012b; DeLuca & Klinger, 2010). Aside from their teaching placements, which are highly variable learning contexts (Darling-Hammond, 2006), there are few opportunities for teacher candidates to consolidate knowledge from these two areas, both theoretically and practically, making it difficult for teacher candidates to integrate these competencies in their teaching practice.

As a basis for an integrated approach to preservice education, the purpose of this research was to begin to explore beginning teachers' conceptions on the linkages between student assessment and teaching within diversity classrooms upon completion of their preservice program. This research contributes to continued calls for enhancing the preparation of teachers in the areas of assessment and diversity (Ball & Tyson, 2011; Popham, 2004, 2011; Shepard, Hammerness, Darling-Hammond, & Rust, 2005; Zeichner & Conklin, 2008). Specifically, the following research questions guided this investigation:

1. How do beginning teachers' conceptualize the purpose and practice of student assessment?
2. How do beginning teachers' conceptualize student diversity within classroom contexts?

3. How do beginning teachers' articulate an intersection between assessment and classroom diversity when describing their teaching stance?

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Initial teacher education programs in the U.S. are among the most diverse in the world (Zeichner & Conklin, 2008). Programs range from 8-months to over four years in length with a combination of coursework and practica experiences in various sequences. Despite variation in program structure, teacher candidates are typically required to demonstrate competency through end-of-program examinations (e.g., PRAXIS), coursework assessments, and practica performance assessments in the areas of student assessment and differentiated instruction (Wilson & Youngs, 2005; Zeichner & Conklin, 2008).

Historically, these competencies have been measured discretely; however, current policies and standards for teacher competency require teacher candidates to integrate their knowledge of assessment and differentiation. For example, the National Council for Accreditation of Teacher Education (NCATE, 2008) stipulates the following target competency standard related to student learning: teacher candidates should be able to “analyze student, classroom, and school performance data and make data-driven decisions about strategies for teaching and learning so that all students learn. Similarly, in the Interstate Teacher Assessment and Support Consortium (InTASC) Teaching Standards (Council of Chief State School Officers, 2011), teachers are expected to: (a) “effectively use multiple and appropriate types of assessment data to identify each student’s learning needs and to develop differentiated learning experiences;” and (b) “prepare 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” (p. 15). These competencies are supported by knowledge expectations related to measurement theory, assessment practice, and individualizing assessment for diverse learners. Differentiating assessment is also supported through research-informed, professional assessment standards (e.g., *Educational Assessment Knowledge and Skills for Teachers*, Brookhart, 2011; *Classroom Assessment Standards* (5th draft), Joint Committee on Standards for Educational Evaluation, JCSEE, in press).

Unequivocal in today’s policy climate is the expectation that teachers be able to assess all students in service of learning. However, this policy mandate appears impeded when initial teacher education programs by-and-large continue to offer discrete courses in these areas of study. As a consequence, research on the preparation of teachers has focused either on preparing assessment literate teachers or on preparing teacher candidates for teaching in diverse contexts but rarely on the integration of these competencies.

Preparing Assessment Literate Teachers

Research on teacher competence in assessment has traditionally been subsumed under measurement research agendas (Campbell, 2012). Studies on teachers' assessment competency have consistently demonstrated a significant gap between teachers' assessment practices and assessment theory, policy, and professional standards (e.g. Brookhart, 2011; Campbell & Evans, 2000; Cizek, 2000; Daniel & King, 1998; Maclellan, 2004; Volante & Fazio, 2007). To address this knowledge-practice gap, assessment standards articulate what teachers should know in order to assess students effectively within contemporary educational contexts (e.g., Brookhart, 2011; JCSEE, 2003, in press).

Recent developments in assessment standards reflect changing conceptions of classroom assessment by emphasizing formative assessment functions, assessment for and as learning approaches, and the use of assessments to differentiate instruction for diverse learners (Brookhart, 2011; Tigelaar & Beljaard, 2013). Assessment for learning refers to the instructional use of assessment data in ways that provide feedback to teachers of learning progress and students of learning successes (Stiggins, 2007). Assessment as learning encourages learners to become increasingly competent in learning through the use assessment (Earl, 2003). The push to adopt assessment for and as learning approaches is not unjustified given mounting evidence supporting its effectiveness (Black & Wiliam, 1998; Earl, 2003, 2006; National Research Council, 2001, 2005; Stiggins, 2007). Underpinning these newer conceptions of assessment is a reframing of assessment as a socio-cultural activity that connects cognitive development with constructivist learning (Brookhart, 2011; Shepard, 2000). In addition, contemporary standards better articulate the influences of high-stakes, large-scale testing programs on classroom learning and the role of formative assessment programs on student growth and development.

