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# Teacher Education Quarterly

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**Volume 43  
Number 1  
Winter 2016**

## **Contents**

<b>Assessing Academic Language in an Elementary Mathematics Teacher Licensure Exam</b> .....	<b>3</b>
<i>Katherine E. Castellano, Brent Duckor, Diah Wihardini, Kip Telléz, &amp; Mark Wilson</i>	
<b>The Affordances of Using a Teacher Leadership Network to Support Leadership Development: Creating Collaborative Thinking Spaces to Strength Teachers' Skills in Facilitating Productive Evidence-Informed Conversations</b> .....	<b>29</b>
<i>Julie Nicholson, Sarah Capitelli, Anna E. Richart, Anne Bauer, &amp; Sara Bonetti</i>	
<b>The Complexities of a Third-Space Partnership in an Urban Teacher Residency</b> .....	<b>51</b>
<i>Jori S. Beck</i>	
<b>"I Didn't Know of a Better Way to Pepare to Teach": A Case Study of Paired Student Teaching Abroad</b> .....	<b>71</b>
<i>Stephanie Behm Cross &amp; Alyssa Hadley Dunn</i>	
<b>Informing Teacher Education through the Use of Multiple Classroom Observation Instruments</b> .....	<b>91</b>
<i>Nancy Dubinski Weber, Hersh C. Waxman, Danielle B. Brown, &amp; Larry J. Kelly</i>	
<i>Teacher Education Quarterly</i> Information for Authors.....	2
California Council on Teacher Education .....	28
<i>Teacher Education Quarterly</i> Subscription Information and Form .....	104

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## **Assessing Academic Language in an Elementary Mathematics Teacher Licensure Exam**

**By Katherine E. Castellano, Brent Duckor,  
Diah Wihardini, Kip Telléz, & Mark Wilson**

With the adoption by most states of the Common Core State Standards (CCSS) for English language arts and literacy and for mathematics (CCSS Initiative, 2010a, 2010b) comes major changes in public education that will affect instructional practice, curriculum, and assessment across the nation. Heritage, Walqui, and Linqanti (2015) argued that the success of these policy changes will depend, in part, on several important shifts in educators' perspective on language use and language learning, such as from an individual to a socially engaged activity, from a linear process aimed at correctness and fluency to a developmental process on comprehension and communication, and from a separate area of instruction to an embedded component of subject-area activities.

Lee, Quinn, and Valdés (2013) discussed the language learning challenges and opportunities in the new science, math, and language arts standards. They noted that teachers will have to adopt new ways of thinking about teaching and

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### *Assessing Academic Language*

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learning for all students, particularly English language learners (ELLs), arguing for

a parallel redefinition of what it means to support learning language in the science classroom by moving away from the traditional emphasis on language structure (phonology, morphology, vocabulary, and syntax) to an emphasis on language use for communication and learning. . . . We propose that when students, especially ELLs, are adequately supported to “do” specific things with language, both science learning and language learning are promoted. . . . Furthermore, [our] conceptualization could be applicable to other subjects, especially CCSS for English language arts and literacy and for mathematics. (pp. 1–2)

Teacher preparation programs play a critical role in the adoption and sustainability of CCSS reforms. In many instances, such programs have anticipated these calls for change by developing the mathematical knowledge base and pedagogical skill set of new elementary school mathematics teachers in their courses and curricula. Building on a firm knowledge base, teacher educators have drawn from key writings by Pimm (1987) and others (e.g., Morgan, 1998; Spanos, Rhodes, Dale, & Crandall, 1988) who have dispelled the view that mathematics is a language-free discipline. Research by MacGregor and Price (1999) found that a general knowledge of syntax in language is associated with mastering the syntax of algebra. Furthermore, Danesi (2003) has demonstrated that knowledge of metaphor is key to understanding and solving “story problems.” Yet many elementary school teachers, especially credential candidates themselves, may lack an understanding of the complex relationship between language and mathematics learning. Moreover, programmatic changes are needed in collaborative relationships between English as a second language (ESL) and content teachers regarding disciplinary language use and academic language (Valdés, Kibler, & Walqui, 2014).

This relationship between language and any discipline is generally referred to as *academic language* (AL). Definitions of AL are varied, but a general consensus has emerged (Snow, 2010; Snow & Uccelli, 2009). In Snow’s view, AL refers “to the form of language expected in contexts such as the exposition of topics in the school curriculum, making arguments, defending propositions, and synthesizing information” (p. 450), but she has admitted that the boundaries of this definition remain fuzzy. Others have defined AL by pointing out what it is not: AL is “language that stands in contrast to the everyday informal speech that students use outside the classroom environment” (Bailey & Butler, 2003, p. 9). Still others have suggested that it is defined by its use: AL is needed for “tasks that language users must be able to perform in the content areas” (Chamot & O’Malley, 1994, p. 40). Bunch (2006) similarly characterized AL as how students use language to perform academic tasks and addressed the unique challenges facing teacher preparation for mainstream teachers in the era of new standards (Bunch, 2013). Part of the challenge in writing a specific definition of AL is that language itself refuses to be

categorized, especially regarding its manifold purposes, which is the central point of Wittgenstein's (2001) theory of the *language game*.

A learner who is trying to make sense of “how things are” in mathematics—rather than expressing a feeling or attitude about mathematics—is what presents the challenge for teachers. In its most simple state, mathematics appropriates the use of otherwise familiar terms (e.g., What is three fourths of 16?), and, in perhaps its most complex state, words and relations are represented entirely by variables (e.g.,  $x = y^2$ ). Learners are unlikely to gain this specialized language by mere exposure, so teachers must consider how their students can best learn these linguistic conventions.

Despite the recognized importance of teaching students to decode mathematical syntax, comprehend the accompanying vocabulary, and communicate their results effectively, few licensure assessments for mathematics teachers require teacher candidates to demonstrate these abilities. The Performance Assessment for California Teachers (PACT) is the first assessment of teaching to include mastery of AL knowledge by teachers not specializing in teaching ELLs. The decision to include AL teaching proficiency on the PACT followed from a combination of important considerations, including the need to provide a rich education to the diverse California student population, as we discuss further in the following “Background” section. Moreover, to our knowledge, the only other widely used evaluation of teachers that assesses their proficiency of incorporating and/or developing students' AL levels in the classroom is the National Board for Professional Teaching Standards's (NBPTS) Teaching English-as-a-New-Language portfolios for Early and Middle Childhood and Early Adolescence Through Young Adulthood (NBPTS, 2013b, 2014). We point out, however, that these tasks and rubrics are designed to measure superior teaching skills of only those teachers who have chosen to seek NBPTS recognition in the specific domain of teaching ELLs, such as English Language Development Specialists (NBPTS, 2013a). Moreover, we could not find any research documenting the reliability or validity of the AL rubrics for these English-as-a-New-Language portfolios.

With the passage of Senate Bill 2042 in 1998, California's state legislature (Legislative Counsel of California, 1998) mandated that each preparatory institution ensure that its credential candidates meet the Teacher Performance Expectations, a set of standards that aligns with the California Standards for the Teaching Profession set by the California Commission on Teacher Credentialing (CCTC; 2009). Each teacher preparation program in California is required to assess whether its candidates have met the defined California state standards of teaching competencies. In response, the PACT consortium designed and constructed subject-specific performance assessments modeled after the portfolio assessments of the Connecticut State Department of Education, the Interstate New Teacher Assessment and Support Consortium, and the NBPTS (PACT, 2008a) and was approved by the state as one of the possible licensure exams.

The PACT has not only moved from pilot to full implementation in Califor-



### *Assessing Academic Language*

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nia but has also inspired the birth of a nationwide teaching licensure exam called “edTPA” (edTPA, 2014; Sato, 2014; Stanford Center for Assessment, Learning, and Equity [SCALE], 2015). Thus the full implementation of the PACT in California in a diverse set of California teacher education programs, coupled with the growing interest in a similar assessment across the nation, strongly motivates a current validity study of the PACT.

In this study, we investigated the validity of the internal structure of the PACT with operational data for Elementary Mathematics using multidimensional item response theory (MIRT) models. Such models allowed us to explore the relationships among the PACT content domains (as represented by the scoring rubrics) to determine if and how they are related to one another. In particular, we aimed to determine which and how many distinct constructs the Elementary Mathematics PACT instrument assesses, with a particular interest in how the evolving AL domain behaves in relation to the other domains. We addressed this aim by determining the extent that various MIRT models fit and provide meaningful feedback about teacher candidate performance.

We aim to explore the properties of the PACT overall, but we take a particular focus on the item scores for the AL domain—one of five content domains assessed by the PACT. The general planning–instruction–assessment–reflection model of teacher assessment is at least two decades old (see Collins, 1991), whereas the assessment of AL knowledge and skills in teaching, particularly for teacher licensure, is almost exclusively unique to the PACT, making it a novel domain. Moreover, AL is an evolving domain that is particularly critical to the effective teaching of mathematics to students of all linguistic backgrounds.

As a team of educational researchers, psychometricians, and teacher educators, we recognize the importance of the inclusion of the AL items, rubrics, and exemplars on the PACT for California teacher candidates. The goal of our study is to learn more about the meaning of the AL construct, and thus we focus on a single but important aspect of validity evidence, namely, the internal structure of the Elementary Mathematics PACT, which allows us to answer critical questions about the assessment of AL for elementary mathematics teacher candidates: What does it mean to be AL proficient on the PACT? Which AL tasks are more difficult than others? How, if at all, are AL tasks on the PACT related to those in other content domains? One approach to answering these complex questions is to use measurement models to evaluate the fit between theoretical claims of instrument developers and empirical observations represented by the score data. The best fitting, most informative models can, in turn, provide actionable information on how PACT should move forward with assessing and scoring AL.

## Description of the PACT Instrument

Before presenting our study and its results, we provide more background on the PACT instrument and the inclusion of the distinct AL domain. The PACT is designed as an authentic and integrative performance assessment that requires preservice teachers to submit two sets of tasks: the Embedded Signature Assessment (ESA) and the Teaching Event (TE). The ESA is a preparatory program-specific formative assessment and as such is not the focus of this study. Rather, this study focuses on the standardized and summative TE. The TE involves a collection of teaching artifacts for a focused, 1-week teaching and learning segment including lesson plans, video clips of teaching and learning, student work samples, and daily reflections, as well as commentaries responding to a set of task-specific prompts (PACT, 2012b).

The structure of the TE involves tasks, domains, and items, as illustrated in Figure 1, with the tasks corresponding to multifaceted sets of directions and prompts to which candidates respond and submit various materials, whereas the domains and items correspond to how these materials are scored. For instance, for the Context for Learning task, candidates provide descriptions about the instructional context and decisions for their selected learning segment by completing the Context for Learning Form and responding to several prompts about features of their class and how they may affect instructional decisions in a three- to five-page Context Commentary (PACT, 2012b). But these submitted materials are scored with those for the Planning tasks across three items within the Planning domain—items P1 to P3.

**Figure 1**  
*Illustration of the structure of the scoring of the PACT Teaching Event*

The tasks in the left-hand column consist of questions and prompts to which teacher candidates respond and for which they submit various materials from written commentaries to video segments of teaching. The (scoring) domains and their corresponding items reflect how these materials are assessed by raters.