Preservice teacher education is a central driver for advancing the teaching profession's understandings on contemporary assessment theory and practices (Chen, 2005; Maclellan, 2004). Research conducted within the context of preservice assessment education has explored teacher candidates' perceived confidence, competency, attitudes, or self-efficacy in relation to predefined measures of assessment literacy (Campbell, Murphy, & Holt, 2002; Chen, 2005; DeLuca & Klinger, 2010; Volante & Fazio, 2007). Unsurprisingly, this body of studies continued to point to a discrepancy between what teachers should know and be able to do and their reported assessment literacy in assessment theory and practice.

Beyond teacher assessment literacy research, research on preservice assessment education is beginning to explore programmatic aspects of assessment education. Several structures are used for assessment education ranging from discrete, required assessment courses to embedded assessment topics within general educational studies courses (DeLuca & Klinger, 2010). However, these varied models of assessment education contribute to inconsistent exposure to learning opportunities for teacher candidates with differential benefits (DeLuca & Klinger, 2010). Based

on a questionnaire survey to 208 teacher candidates enrolled in a required course on student assessment, instructional conditions, such as large-format lecture, constrained time allocated for instruction, and limited personnel support, were cited as primary programmatic constraints (Klinger, Shulha, Luu, Ma, & Lam, 2013; Shulha, Klinger, Lam, Luu, & Ma, 2013).

More generally, in the 2012 *Teacher Education Yearbook XXI*, DeLuca described a conceptual framework for assessment education predicated on a three-tiered learning model (i.e., I.C.E Model). In the first tier, *I-idea*, teacher candidates engage in explicit teaching and learning on fundamental concepts related to assessment as a basis for more complex learning. The Ideas tier involves understanding basic facts, vocabulary, and rudimentary principles and processes of assessment. The second tier, *C-connections*, encourages teacher candidates to connect basic assessment ideas together (e.g., the relationship between reliability and validity) or to connect basic ideas to personal experiences (e.g., assessment in their practicum experiences). In the final tier, *E-extensions*, teacher candidates are asked to apply their connection to create new linkages to other aspects or contexts of teaching. We argue that it is in this final tier that teacher candidates may be encouraged to link assessment with diversity issues and to situate those linkages in relation to their teaching practice. However, what remains absent in the assessment education literature are empirically-based discussions on how teacher candidates' understand assessment in relation to other core aspects of their practice, such as teaching diverse student populations.

Preparing Teachers' for Classroom Diversity

While there have been significant amounts of research on the preparation of teacher candidates for diverse classrooms (Ball & Tyson, 2011; Banks et al., 2005; Cochran-Smith, Davis, & Fries, 2003; Sleeter, 2001), this research is largely inconsistent and inconclusive (Hollins & Guzman, 2005). What is conclusive is that despite efforts to enhance teachers' skills and knowledge in this area, coursework on topics of multicultural and antiracism education, social justice, English as a second language (ESOL), and special education are typically peripheral to core curriculum and educational studies courses (Ball & Tyson, 2011; DeLuca, 2012b; Hollins & Guzman, 2005). Moreover, coursework, and its related research, are separated into preparing teachers in the areas of teacher cultural competency, ESOL, or special education. Few studies examine teacher candidates' ability to address these multiple aspects of classroom diversity simultaneously, let alone teacher candidates' ability to integrated assessment with these aspects.

Like assessment education structures, topics of educational diversity are addressed through varied coursework structures within preservice programs: (a) infused approach, (b) a separated approach, or (c) a combination of both (Kosnik & Beck, 2009; Zeichner & Conklin, 2008). An infusion approach integrates topics of diversity within other teacher education courses, such as general curriculum courses or educational studies courses (Darling-Hammond, 2006; Irvine, 2003). This ap-

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proach provides teacher candidates the opportunity to directly connect curriculum, policy, and pedagogy with social issues related to diversity and inclusion (Kosnik & Beck, 2009). In contrast, a separated approach enables explicit, focused, and often extended study on specific topics related to educational diversity. These courses are typically elective courses rather than core program requirements (Little & Bartlett, 2010). Research on separate diversity courses suggests that these courses can have a positive impact on teacher candidates' readiness to teach diverse students and further augment learning in other program areas including field-based experiences (Hollins & Guzman, 2005). As benefits exist for both infused and separated approaches, some program structures provide teacher candidates with both forms of learning. A combined approach ensures that all teacher candidates receive some teaching on issues of inclusivity while enabling those interested to pursue topics through specialized study.