	(Scoring) Domain				
	Planning (P)	Instruction (I)	Assessment (A)	Reflection (R)	Academic Language (AL)
Task					
Context for Learning	Items 1, 2, 3				Items 11, 12
Planning	Items 1, 2, 3				Items 11, 12
Instruction		Items 4, 5			Items 11, 12
Assessment			Items 6, 7, 8		Items 11, 12
Reflection				Items 9, 10	Items 11, 12

### *Assessing Academic Language*

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In contrast, the Instruction, Assessment, and Reflection tasks are scored along the domains of their same name, and the AL domain is scored across all tasks. That is, there is no specific AL task to which candidates respond; rather, questions and prompts related to AL are included in all of the tasks. There are 2 to 3 scored items per domain for a total of 12 items.

The items are scored on a 4-point scale ranging from 1 (lowest) to 4 (highest). Centrally trained, subject-specific raters from each local institution assess and score the portfolios of their teacher candidates. Candidates fail if they receive more than one level 1 score for the items within any of the five domains or if they have more than three level 1 scores across all domains (Pecheone & Wei, 2007). Generally, only one rater scores a portfolio, except for double-scoring of candidates who receive a failing or near-failing score from the first rater and for a random sample of candidates to check rater consistency.

### **Academic Language and the PACT**

As previously discussed, the PACT licensure TE is unique in its inclusion of AL scores. The PACT (2012b) consortium generally defines AL as

the language needed by students to understand and communicate in the academic disciplines. Academic language includes such things as specialized vocabulary, conventional text structures within a field (e.g., essays, lab reports) and other language-related activities typical of classrooms (e.g., expressing disagreement, discussing an issue, asking for clarification). (p. 20)

Moreover, a PACT (2007) scorer training manual emphasizes that the rubrics for these items focus on “academic language both as a medium for learning content and as an independent dimension of content learning” (p. 43), which is in line with having two specific AL scores (Items AL11 and AL12; see Figure 1) that are scored using material from the full teaching portfolio. However, this scoring choice has evolved throughout the life of the PACT.

The decision to include a rubric assessing a candidate’s capacity for teaching the AL of the discipline was debated among the PACT developers for some time. Drawing from a growing body of theory and research demonstrating the role of language in disciplinary understanding and expression (Hyland, 2004), the discussions turned not on whether teaching candidates should have, at a minimum, an emerging awareness of AL but rather on if such knowledge and skill could be accurately assessed. Nevertheless, the core group (which included one of the authors of this study) concluded that the AL rubric was needed both to address the content knowledge-specific aspect of the PACT and to push the teacher education community in California toward a new understanding with respect to the discourse of the disciplines.

Moreover, California has a large population of ELs, constituting about 30% of the state’s overall student population and even greater proportions at the elementary

grades (for an overview, see Téllez, 2010). Under California Senate Bill 2042, every credential earner—not just those specializing in educating ELs—must be qualified to teach ELs. Additionally, the federal No Child Left Behind legislation demands that ELs meet the same performance standards as their native English-speaking counterparts (Kersaint, Thompson, & Petkova, 2009, pp. 3–4). Charging teachers with the task of instructing both ELs and non-ELs simultaneously, however, could hinder the ELs’ academic progress as cultural adaptation and language proficiency gradually develop over time, unless the teachers are able to implement appropriate pedagogical approaches to accommodate these students’ language demands and developmental needs (Kersaint et al., 2009). Accordingly, the PACT had to address language teaching in some form. The PACT thus requires that candidates carefully analyze the content-specific language demands of academic tasks while also considering how to make that content accessible to ELs through carefully designed instruction. As Moschkovich suggests, mathematics instructors need to “recognize and strategically support EL students’ opportunity to engage with this language complexity” (Moschkovich, 2012, p. 23).

In the mathematics classroom, AL-driven teaching and learning are not merely about vocabulary use and should consider everyday language and experiences as resources (Hakuta, 2013). Thus it is critical that teacher licensure instruments capture the enactment of AL—its use by students, the supports provided by teacher candidates, and the process of exchange between students as they grapple with those demands. The PACT’s instructional video, tasks, and rubrics were expected to provide “enactment” (as opposed to mere planning or reflecting) evidence for teacher candidates’ placement on the AL construct.

In the first year of the pilot, 2002–2003, the PACT involved a rubric focused solely on ELs for each of the four content domains—Planning, Instruction, Assessment, and Reflection. However, initial feedback and early pilot data suggested there was insufficient evidence to support so many rubrics (PACT, 2006). Moreover, teacher candidates expressed frustration with focusing on only ELs when they had non-ELs who also had difficulties with formal AL (PACT, 2008a). The core designers thus revised the structure of the PACT, adding AL-specific rubrics that draw on evidence from each of the PACT tasks, which reduces the number of AL rubrics but still emphasizes the need for accommodating AL proficiencies of their students through all stages of the teaching process from planning to reflection (PACT, 2008a). In general, however, the PACT developers have struggled to create rubrics that distinguish between candidates who have mastered advanced understanding and teaching of AL and those who hold only a thin understanding of the concept. The variations in the rubrics over the years are evidence of this challenge. For instance, the AL11 item has shifted focus from candidates demonstrating that they can accommodate any AL proficiency in the 2008–2009 PACT, to accommodating only ELs in the 2009–2010 academic year, and then back to students at different academic language proficiencies in 2012–2013 (PACT, 2008b, 2009, 2012a, 2012b).

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### *Assessing Academic Language*

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We also suggest that the PACT AL rubrics are written in such a way that candidates are drawn to paying close attention to teaching academic vocabulary while ignoring other features of AL (e.g., analyzing text types or designing lessons to explore genre-specific meanings and uses). With some ease, a candidate can earn a score of 2 on the PACT's 4-point scale—a score that is just good enough to pass but not at the high end of the scale (i.e., scores of 3 or 4). Indeed, in our data sample (described in the following section), about 59% and 53% of candidates received scores of 2 on AL11 and AL12, respectively, compared to 20% to 47% of candidates receiving a scores of 2 on all the other items. For the other items, there were generally at least 50% of candidates earning scores of 3 or 4, whereas only 27% and 42% of candidates earned these higher scores on items AL11 and AL12, respectively. These low scores may reflect uncertainty over the demands of the AL items among both candidates and scorers.

### **Previous Validity and Reliability Studies**

To place our study in the context of other validity and reliability studies on the PACT, we briefly review previous studies. Pecheone and Wei (2007) conducted the most extensive prior PACT validity study, in which they investigated several strands of evidence, including content validity, bias and fairness, construct validity, criterion-related concurrent validity, score consistency, and reliability. They used pilot score data from 2003–2004 for 625 submitted portfolios for various subject-specific TEs, including the Elementary Mathematics TE. Their study generally yielded positive results, prompting them to recommend the use of the PACT operationally. In particular, their fairness/bias review, using only the 46% of their sample that had matched score and demographic data, found no significant differences between scores by candidates' race/ethnicity, percentage of ELLs, grade level taught, students' academic achievement level, or months of previous paid teaching experience. They did, however, find some meaningful differences: Women significantly outscored men on average, and candidates teaching in high-socioeconomic, suburban schools outscored those teaching in low-socioeconomic, urban or inner-city schools.

Similar to our primary aim of seeking to determine the meaningful, distinct constructs assessed by the PACT, Pecheone and Wei (2007) investigated construct validity evidence for the Elementary Mathematics TE with exploratory factor analysis. They found evidence for two distinct factors—one for Planning, Instruction, and Academic Language and another for Assessment and Reflection—indicating that the test was tapping into distinct constructs of teaching, but not as many as those used in scoring the test (see Figure 1).

Bunch, Aguirre, and Téllez (2009) conducted a small, in-depth qualitative study to examine AL exclusively. They analyzed the specific texts of elementary mathematics candidates' PACT TEs and found that only two of eight candidates explored AL in any depth beyond introducing vocabulary germane to the mathematics lesson.

Duckor, Castellano, Téllez, Wihardini, and Wilson (2014) analyzed the internal structure of the Elementary Literacy TE with a large sample ( $n = 1,711$ ) of teacher candidates from several California teacher preparation programs. They found that item scores were well explained by a unidimensional, polytomous IRT model. They also explored relationships among the content domains with MIRT models, finding evidence of a three-dimensional model with separate dimensions for Planning and Instruction and a combined dimension of Assessment, Reflection, and Academic Language, or “Meta-Reflection.”

Other studies have explored specific aspects of the validity of the PACT. Sandholtz and Shea (2012) explored the relationship between supervisors’ predictions and candidates’ performance on the PACT. The results indicated that university supervisors’ predictions were not closely associated with PACT scores, particularly for high and low performers. This finding may suggest that PACT lacks concurrent validity or consistent interpretations about teacher readiness as supervisors’ predictions. However, the authors posited an alternative explanation: that the university supervisors and PACT scorers are drawing from different sources of information over different time points in making their evaluations and thus may offer useful distinct information about aspects of candidates’ readiness to teach. Their research suggests that the use of multiple measures should be considered in evaluations of candidates’ readiness to teach.

Okhremtchouk et al. (2009) found that candidates viewed the PACT as helpful in improving their instructional practice. This study may offer a measure of face validity for the PACT, demonstrating that candidates believed the PACT helped them to develop their teaching, but it did not link such perceptions to candidate performance on the PACT.

Darling-Hammond, Newton, and Wei (2010) argued for positive triangulation of the PACT data with several other measures of student teacher learning to augment information needed to make useful and effective decisions for improvement of a teacher education program. These researchers also conducted a predictive validity study relating the preservice teachers’ PACT scores to their later teaching effectiveness in ELA and mathematics at Grades 3–8, as measured by standardized test scores (Darling-Hammond, Newton, & Wei, 2013). They found significantly positive relationships between PACT subscores and the students’ California standardized test scores to varying degrees.<sup>1</sup> The assessment domain score was found to be a strong predictor of effective teaching on both ELA and mathematics, whereas the score on the planning domain was more predictive for ELA only.

Although previous studies of the PACT have looked at issues related to validity, concerns about reliability (e.g., drift, “halo” effects) have been less well documented. Porter (2010) demonstrated that interrater reliabilities—summarizing the consistency of scores across different raters—for the PACT were poor to moderate for local score data.

Our study uses formal measurement models to investigate the internal structure

of the PACT using a large sample of operational test scores for candidates from several teacher preparation programs. Our approach follows the professional *Testing Standards*, which define “internal structure validity evidence” as referring to “the degree to which the relationships among test items and test components conform to the construct on which the proposed [instrument] score interpretations are based” (American Educational Research Association, American Psychology Association, & National Council on Measurement in Education, 1999, p. 13). That is, for instance, if a score is associated with a word such as “planning skill,” then it should show evidence of planning skills. Note that our focus is on this particular type of validity evidence, which allows us to directly address our research aims; however, other sources of validity evidence are also important to collect. Pecheone and Wei’s (2007) study, for instance, investigated several aspects of validity for all the PACT subject TEs, but each of these should be periodically revisited as the PACT evolves over time. Moreover, we can look to validity studies for other performance assessments as examples, such as Wilson, Hallam, Pecheone, and Moss’s (2014) rigorous external validity study of the Connecticut performance-based teacher assessment.

We investigate the claims by PACT test designers by examining the extent that empirically observed relationships among the PACT scores for items within and across content domains (Planning, Instruction, Assessment, Reflection, and Academic Language) represent those intended by the scoring rubrics, by the test’s scoring structure as illustrated in Figure 1, and as documented in the descriptive materials for the PACT licensure exam. Although our study is similar to the Duckor et al. (2014) study on Elementary Literacy, it differs in our more focused analysis of AL in Elementary Mathematics teacher credentialing generally and the behavior of this domain in the PACT instrument specifically. Our study also differs from the Pecheone and Wei (2007) study of the structure of the PACT, as they used pilot data and exploratory factor analysis, whereas we use operational data and MIRT to determine which teaching-readiness constructs are meaningfully assessed by the PACT. A MIRT measurement modeling approach is advantageous in that it more appropriately models the (ordered) categorical nature of the item data (i.e., the 1- to 4-point structure), and it allows us to determine how measurement qualities such as item and person fit statistics and differential item functioning (DIF) are affecting the PACT score results.