Unlike assessment education research, studies on diversity preservice courses have explicitly addressed and document pedagogical strategies to promote teacher candidates' sensitivities and ability to address diversity within their classrooms. McAllister and Irvine (2000) classify pedagogical approaches for diversity education into *content-based teaching* and *process-based teaching*. Content-based teaching refers to didactic instruction with a focus on the transmission and application of knowledge and skills related to educational inclusivity, typically through lecture-based, text-based, or case-based learning. In teacher education, this pedagogical approach is commonly used for learning about educational policies, legislation, procedures, and theories (Grossman, 2005; Philpott & Beynon, 2005). In contrast, process-based teaching strategies seek to engage students in active meaning making through processes of critical reflection on self, teaching practices, and systemic structures, with an emphasis on social responsibility and social justice (Grant & Agosto, 2008). In particular, four process-based pedagogies feature prominently in promoting teacher candidates' conceptions and treatment of student diversity: (a) personal narratives and critical reflection (Alsup, 2006; Philpott & Beynon, 2005), (b) cognitive dissonance and critical consciousness (Greene, 1993; Howard & Aleman, 2008), (c) action-based and action-research learning (Adams, 1997; Kelly & Brandes, 2001), and (d) student diversity representation (Banks, 2007).

Methods

In this study, we followed Maclellan (2004) and others' (Chen & DeLuca, 2011; Wang, Kao, & Lin, 2010) methodological approach of written text analysis in order to understand beginning teachers' conceptions on the linkages between student assessment and teaching within diversity classrooms. This approach is grounded in phenomenography (Entwistle, 1997; Marton, 1986), a qualitative interpretive approach that is "focused on the ways of experiencing different phenomena, ways of seeing them, knowing about them and having skills related to them" (Marton &

Booth, 1997, p. 117). Specifically, 57 texts were collected from teacher candidates at the end of their initial teacher education program. The teacher education program was a four-year undergraduate, university-based program in the state of Florida. In addition to content and pedagogy courses, the program maintained one-term, discrete courses for all students in the areas of assessment (1 required course), special education (1 required course), social justice education (1 elective course), and ESOL (3 required courses). The special education and assessment courses were typically taken in teacher candidates' final year. The measurement course focused on assessment foundations (not specific to subject area teaching) related to both assessment theory and practice. The special education course focused on exceptionality classifications, policy, and accommodation approaches (including RTI). After completing coursework, teacher candidates typically proceeded into two sequential field-based experiences prior to graduation; although, some candidates may elect to complete one field-based experience prior to the completion of coursework.

Participants

All 57 participants were recruited at the end of their final course in the teacher education program. Of the 57 participants, 43 has already completed their first field-based placement with the remainder entering their placement in the subsequent term. Participants were majoring in Elementary Education (n=24), Secondary Education (n=27), or Physical Education (n=6). Approximately two-thirds of participants were females, which corresponded to the general gender distribution in the teacher education program. All participants had successfully completed their required coursework in assessment, special education, and ESOL.

Data Collection and Analysis

Participants were invited to complete a written statement task that focused on their understanding and approach to using assessment within diverse teaching context. A short prompt was used for the writing task:

Think about the ways students are diverse. Write a statement that identifies how diversity influences teaching, learning and assessment. Specifically, consider how diversity shapes how you teach and assess your students; and how your assessments shape your approach to teaching diverse students.

Statements were up to 600 words in length and were electronically collected one week after participant recruitment.

A standard thematic coding process (Namey, Guest, Thairu, & Johnson, 2008; Patton, 2002) was used to analyze the written statements. From an initial analysis of data, a code list was generated and then codes were grouped into broader thematic categories. Codes with a high degree of co-occurrence (i.e., two or more codes used for same data) were collapsed into broader categories if they represented similar themes. Themes were then clustered into three categories: (a) conceptualizations

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of student assessment (three themes), (b) conceptualizations of classroom diversity (two themes), and (c) intersections of assessment and classroom diversity (three themes). Data on the intersection of assessment and diversity were deduced either through explicit coding on *intersection of diversity and assessment*, or through code co-occurrence (Guest & Maclellan, 2003; McMillan & Schumacher, 2001). Two researchers coded the data with an inter-rater reliability factor of 95%. Where data were miscoded, consensus was reached amongst researchers through discussion on code meaning.

In using written texts, we recognize that findings from this study are limited to beginning teachers' conceptualizations of diversity and assessment and do not reflect their enactment or teaching abilities in these areas. We also recognize that this research prioritized text as data, which may bias some participants from expressing their views on these aspects of teaching. However, we assert that these limitations are mitigated by the benefits of this methodology. First, written tasks in which participants have time to construct a response provides an opportunity for reflection and deeper articulation of ideas (Maclelland, 2004). Second, the act of writing onto itself enables participants to process and consolidate their views of a teaching concept (Alsup, 2006; Wells, 2002). And lastly, although we do not draw conclusions on these teachers' actual teaching practice, research has identified strong linkages between teacher beliefs and their practice, which can be articulated through reflective, writing tasks (Alsup, 2006; Glaser, 1999).

Findings

Findings are presented in relation to three clusters of results: (a) conceptualizations of student assessment, (b) conceptualizations of classroom diversity, and (c) intersections of assessment and classroom diversity. Thematic descriptions are supported with direct quotations from teacher candidates.

Conceptualizations of Assessment

Analysis of students' statements exposed a rich variety of complex thinking about classroom assessment. Teacher candidates articulated a purpose-driven orientation in considering the role and utility of classroom assessment. Purpose-driven assessments were specifically articulated in response to the needs of various stakeholders: (a) *assessment for learners*, (b) *assessment for teachers*, and (c) *assessment for others*.

Underpinning purpose-driven assessment was teacher candidates commitments to measurement theories related to using assessment to support learning, using multiple assessment formats, and assessment-based decision-making. For instance, teacher candidates recognized assessment as a process involving a series of activities and decision-making points; they also viewed assessment as measuring both the process and the product of an assessment task.

Assessments are not meant to be used solely at the end of instruction. The uses of assessments are to support and enhance learning by measuring process as well as product of students' understanding and knowledge, informing teachers about student progress, and providing information for instructional planning.

They also advocated for adopting more "creative," varied approaches to assessing learning, while recognizing the tension that arises when "accountability measures challenge the ways we are assessing students in the classroom." Validity and reliability concerns remained a keystone to ensuring that inferences drawn from assessment were trustworthy and can be relied upon for decision-making.

Assessment for Learners

Teacher candidates articulated the use of assessments to support learners, espousing notions (a) to use feedback as mechanism to enhance tailored instruction for learning, (b) using assessment for and as learning, and (c) exercising judgments on student learning. One of the dominant conceptions is regarding assessment as an act of knowing for generating information about learning success. "[Feedback to the teacher] is important through assessment because it demonstrates to the teacher what each student understands and what needs to be taught in more detail through different methods." How teacher candidates understood success was communicated in nuanced terms. For some, success was about goal attainment (e.g. "teachers must provide assessment to ensure students have grasped the concepts being presented"). For others, it was about achievement relative to state standards (e.g., "by assessing students we are determining what needs to be done for them to reach all the standards set forth by a higher authority"). Still others explained success as progress and growth along a continuum of development (e.g. "assessment provides us with a tool to follow our students and the progress they make"). Crosscutting these understandings of success, teacher candidates appeared committed to using assessments as a means to render invisible successes in learning visible.

Moreover, teacher candidates recognize a role for conducting assessment in service of promoting learning. Assessment *for* and *as* learning were touted as means to explicitly support student growth through various assessment practices. A primary motivation behind employing these approaches was to develop independence among learners.

Students and teachers could assess as students are learning to help gain a sense of self-efficacy and independence. Assessment as learning requires students to self-monitor and self-reflect. A teacher should help promote student growth, guide, and model for them so they are able to advance in their knowledge and better themselves.

While teacher candidates articulated their intentions to use assessment as and for learning, they did not provide many concrete examples on specific practices that

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they would employ or integrate into their teaching. This finding suggests that teacher candidates may be operating at the ideas level of learning about assessment.

Finally, assessment conducted for the purpose of judgment-making about learning remained pervasive across teacher candidates' statements.

In schooling, assessment is the basic way to judge whether a student is learning or not. Assessment can help determine whether a student is at the appropriate level and can help teachers determine what level the student should be in.

Making judgments on student learning were viewed as a necessary practice to help support learner development. In addition, to simply providing students with feedback or comments on their work, many of these candidates articulated that they needed to explicitly judge student achievement in relation to state standards and to communicate those judgments to students.

Assessment for Teachers

Teacher candidates articulated the use of assessment to improve teaching in two ways: (a) assessment for instructional decision-making, and (b) assessment of teaching effectiveness. Teacher candidates stated that they would use assessment data to draw inferences about instructional decision-making and tailoring instruction to gaps in student learning. For example, one teacher candidate stated, "assessment helps the teacher see what needs to be taught again if the majority of students struggled with a particular concept." Similarly, another teacher candidate noted, "sometimes, when a student is not learning the material, the teacher just needs to alter her method of teaching and the student will become more successful."