## **Methodology and Methods**

### ***Data Sample***

In this study, we solicited participating public institutions that administer the PACT licensure exam. We obtained Elementary Mathematics TE data from five teacher preparatory programs at different University of California institutions. The data set included item-level scores for all 505 teacher candidates who completed

the Elementary Mathematics TE in the 2008–2009 and 2009–2010 academic years. Unfortunately, no examinee-, rater-, or institutional-level descriptive variables were provided in accordance with the scope of consent obtained for this study; we discuss the limitations of these data constraints in the conclusion to the article. All of the teacher candidates were enrolled in a postbaccalaureate licensure program or a master’s degree program combined with the teaching license. All programs in California are bound to the Teaching Performance Expectations and thus share these outcome goals. Although programs vary in size and geographical location, the data sample is consistent with the population of public programs across the state.

Table 1 provides summary statistics by item for each administration year and overall. The mean item scores range from 2.16 to 2.93, with the Planning items as the easiest and AL Item 11 as the most difficult at both time points. For all of the items, the majority of the scores are 2 or 3. Looking across the 12 items, approximately 1% to 12% of the item scores are 1, and 4% to 21% are 4. Generally, there are complete data for all items, with the one exception of 66 missing scores for the eighth Assessment item (A8), which mostly occurred for examinees at a single campus, and only one or two missing scores for other items.

We used qualitative and quantitative data checks to ensure that the wording and structure of the instrument itself were constant over the two test administrations. If the items function the same substantively and statistically across the two time points, then we can use the full sample size ( $n = 505$ ) when we fit each model, which gives us more statistical power to test the relationships among the items. Through a DIF procedure that involved fitting the unidimensional model

**Table 1**  
**Summary Statistics by Item**

Domain	Item	2008–2009			2009–2010			Overall		
		<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
Planning	P1	102	2.98	0.69	402	2.92	0.64	504	2.93	0.65
	P2	102	2.83	0.81	403	2.89	0.74	505	2.88	0.76
	P3	102	2.75	0.74	403	2.78	0.68	505	2.77	0.69
Instruction	I4	102	2.52	0.67	402	2.67	0.71	504	2.64	0.70
	I5	102	2.48	0.82	402	2.53	0.81	504	2.52	0.81
Assessment	A6	102	2.76	0.86	403	2.69	0.80	505	2.71	0.81
	A7	102	2.32	0.83	403	2.43	0.75	505	2.41	0.77
	A8	83	2.23	0.75	356	2.56	0.83	439	2.50	0.82
Reflection	R9	102	2.56	0.77	402	2.67	0.72	504	2.65	0.73
	R10	102	2.53	0.83	403	2.56	0.73	505	2.55	0.75
Academic Language	AL11	102	2.21	0.65	403	2.14	0.72	505	2.16	0.70
	AL12	102	2.30	0.66	402	2.42	0.64	504	2.40	0.65



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### *Assessing Academic Language*

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separately by administration time,<sup>2</sup> we found that Item A8 behaved differently over time. A qualitative review of the items revealed that Item AL11 substantively shifted focus from candidates describing language demands for students with any student language development impediment to *only* ELs; thus, although the item difficulty did not change significantly, the item itself changed. Accordingly, we combined the data sets and treated A8 and AL11 as two separate items by test administration period.<sup>3</sup>

#### **Data Analysis**

As illustrated in Figure 1, the structure of the Elementary Mathematics TE suggests that the instrument evaluates candidates on multiple constructs, each contributing to a decision about readiness to teach in the California classroom. Owing to the importance of preparing teachers to support different language levels and proficiencies in California, we were particularly interested in how the academic language domain behaves in relation to the other domains represented by the PACT instrument (Pecheone & Wei, 2007). MIRT analyses can reveal important information about how the AL items are functioning and how they are best interpreted in relation to the instrument's proposed uses. A multidimensional analysis of the internal structure of the PACT can also offer clues about how to either restructure the PACT instrument to better capture the AL dimension or refocus rater training so that the scoring of AL items is more reliable.

Specifically, we used the multidimensional version of the partial credit model (PCM) for polytomous items. PCM is within the Rasch family of IRT models and thus has the advantage that it can reflect the differences in the difficulty among test items and present the distribution of the test takers on the same scale. In the multidimensional PCM, person  $n$ 's latent ability estimate in dimension  $d$  ( $\theta_{nd}$ ) is calculated from the probability of success of answering an item  $i$  in  $X=x$  response category ( $x = 0, 1, \dots, m$ ), which is a function of the difference between the person  $n$  location and the item  $i$  location. Specifically, the model is as follows:

$$P(X_{ni} = x | \theta_{nd}) = \frac{\exp(\sum_{j=0}^x ((\sum_{d=1}^D \theta_{nd}) - \delta_{ij}))}{\sum_{k=0}^m \exp(\sum_{j=0}^k ((\sum_{d=1}^D \theta_{nd}) - \delta_{ij}))}$$

Here  $d$  indicates a specific latent dimension (i.e.,  $d = 1, \dots, D$ );  $\theta_{nd}$  represents person  $n$ 's latent ability parameter on dimension/construct  $d$ ; and  $\delta_{ij}$  is the item-step difficulty parameter for item  $i$  at category  $j$  (i.e.,  $j = 0, \dots, k, \dots, m$ ; Wilson, 2005; Wright & Masters, 1982).

We first fit the unidimensional model as a point of reference for the MIRT models. Subsequently, we assessed the fit and utility of the task-based model, the domain-based model, and other models driven by empirical findings and theoretical hypotheses. We define and discuss each of these in turn in the following subsections.

To fit all models, we used the psychometric computer program ConQuest (Adams, Wu, & Wilson, 2012).

## **Results**

### ***The Unidimensional Model***

The unidimensional model provides a single teaching-readiness ability estimate for each teacher candidate. This is the model that is most suitable for the actual usage to which the PACT scores are put: providing a single criterion of teacher readiness. However, the Elementary Mathematics TE is scored on five different tasks and domains, as shown in Figure 1. Examination of the weighted mean square item fit statistics revealed good model fit (Adams & Khoo, 1996; Wilson, 2005). However, this model does not provide information on teacher candidate “skills” and “proficiencies” on different aspects of the content embodied in the TE.

### ***The Task-Based Model***

We first assessed the structure of the Elementary Mathematics TE with a multidimensional model that matches the TE’s scoring structure illustrated in Figure 1. In this task-based factor structure, as shown in Figure 2a, the model has four dimensions corresponding to the five tasks (note that the first two tasks—Context for Learning and Planning—both correspond to the Planning domain). For this model, the Planning, Instruction, Assessment, and Reflection items each mapped onto different dimensions, but the Academic Language items loaded onto all of the dimensions. Although we expected that this model would fit well as it follows the intended structure of the TE, we found it resulted in relatively poor model fit.

To assess global model fit, we compared the Akaike information criterion (AIC) of this model to the unidimensional PCM, with smaller values indicating better fit. The AIC of the task-based model was 10,679 versus an AIC of 10,416 for the unidimensional model, indicating that the task-based multidimensional model fit worse than the unidimensional model. Moreover, the individual item (weighted mean square) fit statistics for the AL items were outside of the usual acceptable bounds (0.75–1.3; Adams & Khoo, 1996). Specifically, the AL items had high item fit statistics (approximately between 1.5 and 1.9), indicating that these items have 50% to 90% more variation in their scores than predicted by the model or that the model underfits the variation in these items. This result demonstrated that, although the items were designed according to Figure 1, the resulting data were not consistent with this test structure.

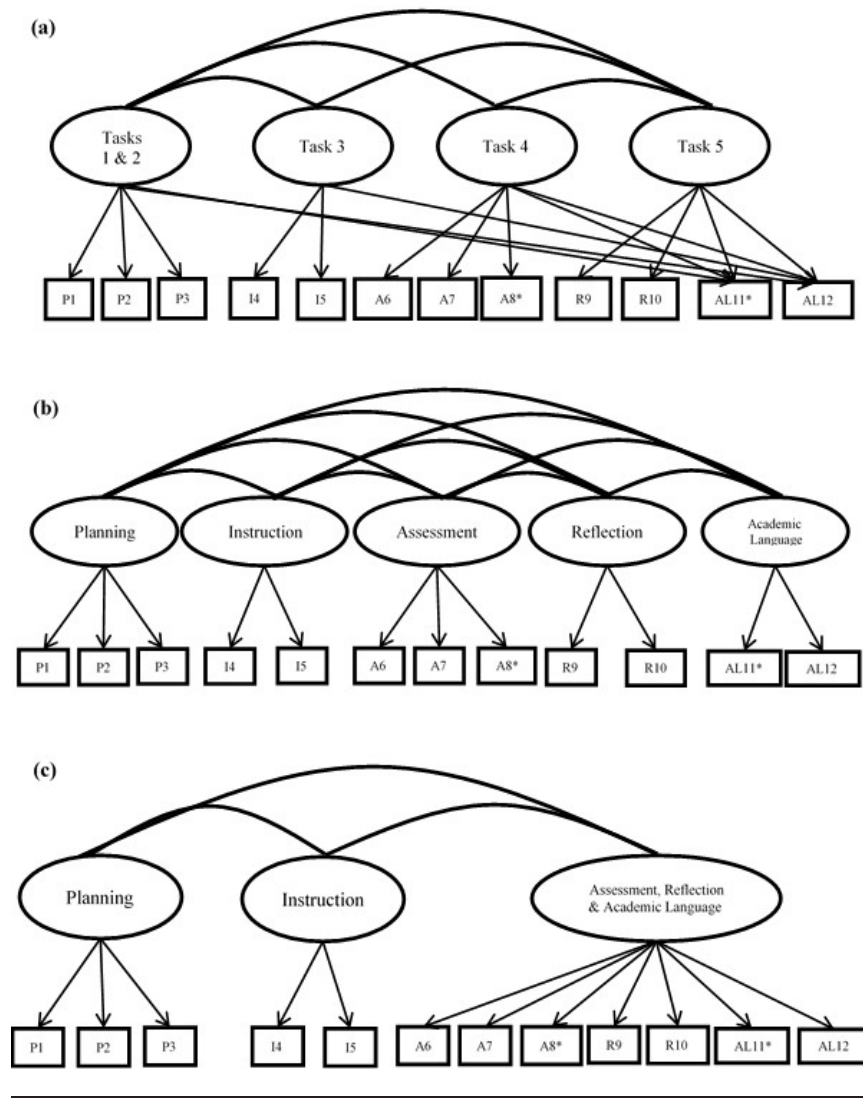
### ***The Domain-Based Model***

The misfit of the AL items for the task-based multidimensional model suggested that raters may not have used all of the materials across all the tasks to score

*Assessing Academic Language*

**Figure 2**  
**Illustration of the multidimensional models defined**  
**by structure of the PACT Teaching Event:**

(a) task-based model, (b) five-dimensional domain-based model, and (c) three-dimensional modified domain-based model with the first dimension defined by Planning items (P), the second by Instruction items (I), and the third by Assessment (A), Reflection (R), and Academic Language (AL) items. Note: Assessment Item 8 (A8) and Academic Language Item 11 (AL11) are treated as two separate items by administration year.



these items as instructed. Or, as a relatively new or conceptually difficult construct, the AL items may make additional demands on teacher candidates, raters, and/or preparation programs. The AL items may thus represent their own dimension. To test this hypothesis, we fit a five-dimensional (5D) “domain-based” model with items for each domain mapping onto its own dimension, as illustrated in Figure 2b. Unlike the task-based model, for this model, each item only contributes to one dimension. This model resulted in good model fit compared to both the task-based model and the unidimensional model (e.g.,  $AIC_{5D} = 10,143$  vs.  $AIC_{uni} = 10,416$ ). In addition, the individual item fit statistics were all within acceptable bounds.