A rare but noteworthy finding was teachers' use of assessment to judge the effectiveness of their instruction as a basis for making instructional changes. Four teacher candidates articulated this finding in recognition of the role of teacher effectiveness on supporting student learning. One teacher candidate expressed, "without constant assessments, teachers will not know if they are successful at teaching their lessons or if students are successful at receiving that lesson." This finding is significant because teachers need to understand that student success is dependent upon two main, interrelated factors: (a) effectiveness of teachers' pedagogical decisions, and (b) effectiveness of student learning approaches. Without using assessment information to judge the effectiveness of pedagogical decisions, teachers may attribute success or failure solely to the effectiveness of student learning approaches. This practice is problematic because it potentially promotes misinterpretations of assessment data and limits their ability to employ different pedagogies to support students' specific learning needs.

Assessment for Others

Finally, teacher candidates relate assessment to those purposes intended to satisfy external audiences other than the teacher or the student. These purposes

were expressed through two codes: (a) assessment as a communicative act, and (b) assessment for accountability purposes. One such purpose is on reporting and communicating learning successes to parents, school administrators, and state authorities. "Assessment provides feedback to everyone that is involved in the student's education; it is important for the teacher, parents, student, administrators and guidance counselors to be aware of the student's progress in their education."

A few teacher candidates also mentioned the external uses of classroom assessment data for accountability, such as for purposes of teacher evaluation. "Formal assessments can provide a statistical review to principals and administrators and help them ensure their teachers are teaching their students what they are supposed to be teaching." In sum, teacher candidates are acutely aware of uses of assessment intended for communicating accountability to external stakeholders and the potential use of assessment to judge teacher performance. However, this final notion was seldomly expressed by teacher candidates.

Conceptualizations of Classroom Diversity

Teacher candidates explicitly expressed commitments to addressing diversity within classroom contexts with consideration for how their own diversity might shape teaching and learning. In describing their conceptions to diversity, teacher candidates focused mainly on students with exceptionalities, English as a second language (ESOL) learners, cultural diversity, and student learning styles. Far less discussed were diversities related to gender, sexual orientation, religion, and physical appearance/body image. Teacher candidates' commitments to educational diversity involved recognizing that "it is a necessity that all teachers understand the importance of accommodating students to limit potential barriers to learning." One student also acknowledged, "it is not only an educator's ethical, but legal responsibility to accommodate students with diverse learning needs." As evidenced from these and other quotations, teacher candidates expressed conceptions of diversity through a special education or ESOL discourse that redresses diversity through teacher-made accommodations to enable "all students' participation in classroom activities."

In addition to expressing a global commitment to addressing student diversity, some teacher candidates noted that diversity also presents a fundamental challenge when working within a standards-based system of education. "Diversity is becoming a huge part of the education system, but at the same time may be causing problems for teachers and students." Another candidate noted, "it is challenging to teach to each individual student and still meet state standards." Similarly, there was recognition that "one-size fits all teaching doesn't work for students with different abilities and backgrounds." While some teacher candidates recognized this as a core dilemma to teaching in US schools, they rarely expressed practices to negotiate these competing responsibilities beyond suggesting that they would "get to know" their students. Instead, teacher candidates' conceptualizations on educational diversity

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and its impact on teaching and learning related to two themes: (a) influence of teachers' own diversity, and (b) impact of student diversity on instruction.

Influence of Teachers' Own Diversity

A majority of teacher candidates acknowledged that their own personal diversity would influence classroom teaching and learning. This theme was expressed by both students who identified as "part of the American dominant culture" as well as those who considered themselves "culturally different from the majority." Specifically, two codes were identified related to the influence of teacher diversity: (a) relating to students, and (b) understanding students as diverse people.

In forming learning relationship with students, many teacher candidates who identified themselves as diverse commented that their personal diversity would enable them to empathize with and understand the learning challenges of students' from diverse backgrounds. For example, one candidate stated, "I know that as a teacher I will be more understanding to students who struggle to learn English because I was a struggling English language learner." Similarly, another teacher candidate commented, "I grew up all over the world; from Alaska to Florida to Greece to the Philippines. I have been exposed to many cultures. So I think I have an appreciation for students from other cultures who share different views." Interestingly, the majority of teacher candidates that described their ability to empathize and understand students from diverse backgrounds focused exclusively on students' cultural backgrounds, ESL status, or learning preferences (e.g., visual, kinesthetic, artistic), and to a far lesser extent gender differences, socio-economic status, and religious affiliation. No teacher candidate articulated that they could relate to student diversities related to disability, giftedness, or sexual orientation.

In describing the influence of teacher diversity on building a learning relationship with students, several teacher candidates identified potential points of dissonance. Teacher candidates articulated that students from different cultures or socio-economic statuses (SES) might have different educational standards, values, and priorities. One teacher candidate stated, "students from certain cultures and a higher socioeconomic status will most likely hold higher expectations." Another candidate noted that cultural differences between teachers and students could mean "I would interpret behavior differently from other cultures which will impact how I assess the students and understand them." Similarly, one teacher candidate noted, "my biases may not always be the best for my students...I know my diversity will affect my teaching. I will choose books for my students that I like to read, I will do assessments I prefer, and activities I enjoy." She continued to say, "this may present a barrier to connecting with some of my students."

Highly interesting was the multiple teacher candidates who were concerned that their "lack of diversity" would lead to students pre-judging them, which could lead to negative relationships because students "may not think I understand them

because I am in position of privilege.” The following statements exemplify this concern for teacher candidates:

What students will notice about me is that I am a White female and then they will immediately attach all of the typical stereotypes and pass judgments that they have to that image. This will make my teaching difficult.

I am a White, female, Christian. I feel I will relate to the WASP culture that all cultures are being pushed to assimilate to... It will be harder for me to see through the eyes of individuals who are considered minorities. In keeping myself in check, I can try to avoid stereotyping and assumptions that otherwise would be a hindering aspect to teaching.

I'm a White middle class female therefore not very diverse. I understand this may hamper my ability to diversify my teaching and to understand the perspectives of some of my students.

Despite these observations, few teacher candidates articulated progressive and proactive pedagogical responses to curtail potential negative influences of their diversity on student experiences beyond statements such as: “I need to look around and learn from my students” and “I need to keep an open mind and check my biases.”

Teacher candidates who were reflexive of their own diversity generally articulated an appreciation for student diversities and the potential impact of student diversity on their learning. One teacher candidate stated, “this tells me that my future students will also belong to several different groups—whether those groups be academic, social, cultural, etc.” Similarly, another candidate noted, “I recognize that my students will be diverse, and because of those diversities, they will have different experiences that they have learned from and will learn in different ways.” As a response, some teacher candidates indicated that they would need to change their instructional and assessment approaches to address students’ diverse backgrounds and abilities.

Impact of Student Diversity on Instruction

In recognizing student diversity, some teacher candidates discussed the impact of diversity on their instruction, realizing that “diversity impacts teaching in both positive and negative ways.” The majority of teacher candidates asserted that student diversity has a positive influence on teaching and learning, although many teacher candidates did not provide a rationale for this assertion. Instead, teacher candidates noted that student diversity would require them to “alter my own teaching to accommodate my students’ diversities.” Another student stated:

No matter what makes a student different or unique all students need to be considered when instructing and they almost all require some sort of attention, modification, or accommodation. It may not be as big as changing a lesson plan, but it may require a level of respect and acknowledgement that will make your classroom more well rounded and successful.

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To this end, teacher candidates recognized that they must acknowledge and address student diversity within their instruction in order to create a safe learning space where students feel comfortable taking risks. “Understanding and getting to know as much about your students and their background is crucial to building a learning community.” Another teacher candidate noted, “showcasing diversity in your classroom allows students to find others who are similar to them but also to be introduced to and begin exploring cultures and ideas that are far from their own.” This candidate continued to recognize the benefits of these connections on student learning about content as well as about large issues of respect, human rights, and acceptance. For this candidate, student diversity appeared to be a keystone in his teaching approach.

Intersection of Assessment and Classroom Diversity

Beyond general comments such as “my assessments need to be accommodated to students’ diverse backgrounds and abilities,” the majority of teacher candidates did not describe the intersection of diversity and assessment within their teaching practices. This finding is somewhat surprising given the structure and wording of the writing prompt; however, this finding could be anticipated given the bifurcated nature of preservice education in these areas. Despite an overwhelming number of general connections between assessment and diversity, three specific linkages between assessment and diversity were identified but only by a select few: (a) assessment-diversity sequence, (b) teacher candidates’ commitments to fair classrooms, and (c) enhanced assessment validity through accommodations and knowledge on student diversity.

Assessment-Diversity Sequence

Teacher candidates articulated two ways that assessment and diversity could be sequenced in classroom instruction. First, some teacher candidates positioned diversity as the driver of differentiated teaching and assessment practices. For example, one teacher candidate noted that “diversity is at the core of everything a teacher does; it affects the way you teach and the way you assess your students.” Inversely, some teacher candidates articulated that the teacher must begin with assessment to better understand student diversity and then accommodate teaching practices accordingly. In this case, assessment is precursor to understand student diversity and the ability to differentiate instruction. One student stated, “a key instructional strategy that can be used in any situation is using diagnostic assessment to determine the diversity of students.” Similarly, another teacher candidate stated, “you must first analyze individuals’ learning needs in order to accommodate differences, including linguistic and cultural differences.” Teacher candidates also noted, “assessment must be a continuous practice so that adjustments can constantly be made to teaching to help students learn.”