### **Other Domain-Based Models**

We further hypothesized other possible domain-based models with fewer than five dimensions that might better reveal substantively meaningful dimensions. Primarily, we hypothesized that Assessment, Academic Language, and Reflection composed a single construct of teacher readiness as assessed by the PACT Elementary Mathematics TE. The theoretical rationale for treating Assessment, Academic Language, and Reflection as distinct domains of teaching practice is well documented and supported by experts. For novices writing about their own teaching practices and beliefs about, for example, the role of AL in teaching math, the literature is less robust and definitive. Discourse analyses show that teachers struggle “in the moment” with managing the social and interpretive process of student learning (Barwell, 2005). Compounding the challenges inherent in teaching math discursively is the demand for assessing EL in the heterogeneous classroom in ways that are consistent and meaningful (Moschkovich, 2007, 2013). The fact that the teacher candidate is expected to reflect upon the AL, assessment, and theory-laden components of the TE after the fact leads to further problems related to metacognition. Skills involving self-regulation, goal setting, and even the ability to understand, control, and manipulate one’s cognitive processes are fundamental to success (Meichenbaum, 1985; Olafson, Schraw, & Vanderveldt, 2010; Schraw, 1998). As it is currently structured, the PACT demands that the novice teacher candidate write a persuasive rationale, which we call a meta-reflection, for intersecting and often confusing elements of practice.<sup>4</sup>

In addition to our theoretical rationale for hypothesizing that AL can be combined with Assessment and Reflection as one Meta-Reflection domain, we found empirical evidence supporting this hypothesis through an analysis of the correlations estimated for the 5D domain-based model. The disattenuated correlations estimated for the 5D domain-based model are given in Table 2 (below the diagonal), along with the correlations among the domain scores (not corrected for measurement error). The disattenuated correlations range from .75 to .92. The strongest pair-wise correlations were among the Assessment, Reflection, and AL domains (ranging from .84 to .92), suggesting they may be collapsed into one dimension with minimal loss

*Assessing Academic Language*

of information. Teacher candidates who score highly on one of these dimensions tend to score highly on the other two, and vice versa. The Planning and Instruction dimensions are each correlated about .75 with each of the other dimensions and each other and so provide somewhat more distinct information about an aspect of readiness to teach.

To test our hypothesis, we fit a 3D modified-domain-based model with Planning and Instruction as their own dimensions and Assessment, Reflection, and AL as a single Meta-Reflecting dimension (see Figure 2c). This model has good item fit, but with a higher AIC value, meaning it does not exhibit as good model fit as the domain-based 5D model ( $AIC_{3D} = 10,185$  vs.  $AIC_{5D} = 10,143$ ). However, the correlations among the dimensions in the 3D model support this model as providing more distinct information on candidate ability than the 5D model. For the modified-domain-based 3D model, the Meta-Reflecting dimension is correlated .796 with the Planning dimension and .790 with Instruction, whereas the Planning and Instruction dimensions are correlated .751. All of these disattenuated correlations are lower than the three among Assessment, Reflection, and AL in the 5D model. Thus the 3D model's dimensions are more distinct than the five dimensions in the 5D domain-based model. We also found that each dimension has as high or higher reliability estimates than those for the 5D model.

This modified-domain-based model also fits better than any other hypothesized modified-domain-based models we fit. For instance, we considered Pecheone and Wei's (2007) 2D model with Planning, Instruction, and AL domains constituting one dimension and Assessment and Reflection the second dimension. This 2D model did not fit as well as our 3D model ( $AIC_{2D} = 10,329$  vs.  $AIC_{3D} = 10,185$ ). Given that Pecheone and Wei used pilot data, the number of items per domain and some item wording have changed since then, and they used a different modeling approach (factor analysis vs. MIRT), it is not surprising that we found evidence of a different internal structure for the Elementary Mathematics TE.

We also tried fitting a 2D model with AL items mapping to their own dimen-

**Table 2**  
**Observed Correlations Between Mean Domain Scores (Above Diagonal)**  
**and Disattenuated Correlations Between Domains/Dimensions (Below Diagonal)**

	Mean domain scores				
Disattenuated Correlations	Planning	Instruction	Assessment	Reflection	Academic Language
Planning		.60	.59	.59	.59
Instruction	.75		.58	.58	.57
Assessment	.76	.75		.71	.62
Reflection	.75	.77	.92		.65
Academic Lang.	.76	.77	.84	.89	

sion and all other items mapping to the second dimension. This model's AIC was also greater at 10,392. Accordingly, the 3D modified-domain-based model with AL, Assessment, and Reflection collapsed as one dimension better reflected the relationship AL had with the other domains. It also provided evidence that the TE is assessing different aspects of the teaching process, but not necessarily as intended by the PACT instrument developers.

Given the fit and utility of the 3D model, we further explored how it characterized the internal structure of the Elementary Mathematics TE using a Wright map (Wilson, 2005) after applying delta-dimensional alignment to place items from all three dimensions on the same scale (Schwartz, 2012).<sup>5</sup> This Wright map, shown in Figure 3, shows the distributions of the teacher candidate proficiency estimates (left) for each dimension on the same logit scale as the Thurstonian thresholds for the item-step difficulties (right). These item thresholds are denoted as  $i.k$  for item  $i$  at score level  $k$  and are defined as the location on the latent ability scale at which candidates have a 50% chance of scoring at or above level  $k$  for item  $i$  (Wu, Adams, Wilson, & Haldane, 2007). Figure 3 clearly shows that teacher candidates of all ability levels on the Planning dimension (first column) had at least a 50% chance of obtaining a 2 or higher on the Planning items, whereas this is not the case for the other dimensions. Comparing the item-step difficulties across the three dimensions, it appears that getting a score 3 or 4 on AL items for a teacher candidate was more difficult than it was on the other teaching domains. We also note that although we treated AL11 as separate items by administration year, the item thresholds are very similar for AL11a and AL11b, particularly for the third and fourth thresholds. Accordingly, although these items differ substantively, they are functioning similarly for teacher candidates in the 2 years, which may indicate that candidates and raters responded to and scored them in the same way despite the change in focus from all students to only ELL students.

## **Discussion**

Our study investigated the internal structure (i.e., the dimensionality) of the Elementary Mathematics TE for Tier I licensure in California. Using MIRT models, we found that Planning and Instruction are meaningfully distinct dimensions that correspond with the content validity arguments advanced by the PACT developers (Pecheone & Wei, 2007). However, we also found that Assessment, Reflection, and AL domains in the Elementary Mathematics TE are tapping into very similar “skills” and “proficiencies,” which may make it difficult to discern the meanings of scores on these tasks. Our findings with regard to the AL construct indicate that score interpretation and use of subscores should proceed with caution.

One strategy for addressing the problem of internal structure validity is to simply embrace the factor or dimensional “solution” provided by the model fit statistics. Accordingly, one treats the difficulty with validly interpreting AL score

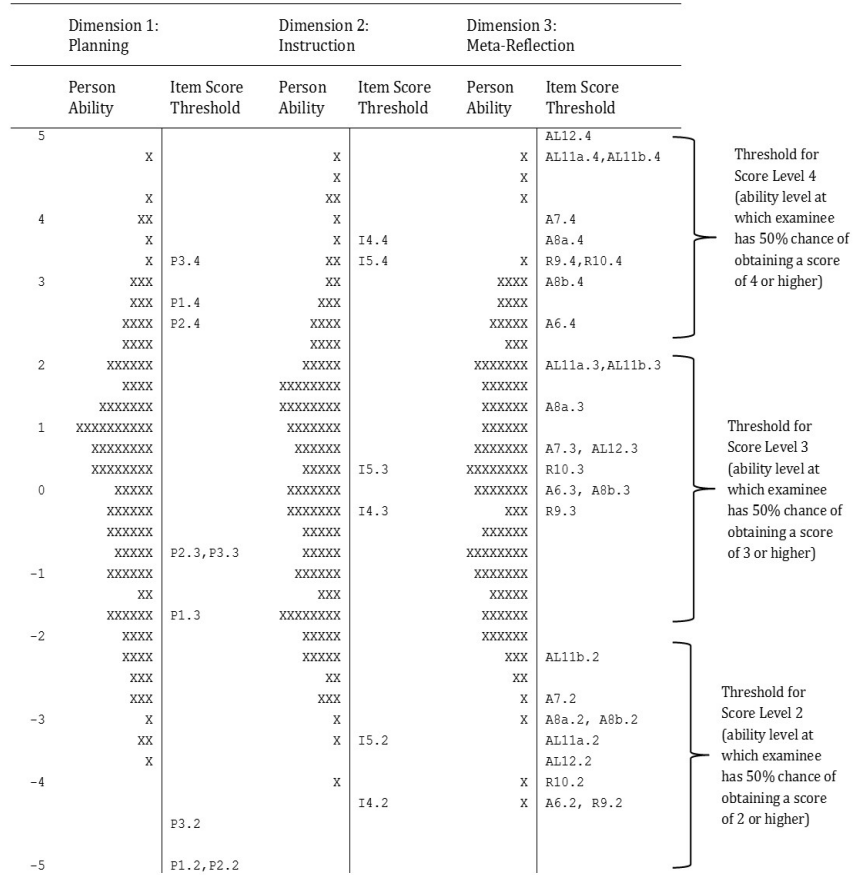
*Assessing Academic Language*

data (rather than the potential constraints from the items or scoring design itself) as the problem. The edTPA collapses the construct of AL into subtasks within the Planning, Instruction, and Assessment teaching domains, perhaps to avoid these dimensionality issues. Interestingly, this supposed solution results in score data from the edTPA licensure exam that emphasize teacher candidates' knowledge, skills, and use of AL in only the Planning and Assessment domains (SCALE, 2013).

The edTPA focuses on how teacher candidates are supporting their students' language demands by identifying the use of vocabulary on the language function

**Figure 3**  
**A Wright map of the three-dimensional domain-based model using elementary mathematics data**

Each "X" represents 4.2 teacher candidates.



in the Planning domain and how they are analyzing their students' use of language for content understanding in the Assessment domain. However, the lack of instrumentation targeted on observing actual enactments of AL skills, capacities, and proficiencies of these preservice teachers in the Instructional domain is a blind spot. The *enactment* of academic language-driven instruction is deemphasized. Moreover, any licensure exam that inadequately addresses (in part, by inadequately observing) the importance of the AL construct in mathematics instruction seems to contradict both the robust findings in the research literature and the new policy direction that focuses on speaking, listening, and other modalities of productive language instruction under the Common Core framework (Hakuta, 2013; Heritage et al., 2015; Moschkovich, 2012).