Commitments to Fair Classrooms

The second code that emerged about the intersection of assessment and diversity related to teacher candidates' general commitments to creating equitable learning environments in which "fair, accommodated, and differentiated assessments are key." Teacher candidates pointed to specific examples of culturally sensitive testing practices including required English language proficiency for paper-and-pencil assessments: "diversity impacts assessment because tests can be biased to America's cultural norms. Students from other cultures or who do not speak English may struggle with these assessments." Students described the need to accommodate assessments to students' individual learning styles, abilities, and language level in order to create equitable contexts of assessment. One student articulated:

Many students learn at a different pace or in a different way, causing many standardized assessments to fail in determining what a student has learned. I believe that assessment are a 'teach-fail, teach-gain' type of method in that teacher have to continue to try different assessments until they get one that works and student progress is seen.

Enhanced Assessment Validity

Lastly, three teacher candidates expressed an explicit linkage between understanding student diversity and the validity of inferences drawn from assessments. One candidate stated, "validity goes hand in hand with knowing your students and their diversity in that assessment information that is valid for one group of students is not necessarily valid for other groups." Likewise, another candidate noted, "when looking at test scores and seeing differences in test scores, you need to consider them in relation to students' backgrounds and their own learning ability. That will help you understand whether or not that student has learned a lot or little." Finally, one student extend this linkage to identify that contextualizing student scores based on student diversity would enable her to make informed instructional decisions:

The more I know about my students' cultures, customs, learning styles, and abilities, the easier it will be to design ways to accurately assess them and to tell if they really don't know the material or if there is something else going on that has nothing to do with the material being taught and assessed. Knowing this information will help me make better decisions about how to help students and what the assessment is actually telling me.

Responses from these teacher candidates suggest that some candidates are able to establish meaningful linkages between their learning in assessment and their learning about student diversity. However, these linkages were not deeply articulated nor were they extended through examples or significant implications on their future teaching practice.

Discussion

Our purpose in this article was to examine teacher candidates' conceptualizations of the intersection between assessment and diversity at the end of their initial teacher education program. At the onset of this study, we expected that teacher candidates would be able to articulate a professional stance toward each of these core-teaching competencies discretely but that they may not yet be able to articulate an integrated approach to using assessments to support individualized teaching and learning. We held this expectation because of the bifurcated nature of preservice teacher education in the areas of assessment and diversity. Despite policy mandates (NCLB, 2002; USDOE, 2010) and professional competency standards (Brookhart, 2011; JCSEE, 2003, in press) that require an integrated teaching approach, few teacher education programs provide teacher candidates to operationalize the linkages between assessment and educational diversity as these topics are typically taught in separate and discrete courses (Crocker & Dibbon, 2008; DeLuca, 2012a, 2012b; DeLuca & Klinger, 2010).

While the dominant finding from this study—that the majority of teacher candidates articulate relatively superficial connections between assessment and diversity—is not surprising, results do highlight strengths and gaps in teacher candidates' conceptualizations of assessment and diversity. First, these teacher candidates were able to articulate multiple, purpose-driven assessment practices aligned with the needs of varied educational stakeholders. Their articulated stances about assessment identified that teacher candidates were generally operating at the connections level in the I.C.E. learning model (DeLuca, 2012; Fostaty-Young & Wilson, 2000). These candidates were beginning to link assessment concepts together (e.g., assessment and learning continua, assessment and feedback on teaching), with some teacher candidates able to establish connections between these concepts and their own teaching practices. Although, practical connections overall were not fully explicated or robustly described. As the majority of these candidates had completed at least one field-based placement, this result is somewhat concerning; however, it may be partially attributed to the nature of data collection and to teacher candidates' variable learning experiences during their field-based placement (e.g., host teachers may not be modeling assessment practices congruent with teacher candidates' program learning).

In alignment with previous research (DeLuca & Klinger, 2010; Maclellan, 2004, Volante & Fazio, 2007), teacher candidates did not articulate significant connections between assessment intentions, theories, and practices; for instances, few teacher candidates articulated linkages between reliability, validity, and fairness concepts with teacher practices to ensure high-quality assessments. Despite general commitment statements related to creating fair classroom assessments, the lack of articulated practical specificity or theoretical rationalization points to a sizable knowledge gap in teacher candidates' assessment conceptualizations, which

may lead to unjustified classroom assessment practices that are potentially unfair measures of student learning.

Teacher candidates also did not fully articulate their use or understanding of assessment as learning (Earl, 2003); rather, they focused more heavily on traditional conceptions of assessment for learning (Stiggins, 2007). While some teacher candidates articulated a definition related to assessment as learning, they did not connect this definition to concrete assessment practices. Moreover, they were unable to see the value of assessment as learning on informing teacher practices, and specifically, on teachers' abilities to individualize instruction for different learning needs. When teachers use assessment as learning data to understand how their students learn, they are more readily able to employ diverse, assessment-informed pedagogic decisions to accelerate and enhance student achievement. If teacher candidates' are unable to articulate basic practices associated with assessment as learning by the end of their preservice program, we are concerned that they will be unable to implement assessment as learning in their practice and leverage it to support differentiated teaching and learning.

Teacher candidates' conceptions of diversity were based on general commitments to addressing the learning needs of all students in alignment with policy mandates of individualized instruction and culturally responsive practice. None of the teacher candidates articulated commitments or explanations related to the RTI framework, which is problematic given the prominence of this framework in many US public schools. Moreover, the RTI framework emphasizes the use of assessment information to inform placement, remediation, and instruction. Also concerning was that teacher candidates readily expressed responses to students with diverse cultural backgrounds, English language proficiencies, and learning styles and abilities, but to a far lesser expressed understandings or empathy towards students from diverse genders, sexual orientations, socio-economic statuses, religious affiliations, or other aspects of diversity including body image and interests. To this end, we assert that these teacher candidates maintain relatively narrow views on what constitutes diversity and their ability to articulate specific commitments to a wide range of diversities. Accordingly, these teacher candidates appeared to be predicated their knowledge about diversity mainly on their own personal experiences rather than on expansive, experiential learning opportunities that encouraged interaction and a professional response to diversity, widely conceived. This conclusion is further supported by teacher candidates' concerns of student perceptions on their "lack of diversity" and the potentially negative impact those perceptions might have on their teaching effectiveness.

In both areas of assessment and diversity, results from this study point to several knowledge gaps in teacher candidates' learning by the end of their preservice program. Accordingly, there is a need to examine program structures so that they not only enhance teacher candidates' articulated stances toward assessment and diversity but, perhaps more importantly, on the intersection of these two core

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teaching competencies. To this end, we revisit DeLuca's (2012) previous model for assessment education in which teacher candidates engage learning through three tiers—ideas, connections, and extensions. Evidence from this study indicating that the majority of teacher candidates had partially articulated ideas about assessment and diversity with some teacher candidates beginning to establish connections within each area. Few teachers began to articulate the linkage between assessment and diversity, despite the need for preservice graduates to be operating at this level. Accordingly, we assert that there is a need to reconceptualize the preparation of teachers toward a more integrated approach to learning.

Specifically, we suggest inverting the three tiers: rather than starting with subject-specific ideas, teacher educators begin at the extensions tier by making explicit the interconnection between assessment and diversity as based on teacher candidates prior experiences and understandings. Starting from an integrated stance provides a basis from which to establish assessment-informed, differentiated teaching as the fundamental context for all teaching and learning. From this stance, teacher candidates can explore specific assessment and diversity theories and practices, moving toward the *ideas* tier. Predicating all learning on an integrated teaching stance not only authentically represents contemporary teaching but better prepares teachers to meet professional competency standards and policy mandates. In doing this, we recognize that the initial learning terrain becomes more complex, which may deter teacher candidate engagement in learning. Therefore future research needs to be conducted on pedagogical methods that introduce teachers into complex, interconnected thinking whilst cultivating teacher candidates who have the capacity to engage in complex professional inquiry into dilemmas of practice. In this way, integrated teaching becomes the new *ideas* level.

While this reconceptualization for teacher education is novel, we recognize that it is drawn from a limited empirical sample that is not generalizable. In addition, data from this study were only collected via written statements. We assert that an analysis of statements is useful because it provides an opportunity to examine teacher candidates conceptualizations and rationalizations; however, does not provide insight into their actual teaching competency or practice. Accordingly, we see value in future research that not only explores methods for integrated teacher education programming but also on teacher candidates abilities to engage in assessment-informed, differentiated teaching. Given the current inclusive, standards-based paradigm of public education in the US and in other jurisdictions, it is now imperative that teacher education programs promote integrated teaching practices and prepare teachers who are competent at using assessment to individualize teaching and learning.

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