The results of the Elementary Mathematics TE in this study are similar to those reported in a previous validation study on the English Language Arts TE (Duckor et al., 2014). Thus, although our study is limited by its voluntary sample of California teacher preparation programs and its sample size did not allow for split-data analysis, its findings are consistent with a separate study of a different data sample for a different PACT TE. In both studies, the implications for policy and practice in the context of the PACT licensure exam are varied. Data-driven state policy makers and teacher educators are increasingly compelled to use these results to make better decisions regarding the allocation of resources. Some may be tempted to compare programs and institutions to determine the value added of individuals (e.g., faculty, cooperating teachers, program administrators) with respect to the global and subscore data provided by the PACT and other teacher performance assessments. Still others may be tempted to drop the focus on AL in teacher performance-based assessments because it is a conceptually difficult construct to assess. However, we assert that dimensionality studies like ours can justify the meaning of score results. We also advocate the collection of multiple sources of evidence both replicating our own study with other PACT data and even by types of teacher candidates, which was not possible in this case, with the lack of teacher covariates, as well as by collecting further types of validity evidence, such as predictive and consequential validity.

Our research on PACT data suggests that although the AL domain is difficult to distinguish, perhaps because it is closely related to other teaching competencies, its importance to the field is clear. Elementary school learners face increasing pressure to master challenging mathematical concepts, especially those that are related to success in algebra. We know that students who do not master algebra before the ninth grade tend not to take the classes required to attend college. Recent studies have demonstrated that ELLs are particularly at risk of missing key courses during their high school experience (Mosqueda, 2010). Without early success in mathematics, ELLs are effectively pushed out of college consideration as a consequence of course-taking patterns. If elementary teachers cannot make mathematics content accessible to their students, and to their ELLs in particular, the consequences will be far-reaching.



## *Assessing Academic Language*

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No longer can prospective elementary teachers view mathematics as language free. They must develop the pedagogical skills that link language and mathematics in ways that deepen their students' conceptual understandings, even if experts cannot agree on a single definition of AL (e.g., Snow, 2010). Wittgenstein (1970) wryly wrote that "to understand sums in elementary school, the children would have to be important philosophers. Failing that, they need practice" (p. 122). Wittgenstein is pointing out that even the simplest of mathematical operations lead us to challenging questions that require a comprehensive symbol system to understand, but it is this philosophical link between language and mathematics that contemporary teachers must consider. Preservice teacher evaluation systems in California, such as the edTPA and PACT, must be designed to detect whether teacher candidates possess the skills, knowledge, and dispositions toward practice to help their K–12 students master challenging content.

### **Conclusions**

Teacher licensure exams, such as the PACT and edTPA, as gatekeepers for the teaching profession are designed to ensure that teaching candidates possess the baseline skills necessary to help their K–12 students master challenging subject content. In California, it would be a step backward, given the student population's needs, to shy away from the growing body of research on the intersection of mathematics content and AL demands embedded in the new standards. Our findings on the unintended behavior of the AL items (and their noisy interaction with the Assessment and Reflection domains) warrant further investigation but not an abandonment of the construct itself. Based on our findings, it is likely that the AL instrumentation (i.e., tasks, scoring rubrics, rater training, and/or exam protocols) requires better alignment to the PACT's intended structure. But we also need more data on effects that may be related to examinee, rater, or institutional factors in the AL domain. The PACT consortium could provide a platform for principled scientific investigation of AL at scale, now that we have learned new lessons in California.

This study represents a step in the direction of broadening standards-based validity investigations of the PACT or any teacher performance-based instrument, specifically with respect to particular interpretations about elementary teachers' preparation in the academic language domain. Despite our current, albeit limited, understanding of how to best evaluate AL in novice teachers' work, it remains a critical piece of the puzzle of what it means to be a teaching professional in schools with a commitment to equity and excellence. Beginning teachers can benefit from future work (from educational researchers, measurement specialists, and, most importantly, teacher educators) on how to best assess academic language in their emerging K–12 classroom practice. Policy makers remind us that the success of today's educational reforms may in fact depend on several important shifts in beginning and veteran educators' perspectives on language and language learning in

the early K–8 mathematics classroom. The PACT, with its emphasis on AL across domains of teaching practice, does that to a degree, but, as this study suggests, it can still do more.

## **Acknowledgments**

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## **Editorial Note**

The peer review and acceptance of this manuscript was conducted entirely by Reyes Quezada, associate editor of *Teacher Education Quarterly*. At no point was Kip Téllez, editor of the journal, a part of that review process or contacted during the process.

## **Notes**

<sup>1</sup> We note that similar studies with scores for the newly adopted Smarter Balanced Assessment (the current standardized ELA and Mathematics K–12 test in California) may yield different results, which underscores that validation is an ongoing effort that proceeds as new information becomes available.

<sup>2</sup> We used Wright and Masters's (1982) DIF procedure to check if the items behaved the same in terms of difficulty level at both time points. This procedure, which involves plotting the item difficulties at Time Point 1 against the item difficulties at Time Point 2 and computing 95% confidence intervals for the mean difficulty over the two time points, resulted in Item A8 being flagged as having differential difficulty over time (because its point fell outside of the confidence bounds).

<sup>3</sup> We denote A8a and AL11a for responses to these items in the first test administration year and A8b and AL11b for the second administration year.

<sup>4</sup> This finding is not entirely surprising given the PACT's roots in NBPTS and a particular vision for teacher assessment. See, for example, Shulman (1987): "As we have come to view teaching, it begins with an act of reason, continues with a process of reasoning, culminates in performances of imparting, eliciting, involving, or enticing, and is then thought about some more until the process can begin again. . . . We will emphasize teaching as comprehension and reasoning, as transformation and reflection" (p. 13).

<sup>5</sup> Because the means of item and item-step difficulties are set to zero on every dimension in identifying the item parameters of the multidimensional models, the magnitudes of the item difficulties are not comparable across dimensions. The delta-dimensional alignment method provides a means for placing all of the item difficulties on the same scale (for more details, see Schwartz, 2012).

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## *Assessing Academic Language*

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*Castellano, Duckor, Wihardini, Téllez, & Wilson*

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## **Information on the California Council on Teacher Education**

Founded in 1945, the California Council on the Education of Teachers (now the California Council on Teacher Education as of July 2001) is a non-profit organization devoted to stimulating the improvement of the preservice and inservice education of teachers and administrators. The Council attends to this general goal with the support of a community of teacher educators, drawn from diverse constituencies, who seek to be informed, reflective, and active regarding significant research, sound practice, and current public educational issues.

Membership in the California Council on Teacher Education can be either institutional or individual. Colleges and universities with credential programs, professional organizations with interests in the preparation of teachers, school districts and public agencies in the field of education, and individuals involved in or concerned about the field are encouraged to join. Membership entitles one to participation in semi-annual spring and fall conferences, subscription to *Teacher Education Quarterly* and *Issues in Teacher Education*, newsletters on timely issues, an informal network for sharing sound practices in teacher education, and involvement in annual awards and recognitions in the field.

The semi-annual conferences of the California Council on Teacher Education, rotated each year between sites in northern and southern California, feature significant themes in the field of education, highlight prominent speakers, afford opportunities for presentation of research and discussion of promising practices, and consider current and future policy issues in the field.

For information about or membership in the California Council on Teacher Education, please contact: Alan H. Jones, Executive Secretary, California Council on Teacher Education, Caddo Gap Press, 3145 Geary Boulevard, PMB 275, San Francisco, California 94118; telephone 415/666-3012; email <caddogap@aol.com>; website <www.ccte.org>.

The next semi-annual conference of the California Council on Teacher Education will be:

*March 31-April 2, 2016, Sainte Claire Hotel, San Jose*



**The Affordances of Using  
a Teacher Leadership Network  
to Support Leadership Development  
Creating Collaborative Thinking Spaces  
to Strengthen Teachers' Skills in Facilitating  
Productive Evidence-Informed Conversations**

**By Julie Nicholson, Sarah Capitelli, Anna E. Richert,  
Anne Bauer, & Sara Bonetti**

School reform policies and school administrators are increasingly positioning teacher leaders (TLs) with the responsibility to facilitate professional learning for their colleagues. Although ample evidence exists to suggest the need for facilitators to be highly skilled for teachers' learning to be optimized, there is a dearth of research describing how TLs act as effective instructional leaders with their colleagues in professional learning communities (Nuermerski, 2012). Furthermore, no empirical studies have described effective models for supporting the leadership development

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### *Using a Teacher Leadership Network to Support Leadership Development*

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of the TLs who are charged with learning to take on the role of instructional leader at their school sites.

Our research intends to address this gap in the literature by documenting a teacher leader network (TLN) that is part of the Mills Teacher Scholars (MTS), a professional development program that supports teachers to develop as TLs. In this study, we describe one TLN meeting at which 21 teachers convened to learn how to develop as teacher instructional leaders responsible for facilitating substantive data conversations with their colleagues. We analyze the affordances this learning community provides for TLs, with a goal of making visible how the TLs were supported in strengthening the skills and dispositions required to be effective facilitators of evidence-informed conversations that would move their colleagues' thinking and learning forward.

### **Literature Review**

Current conceptions of teacher leadership no longer associate it as belonging only to a small subset of teachers who hold formal positions of authority within schools as mentor teachers, instructional coaches, or professional development facilitators. Instead, contemporary theorizing positions teacher leadership as a process of influencing others *to improve their educational practice* and exemplifying a *learning stance* as part of a more inclusive construct where teachers in all positions within schools are believed to have the capacity to develop and strengthen their leadership capacities (Katzenmeyer & Moller, 2009; Margolis & Doring, 2012). A commonly cited definition reflecting this current emphasis is offered by Katzenmeyer and Moller (2009), who explained, "Teacher leaders lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders; influence others toward improved educational practice; and accept responsibility for achieving the outcomes of their leadership" (p. 6). York-Barr and Duke (2004) theorized teacher leadership similarly as a process by which "teachers, individually or collectively, influence their colleagues, principals, and other members of school communities to improve teaching and learning practices with the aim of increased student learning and achievement" (p. 287). Such understandings decouple teacher leadership from association with formal authority and hierarchies that reinforce divisions between classroom teaching and administration (Darling-Hammond, Bullmaster, & Cobb, 1995).

Scholars have proposed that such conceptions of teacher leadership hold great potential for eventuating school reform (Bradley-Levine, 2011) as teachers are supported to "pose and solve problems" and "assume leadership for change from within rather than looking upward or outward for leadership" (Darling-Hammond et al., 1995, p. 100). Such theorizing positions teachers as holding expertise that is valuable for entire school communities, as "leaders in practice" (Grant, 2006, p. 519) who are best positioned to facilitate school improvement efforts through ongoing,

systematic study and strengthening of their instructional practice. Foundational to the theory of change embedded in such associations between teacher leadership and school improvement is a belief that “leadership is in the learning, not in the perfection” (Margolis & Doring, 2012, p. 878). Therefore a “teacher leader is the best teacher learner—the one who revises and improves their own teaching the most, as well as the one who provides the most appropriate feedback to others so they can learn from missteps” (Margolis & Doring, 2012, p. 878).

Central to such interpretations of teacher leadership are such skills as learning from one’s mistakes; making public the process of thinking through complex educational dilemmas, including learning to honestly and thoroughly reveal professional struggle; modeling the importance of “*reflection on teaching*” rather than *replication of teaching*” (Margolis & Doring, 2012, p. 878); and recognizing that high-quality teaching requires continuous “fine-tuning” of instructional practices in a quest to remain responsive to the specific needs of “particular students on a particular day in a particular classroom” (p. 861). Leadership, then, is fundamentally about learning and engagement in ongoing inquiry into practice, building a community based on “using data to improve rather than prove” (Charalambous & Silver, as cited in Margolis & Doring, 2012), “drawing from classroom observations to learn rather than evaluate, and rewarding teachers for reflection rather than perfection” (Margolis & Doring, 2012, p. 878). As described, teacher leadership is both an interpersonal and intrapersonal experience where TLs not only strengthen relationships with their colleagues but also engage in a continuous self-monitoring process “attending to how peers perceive them and [taking] steps to manage those perceptions so that they enhance rather than inhibit their relationship-based leadership” (Raffanti, 2008, pp. 65–66).

The success of actualizing this image of teacher leadership is contingent on having both a school culture and the requisite structures that allow it to develop (Muijs & Harris, 2007), including support for collaboration, partnership, and collective decision making (Grant, 2006); strong relationships among staff based on high degrees of trust (Bryk & Schneider, 2002); and “principals [who] are willing to relinquish their power to others and where fixed leader-follower dualisms are abandoned in favour of the possibility of multiple, emergent, task-focused roles” (Grant, 2006, p. 513). Thus the enactment of teacher leadership requires specific leadership dispositions for principals and teachers (Helterbran, 2010), including comfort with distributing or stretching leadership across individuals and pooling expertise (Hargreaves & Fink, 2006), valuing the process of making one’s learning visible despite the vulnerability this requires, and refraining from blame (of self and others) as risks are taken and learning trajectories are revealed (Muijs & Harris, 2007).

Although there are increasing calls for developing teacher leadership and encouraging teachers to “find their voices [and] take up their potential as leaders and change agents to produce a liberating culture in their schools” (Grant, 2006, p. 513), we need to develop more clarity in understanding how this important

### *Using a Teacher Leadership Network to Support Leadership Development*

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work can be intentionally guided and developed within our schools. If teacher leadership is fundamentally about influence and we want to empower teachers to be primary catalysts in their own leadership development, we need to understand how teachers—not just those with a designated special role as a school site coach, mentor, or instructional leadership team member—can learn to facilitate leadership development among their own colleagues.

Toward this end, this study was designed to illuminate the “hows” of supporting teacher leadership development when leadership is commensurate with learning, influence, and “finding one’s voice.” We document how TLs working in urban schools learn to acquire important skills and pedagogical strategies they can use to support the leadership development of their colleagues, allowing the district’s school reform policies to remain closely tethered to classroom practice (Margolis & Doring, 2012).

## **Conceptual Framework**

Our conceptual framework is informed by two key concepts: the notion of affordances and scaffolding. Both concepts greatly informed our data analysis and allowed us to identify key intentional experiences that supported the learning and development of critical leadership skills.

### ***Affordances***

The term *affordance* was first coined by Gibson (1977) to refer to the functional properties that determine the possible utility of an object or environment for a particular agent. For example, an animal’s environment *affords* it a number of things: shelter, water, other animals, places to hide, and so on. According to Greeno (1994), “an affordance relates attributes of something in the environment to an interactive activity by an agent who has some ability” (p. 338). Affordances have different value to the animal and may afford “good or ill” (Gibson, 1977, p. 68). Gibson explained, “The affordances of an environment are what it offers animals, what it provides or furnishes, for good or ill. . . . Different layouts afford different kinds of behavior and different encounters, some beneficial and some harmful” (p. 68). The value of affordances is dependent on how they are perceived and taken up by the agent; therefore an affordance always reflects the dynamic specificities of the relationship between an environment and an animal or individual.

Central to Gibson’s theory of affordances is the notion of reciprocity. This idea implies that “the affordance is a property of whatever the person interacts with, but to be in the category of properties we call affordances, it has to be a property that interacts with a property of an agent in such a way that an activity can be supported” (Greeno, 1994, p. 340). In other words, an affordance refers to elements in the environment that contribute to particular interactions by the agent in that environment. Gibson (1977) argued that affordances are neither “subjective” nor

“objective” properties but rather “facts of the environment” (p. 70) that do not rely on the animal (actor) for its existence. Therefore an affordance “is not like a value which is usually supposed to depend on the observer nor is it like a meaning which is almost always supposed to depend on the observer” (p. 69) but rather anything that contributes to the interactions that occur in that particular environment.

For the purposes of this study, we use the notion of affordance to help theorize the distinct facets of the TLN practices that contribute to the interactions that influence TL development. Gibson’s notion of affordance helps to identify and name the opportunities teachers have available in their learning environments that support and hinder their development of leadership skills while simultaneously acknowledging the complexity of their work. In other words, the notion of affordances allows us to identify the characteristics of the TLs’ environments that they need to perceive and take up to develop as leaders. Although our study is limited to examining affordances within one environment supporting teacher leadership development—the network meetings—each school site where the teachers work is an environment with its own unique and complex set of affordances that support and hinder teachers’ professional development.

### **Scaffolding**

Jerome Bruner (1983) defined *scaffolding* as a “process of ‘setting up’ the situation to make the child’s entry easy and successful and then gradually pulling back and handing the role to the child as he becomes skillful enough to manage it” (p. 60). This notion of scaffolding was developed in the context of his investigations of infants and their play with their mothers, specifically peekaboo games. His analysis of these games points to both the structure and the process of the games and the role mothers play in teaching the “rules” of the game as well as their role in other aspects of the game that are non-rule bound (e.g., mother’s vocalization). It is the non-rule bound aspect of the game that “seems to be an instance, rather, of the mother providing a scaffold for the child” (Bruner & Sherwood, 1975, p. 280). Critical to Bruner’s (1983) conceptualization of scaffolding are the aspects of the “game” that become ritualized over time that allow for a gradual shift in agency between a mother and her child. This shift in agency ultimately results in the “learner” being able to initiate the rituals (i.e., game) on her own. Additionally, Bruner’s ideas about scaffolding highlight two critical elements of this kind of learning context. One is the structure of learning that is ritualized “that is more or less constant (though flexible),” and the other is “an interactional process that is jointly constructed from moment to moment” (Walqui, 2006, p. 164).

For the purposes of this article, Bruner’s idea of scaffolding guided our examination of the learning context in the TLN meetings. Specifically, we aimed to identify whether and how scaffolding is used a pedagogical structure to support teachers’ learning in the TLN meetings.

## *Using a Teacher Leadership Network to Support Leadership Development*

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### **Research Question**

The main research question guiding this study is grounded in a belief that TLs influence others to improve their educational practice, exemplify a learning and relational stance, and engage in continuous reflective and inquiry-driven practice. With that in mind, we ask, “What are the affordances particular to the TLN that enable the leadership development of teachers?”

### **Method**

#### **Research Design and Context**

Our study uses case study methodology (Yin, 2014) to examine how teachers participating in the MTS TLN meetings (described later) are guided to develop the skills, knowledge, and dispositions required to enact teacher leadership at their school sites and specifically to facilitate inquiry-based collaborative conversations among their colleagues. Our unit of analysis is defined as an individual MTS TLN meeting.

**Mills Teacher Scholars professional development project.** MTS is a school-university partnership designed to support teacher learning about student learning, aimed ultimately toward improving student learning outcomes. The project frames a socioprofessional process to scaffold teachers to learn to facilitate evidence-informed conversations. First, teachers are supported to define an area of their practice they want to strengthen to improve students’ learning. This becomes the focus of a yearlong inquiry. Example topics include mathematical thinking expressed through academic discourse, facilitating English language learners’ confidence with verbal participation in class, and students’ collaborative group work in literature circles. Next, teachers clarify learning goals and determine specific indicators of success that would provide evidence of whether students have (or have not) achieved their specified learning goals. Teachers then identify real-time data sources they can systematically collect that support them in analyzing the specific student thinking and learning outcomes identified in their inquiries that they want to understand in greater depth. Once a month, teachers participate in TL-facilitated data conversations with other teachers at their site, through which they share and collectively analyze their inquiry data.<sup>1</sup>

**Mills Teacher Scholars teacher leader network.** The TLN meetings are designed to bring together teachers working in many schools and districts in the East Bay of northern California, United States, all participating in the MTS program, to build their capacity as TLs so they can successfully lead and sustain inquiry-based professional learning communities at their school sites. The TLN meetings are designed to be quarterly, half-day sessions at Mills College, where MTS staff provide support to the TLs in building their adult learning, leadership, and inquiry skills and strengthening their skills and confidence in facilitating the MTS inquiry

process with their colleagues. The TLs who participate in the TLN meetings and facilitate the learning communities at their school sites also participate in the MTS inquiry process described previously, as they are all full-time classroom teachers. Thus they must learn to balance facilitating discussion among their colleagues and engaging in the conversations as teacher participants themselves.

Three MTS TLN meetings were convened over the course of the study during fall of the 2014–2015 school year. TLN meetings took place on Saturdays from 8:30–1:30 at Mills College in Oakland, California. In this article, we report on data collected at the first TLN meeting of the year in August 2014.

### **Participants**

Participants in the TLN meetings included 21 teachers working in 7 different schools across 5 urban Bay Area school districts. The TLs were teaching in a range of grades and school district positions: kindergarten ( $n = 1$ ), 1st grade ( $n = 2$ ), 2nd grade ( $n = 2$ ), 2nd grade bilingual ( $n = 1$ ), 3rd grade ( $n = 3$ ), 4th grade ( $n = 3$ ), 5th grade ( $n = 3$ ), elementary librarian ( $n = 1$ ), elementary music ( $n = 1$ ), elementary teacher on special assignment ( $n = 1$ ), 9th- to 12th-grade visual art ( $n = 1$ ), high school orchestra director/elementary music teacher ( $n = 1$ ), and high school physics/algebra ( $n = 1$ ). The majority of the teachers worked in elementary schools, although three worked in high schools. The TLs had a range of teaching experience: 1–5 years ( $n = 6$ ), 6–10 years ( $n = 8$ ), 11–15 years ( $n = 2$ ), and 16–20 years ( $n = 2$ ); three declined to state. All TL participants were hybrid teacher leaders (Margolis & Doring, 2012); that is, all were teaching full time in addition to acting in their roles as instructional leaders facilitating the learning communities at their school sites.

Two MTS staff members, Jaclyn<sup>2</sup> and Chiara, facilitated the TLN meetings. Jaclyn was hired as an MTS staff member to support the facilitation of the TLN meetings; however, she was also a fifth-grade elementary school teacher working as an MTS TL facilitating data conversations at her elementary school site. Chiara, a former high school teacher, was a full-time MTS staff member who supported the MTS TLs and coordinated the TLN meetings for MTS. Two other MTS staff members, Betty and Margarita, were at the TLN meeting analyzed for this study. They added a few comments in some of the large-group debrief discussions, and they participated in the fishbowl activity described later; however, their roles were primarily as observers throughout the day.

### **Data Collection**

The main data collected and analyzed for this study were the conversations that took place at one TLN meeting. Because of space constraints and our interest in looking in depth at the various structures included in MTS TLN meetings intended to support TL development, we chose to focus on the analysis of only one meeting, the first TLN meeting of the year. This meeting was 5 hours in duration and

### *Using a Teacher Leadership Network to Support Leadership Development*

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included whole-group, school site small-group, and pair-share partner discussions that were audiotaped and transcribed (many, but not all, were also videotaped). We transcribed 15 audiotaped discussions for this meeting and analyzed all of the files, except the small-group and partner discussions, for this article. The files analyzed for this article are listed in italics after the specific discussions or activities recorded: (a) introduction—a brief overview of the TLN network meetings for the year and goals for the TLN network (15 minutes; *Jaclyn's presentation to the large group*); (b) a “what do you look for in student data?” exercise (90 minutes), which included a brainstorm of pitfalls (*one large-group discussion*), observation of video data (*one large-group discussion* and two partner discussions), fishbowl (*one large-group discussion* and two partner discussions), and group debrief (*one large-group discussion*); (c) TL role and responsibilities (1 hour; one large-group discussion); (d) planning the first meeting at your school site (90-minute working lunch; *brief presentation by Jaclyn and Chiara* and three small-group discussions—with three teachers each—among teachers working at the same school site); and (e) closing reflections (15 minutes; *one large-group discussion*).

Two researchers, the first and third authors of this manuscript, collected all of the data for this study. As researchers, they observed the entire meeting, completed field notes, and moved audio recorders around the room to capture small- and large-group conversations throughout the day. They did not participate in any of the facilitated small-group or partner discussions. Field notes captured a running record of agenda items and nonverbal information to aid in data analysis (gestures, tone of voice, noises in the room, movement of teachers, observed level of engagement, etc.).

#### **Data Analysis**

As this was the first time the research team had analyzed data from the TLN meetings, we chose to analyze all of the data as a group. Five research team members met over the course of several weeks to discuss the themes and categories we saw in the data. Our analytic process included both inductive and deductive approaches (Miles & Huberman, 1994) to examining the data; however, we primarily emphasized an a priori deductive coding method. Specifically, we read through the transcripts together and identified and discussed evidence we determined to represent the following concepts: (a) *opportunities* provided within the TLN meetings that were available to teachers and that intended to support them in becoming TLs, (b) teachers' *responses* to these encounters (i.e., how we observed them taking up and reacting to these experiences), and (c) *reciprocal relations* (elements of the environment that influenced and/or supported teachers' opportunities to learn). We conceptualized an affordance as a macrocode or parent code that included each of these three topics or subcodes.

After identifying evidence of these a priori codes in the transcripts, we worked together to select excerpts that we determined to be salient examples of affordances

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represented in the TLN meeting. There were no significant disagreements in our analysis process as we discussed the transcripts until we had 100% agreement in our interpretations of the data. However, instead of needing to negotiate differences of opinion, we did have instances where one member of the research team would greatly expand our perspectives by sharing insight not previously considered. A cogent example was in a discussion exploring how the opportunities provided in the TLN meeting could potentially lead to harmful consequences for the participating teachers. One of the researchers wondered if some of the teachers were likely to face a lack of support from their principals when they tried to implement the plans they had brainstormed with their colleagues in the TLN meeting back at their school sites. This proved to be a prescient prediction that did occur over the course of the year in one of the sites, leaving the TLs feeling frustrated, angry, and disempowered.

In conjunction with the coding process, analytic memos (Saldaña, 2013) were constructed after each of our group discussions to capture our thinking and developing understanding of the relationship between the data and the construct of affordances in supporting TL development.

### **Validity and Reliability**

Internal validity and reliability were strengthened through several methods. First, different data sources (e.g., audio recordings, field notes, and artifacts in the form of TLN meeting agendas with detailed presenter notes) allowed for data triangulation (Merriam, 2009). Member checks (Miles & Huberman, 1994) were completed by sharing our analysis of the data with MTS staff and Jaclyn and Chiara, the TLs facilitating the monthly meetings. Thick description drawing on evidence reflected in direct quotations and information from field notes increases external validity by allowing readers to determine whether and to what degree the study's findings are relevant to their own contexts. Finally, a comprehensive audit trail was kept, detailing decisions made throughout the data collection and analysis process.

### **Findings**

We present two main affordances we identified in the first TLN meeting: (a) the framing of goals and norms for the TLN meeting environment and (b) the scaffolds provided to teachers intended to support them in learning the skills needed to facilitate data conversations with their colleagues (e.g., learning to “notice” when examining student data, brainstorming challenges they were likely to face, and learning from experienced colleagues who model the data analysis process). Each affordance is described separately in the following sections.

#### **Overview: Framing Goals for the Teacher Leader Network Meetings**

The meeting began with the two facilitators, Jaclyn and Chiara, framing the

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### *Using a Teacher Leadership Network to Support Leadership Development*

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goals and purposes of the TLN meetings, which included strengthening teachers' macro understanding of their role as TLs in school reform efforts, improving specific data analysis skills, thinking about how they could adapt what they learned in the TLN meeting to the unique needs of their individual school sites, and spending time building their relationships with one another as a foundation for the work they would accomplish together in the network meetings that year:

JACLYN: We have four basic goals for today, the first one is to zoom out and get an overview of what the MTS work is, what we have identified as the ways that our work supports students and teachers, and then . . . we will be zooming in on the bulk of our work, which is data analysis. . . . We really want to spend our leadership network time this year honing those skills of data analysis and looking at student work and thinking about what students are doing so that teachers can move forward with their inquiries. We want to think together about site goals . . . what support teachers at your site need, what support you need to be a teacher scholar leader. We want to look together at an overview of the year, and to see where we are going, before we jump into the school year. . . . Finally, we want to start to get to know each other and really use the power of the network to strengthen our inquiry and our individual sites and make some connections.

Chiara explained that she and Jaclyn would be very intentional in making visible for the teachers many of the components that they would have to consider when they returned to their school sites to facilitate their colleagues' thinking and learning in conversations about students' work. She named this intentional reflection on their process and decision making as facilitators as "jumping in and out of the meeting." She reinforced the importance of careful planning and intentionality in their work with teachers, beginning at their very first meeting, when they ask teachers to introduce themselves, explaining that it is important to be "intentional about what you are doing and know the purposes in a transparent way." She named familiar technical issues facilitators navigate, including how to create equity in participants' contributions to the conversations:

CHIARA: What we are going to try to do today is jump in and out of this meeting, so that you can think about when you are planning a meeting, what are the parts that you are going to want to include and why. It's nice at the beginning to find out who is in the room, and to go around and hear people's names and their school and their grade level and maybe a sentence about an inquiry they did last year. Now the risk of this as a leader is that somebody might talk on and on, so you have to think about that. If you have them write down a sentence and read it, do you just, you know, hope for the best? Then if somebody goes off topic then what do you do?

Jaclyn then outlined the foundational work TLs need to learn to engage in, the very skills they would see modeled for them and be guided to practice in the TLN meetings. She emphasized the responsibility TLs have to create a safe "thinking space" for their teaching colleagues where they will learn to support and challenge

their colleagues by gaining skills in the use of effective questioning and by developing a discourse for naming what can be observed regarding students' thinking and learning by analyzing students' work. The goal for TLs is always to "move their colleagues' thinking forward," that is, to help them develop deeper understandings of their students as learners through careful examination of their students' work and to have their assumptions and perspectives expanded by the collective input of a larger group. Drawing on the theory of parallel process (Stroud, 2010), where the TLs observe and participate in a process it is hoped that they will then repeat at their own school sites, Jaclyn created a thinking space for the TLs at the TLN meeting, explaining that they would work together to construct knowledge about a range of strategies they could use when facilitating data analysis conversations with their colleagues:

JACLYN: In the MTS work, there are two main parts to our work. One is to create safe, collaborative spaces where teachers can open thinking spaces for each other, learn how to ask questions and how to comment and move our colleagues' thinking forward. Where people have time and space to think, and where colleagues challenge and support each other's thinking. The other is to develop skills and practices and understandings around collecting and making sense of student learning data. What is it? How do we talk about it? How do we move people's thinking forward about it? We want to use this network to think together about what are the skills required for this data analysis when looking at different types of data.

Reinforcing the fact that teaching is uncertain work (McDonald, 1992), developing as TLs is more akin to learning how to guide thoughtful intellectual discussions despite many unknowns. Jaclyn set the stage learning to work with uncertainty by taking a strengths-based approach and reminding the TLs to focus on what they *can* do versus the limitations of the information and/or resources they have available. She explained, "We know when we sit down and look at someone's data, there is no way we can know everything about every student we are looking at, or everything that the teacher did ahead of time. . . . Given all of the unknowns, we want to really work together at surfacing what we want to think about."

Before moving into specific data analysis exercises, Jaclyn and Chiara introduced an outline for a typical learning community meeting where teachers are guided to examine student data, a format that is similarly followed in the TLN meeting so that they are learning how to structure their own site meetings while also experiencing this firsthand. They reinforced that the overarching goal of every meeting is to "create a thinking space where everyone can be supported to move their thinking forward." Jaclyn explained that in each meeting, they have (a) *welcome and goals* for the day; (b) an opening *whip-around* question (e.g., "what forms of data are you collecting to address your inquiry question?") to build community and involve everyone; (c) *input* focusing on a particular aspect of inquiry work to give teachers a new perspective, a new way to think about data collection and analysis (e.g., sharing examples of learning goals or indicators of success);

### *Using a Teacher Leadership Network to Support Leadership Development*

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(d) *thinking alone time* when teachers are given time to look alone at their data, to think about what their students are doing and their desired learning goals, and to try to figure out how to move students forward; (e) *thinking together time* when teachers are looking at their colleague's data and are trying to help them surface and notice things and then help them plan the critical next steps in their inquiries; and (f) a formal *closing* when the group comes together as a community to think together about someone's inquiry, discuss discoveries and progress as a group, or share final reflections or takeaways from the meeting.

#### **Scaffolding Teacher Leaders' Examination of Student Data**

The teachers were guided through several experiences to help them surface many of the complexities they would navigate as facilitators of learning communities at their own school sites. These experiences were then used as collective texts that the group was then guided to reflect on, dissect, and use in thinking about how they could adapt what they were learning about facilitation in the work with teachers back at their own schools. We report on three of these activities: discussing categories and skills on which to focus in the analysis of student data, brainstorming likely pitfalls and challenges, and observing and reflecting on a data analysis fishbowl exercise.

**What do you notice when looking at student data?** TLs were given quiet time and were asked to complete a quick-write, through which they were asked to address three prompts: (a) What are the types of things you notice when you are observing examples of students' work? (b) When you are using video data, what categories of information do you look for? (c) What are some of the pitfalls and challenges that happen when teachers look at student work together? After 15 minutes of quiet writing, teachers first shared their ideas with a partner, and then everyone was invited to share collectively with the large group. Jaclyn named the purpose of this exercise—making explicit the learning stance and value for socially constructed knowledge embedded in the process. She stated, "We are trying to use this room to construct our learning so that we can help you facilitate the groups [at your sites]. . . . We want to hear some of the things that you came up with in your group and Chiara is going to take notes for us so we can pull it all together in the end and share with you." Then she invited group input: "What are the kinds of things that you notice when you are looking at student work?" Many teachers offered their ideas:

PATRICIA: You look at the social, their behavior . . . and their attention, their focus, and then you look at content. How well did they attend to the task? Are they able to work through it? And then I also added, what were their challenges?

As seen in the next excerpt of their conversation, Joseph spoke next, qualifying Patricia's input by suggesting that the type of data a person has available limits or

makes available the types of information the person can gather about students' thinking and learning. One of his colleagues, Constance, then contested Joseph's input:

JOSEPH: I would say you can do that if it's a video, if you are looking at somebody's essay or somebody's math assessment . . . you can't get any of those sorts of things. . . . If you have video, it's just like many more facets that you can look at, as opposed to if you just have a written piece of paper that you are analyzing, so what you can see in the data is dependent on what form the data is in.

PATRICIA: I also said for the student work that you can determine the mastery of the objective, but then you can also see areas that you need to scaffold [to guide a] small group the next day.

CONSTANCE: I would like to respectfully disagree with my colleague. . . . I think with some student work, you might be able to tell if they have come across something that is difficult, they will stop, whether it's math or writing and you get very little. . . . I do agree that it is easier to tell with video or with observation, but sometimes you can't tell [what is happening] with actual students [in a video].

Maja built on Joseph's assertion, offering her perspective that video does provide information that examples of students' actual work cannot surface. In her case, video allowed her to see how her students were engaging in close reading techniques during math tests, a process she could not see only by looking at written exams:

MAJA: I think it really depends on what we are looking at, I have had two very different inquiries, one was on group work and then last year, it was on the close reading techniques being taught in math class in order to help students tackle a very complex math test and that would help them improve in their success of it. . . . I think I would agree that video offers that deeper level of what students are thinking, or how did they construct this answer together in a discussion, which sometimes can be missing from the actual hard copy work [where] I can see their completion of the objective. Whereas the video offers *how* did they approach it.

The teachers shared more ideas among themselves. Sheri distinguished between two distinct types of learning goals Maja was interested to see in her students. Claude introduced the importance of looking at students' language and students' self-efficacy (or lack thereof) and the role of classroom supports in these outcomes. Closing off the group sharing, Jaclyn remarked on the importance of naming the skills students display or those desired as learning outcomes in particular classroom activities:

SHERI: One was just a process goal and the other was a content goal, but they were both goals that you could evaluate. The one being how they interacted in the group and the other being whether they completed the assignment.

CLAUDE: I wanted to add that I like to look at the language that they are using, whether it is written or oral . . . you can see if they are accessing something that they did in the classroom or a rich background that they have or if their language is not sufficiently sophisticated . . . so I think the actual language used is very necessary. . . . I also look at what is helping the child and what is not helping . . .

### *Using a Teacher Leadership Network to Support Leadership Development*

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what tools they have . . . what have I done in the classroom to make it accessible, what is helping them be successful, and what is getting in their way.

JACLYN: I think I want to add that one thing that I am trying to do when I am looking at students' work is name the things that I see, or name the skills that students are demonstrating. And if there are some skills that I think are relevant to the task that I don't see, I am trying to name those too.

As evidenced, the teachers discovered the wide range of skills, behaviors, and learning outcomes they *could* analyze in the formative data they collect in classrooms. Jaclyn and Chiara returned to these discoveries throughout the meeting to reinforce the importance of working with teachers to help them articulate inquiry questions, to focus their collection and analysis of data, and to encourage them to name very specific learning goals—both process and content—they want to see students accomplishing in their classrooms.

**Brainstorming pitfalls.** The next experience TLs were guided through was a group brainstorm of the challenges they would face in facilitating teachers to work with student data. This discussion was not meant to overwhelm or paralyze these novice TLs but instead to allow the group to surface common complexities of this work so the TLs would feel less frustrated when they found these challenges emerging for them at their school sites but also because, with awareness, they could potentially prevent them from occurring. Jaclyn set the tone by explaining that such challenges are inherent to the work and continuously navigated by even very experienced TLs such as herself. She spoke out loud about some of the important ideas TLs need to keep in mind when facilitating data conversations:

JACLYN: What do I do with this piece of work? Where do I start? How do I enter in so that the teacher can benefit from this conversation? . . . Given that I don't know the child, given that I don't know what lesson came before, we have very limited meeting time and I don't want to spend the whole time asking a teacher, well, what did you do? And how did this lesson start? And where is this student, tell me about their family, give me all the background that I need. Because by the time the teacher does all this talking, his or her time is up and we haven't even looked at the data. So we want to really help to get past the pitfall of all of the things that we wonder about a child or about a piece of work and really try to jump into the analysis, with the understanding that we don't know all of these things [avoid getting] bogged down in something that is not the data. Like the fact that this child needs an IEP . . . they haven't received services . . . we haven't actually looked at the data, we haven't surfaced what this child knows . . . [you will need to] move forward in these kinds of conversations with all of those things in mind.

Following Jaclyn, several teachers offered challenges they imagined they might face or have encountered as facilitators already. Emmy shared that the conversations can shift from being about the work to just “sharing anecdotes about students.” Building on this, Moira lamented, “I was going to add, teachers tend

to start commiserating about the general challenges of teaching [*laughter erupts around the room*].” Jennifer spoke about the difficulty of shifting teachers into an inquiry stance and stopping them from “stepping in to try to resolve the problem.” Several others worried that teachers too often notice what students are “not doing,” making the strengths-based focus on commenting on children’s work a particular challenge. Many other concerns were put forward, including “not knowing what the students are thinking,” teachers “not feeling safe enough to look at their data honestly,” learning not to be too critical of oneself as a teacher, and the need to develop a “positively critical” professional language to use in challenging and expanding teachers’ thinking without leaving them angry and defensive. On this last point, Claude remarked, “I like the way she said, I would like to respectfully disagree,” to which Joseph concurred, “Because people are so polite and respectful . . . whoever talks first, everybody will just glom onto that, and that will be the subject of the conversation, and then you run out of time and not everybody got to express their own independent thinking.”

**Using a fishbowl to model and reflect on the analysis of video data.** With a panoply of challenges considered, the TLs were then invited to watch a short video clip taken at a local elementary school showing sixth- and seventh-grade students engaging in academic conversations with partners about a book they had been assigned to read. Following the video, Jaclyn and two MTS staff members, Betty and Margarita, sat in the center of the room fishbowl style and modeled a conversation for the TLs to show them an example of how teachers could analyze video data, working together to identify various skills and learning objectives displayed among the students. Following are excerpts of the mock conversation:

JACLYN: The first thing that I noticed is that the conversation flowed really freely. . . . They seemed to have a good grasp of what they were talking about . . . without teacher facilitation, only one student didn’t really say anything, but the other three were having a deep conversation. And I also noticed that there was eye contact to the kid who wasn’t saying anything. . . . I think the group was aware that he hadn’t really contributed, because there was looking at him while they were talking.

BETTY: They also seemed to be building on each other’s comments, responding to each other.

MARGARITA: They had both had really extended talk times. . . . I heard them reference the text, I felt like there was textual evidence often, but not always, and I thought it was interesting that no one ever said, “What makes you say that?”

JACLYN: I noticed that too. . . . I heard a lot of summary, a lot of recall, a lot of assumptions, the one kid was like, “I am predicting,” but I never saw anybody open a book. So I was wondering, how often do they actually open the book to find something that goes along with their recall of evidence?

BETTY: They seemed really connected with the characters. One of the boys said, “Knowing Eric’s attitude” or “If you would ask Eric . . .”

### *Using a Teacher Leadership Network to Support Leadership Development*

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JACLYN: So they kind of, were able to engage with the text in a personal way.

MARGARITA: And she was trying to use the subjective [loud laughter]. When I was watching her, I really wanted to know what this teacher was hoping would happen with this conversation.

After watching this analysis of the video data, the TLs were asked to think about what they noticed about this data conversation: what they noticed about the teachers' conversation, what they observed among the students on the video, and whether any of the pitfalls were witnessed. Chiara reminded everyone that none of them had any background information about the students or about the lesson prior to engaging in this data analysis conversation. She explained, "All we know is that this is a discussion of the book *Tangerine* in sixth and seventh grades. What we want to do as a group is think about what did you see and hear [as you listened to the conversation]?" The teachers had many observations to discuss:

ARIANNA: I noticed they started out with what the children were doing and not what they weren't doing.

LINDA: I heard one person make a point and then another one had learned something that, that the first person had missed and so she described that, but it wasn't like a judge.

PATRICE: I think it was interesting that the participants didn't really know what to look for, but the richness of what they came up with and were able to observe and analyze. I think if I were the teacher of that classroom that would be really valuable to me, just telling me all of these things that they noticed.

BECCA: That's a good point . . . just jump in, take a look, watch, what do you see? What do you notice?

KENDRA: I also think that there was some value in not being able to understand kids very well, as they had to focus on other aspects. There was a lot of noticing about the interactions with the kids because you couldn't quite understand what they were saying.

At this point in the conversation, an MTS staff member, Lesley, commented, "I just have a reflection about how much professional expertise was exhibited here . . . something we really need to say and honor and be aware of . . . there is real professional expertise in the minds of classroom teachers and we ought to notice it." This was followed by the teachers making several more statements:

CAROLINE: I am going to build on that, the participants have raw data and they seem to be making inferences from the raw data, and co-constructing meaning from that.

JOSEPH: All of the three people basically contributed equally, they all had their own view.

MAGGIE: I also noticed that the participants were very controlled in their statements. A lot of “I see,” “I noticed,” “I heard,” “I wondered.”

TENAYA: There is nobody who jumped in and said, “If I was the teacher I would” or “Oh, that’s happened to me.”

RHONDA: I think someone said too, “What is the teacher hoping for?” And I think that is also a helpful thing.

After all of the teachers who wanted to share had chimed in, Jaclyn made a final statement remarking on how helpful it had been for her to utilize the information surfaced in their group brainstorm about what to look for in student data. She stated, “It was helpful for me to have that conversation ahead of time where people were starting to think about categories and features, because as I watched [the video], I was like, let me think about content, let me think about behaviors. . . . Somebody brought up “how do students deal with their challenges?” and so I was kind of looking for what evidence in the video there was of persistence.” She also reminded the teachers what the purpose of this exercise was:

JACLYN: We wanted to model that experience . . . so you could see that you can have a conversation about data, and surface things about the data without having all of the [background] knowledge, and it was not evaluative. We weren’t trying to evaluate the teacher’s lesson or even evaluate the kids. We were just trying to surface what was there for us in the data. . . . It is important to make sure that we are giving rich feedback to teachers . . . [that we] contribute to their learning and move their inquiry forward . . . [to] keep the conversation centered in on the data.

Following this exercise, the teachers watched two more videos and practiced naming what they observed for their colleagues in the large group, listening to and teaching one another, and how to have conversations about data that were supportive but also extended their individual perspectives to consider information they would not have perceived without the feedback of their colleagues.

## **Discussion**

Educating teachers about the use of student data to inform responsive adjustments to their instruction is being increasingly recognized as a promising strategy for achieving more equitable outcomes for children. Given the increasing use of TLs in facilitation roles, we need to understand promising practices for supporting them in learning how to enact these roles effectively. Toward this end, we sought to document the affordances the MTS TLN meetings provided to better understand if and *how* MTS supports TLs in becoming learners who revise and improve their teaching, provide appropriate feedback to others so they can learn, make public the process of their thinking, and model the importance of reflecting on teaching. We documented *how* MTS was providing teachers with affordances to develop as instructional leaders, including the *opportunities* intended to support them in



### *Using a Teacher Leadership Network to Support Leadership Development*

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becoming TLs, teachers' *responses* to these encounters, and the *reciprocal relations* or elements of the environment that influenced and/or supported teachers' opportunities to learn. Specifically, we documented how the TLN meetings (a) offered safe thinking spaces that positioned teachers as intellectual professionals who could socially construct knowledge and learn together, (b) allowed teachers to surface and name the complexities and uncertainties inherent to teaching that would undoubtedly arise as they sought to facilitate learning communities at their school sites, and (c) provided guidance for teachers through a parallel process, that is, modeling for them and supporting them in experiencing firsthand what they would be responsible for enacting and scaffolding with their teaching colleagues.

The TLN meeting was intentionally planned to model for teachers certain valued norms for professional interaction and the dispositions believed to be essential foundations for enacting leadership, including communication that supports colleagues but also challenges and expands their thinking, using an inquiry stance, and deepening teachers' understanding of students' learning. Teachers were guided to have firsthand experiences participating in the discoveries and knowledge construction processes they were encouraged to adapt with their colleagues back at their school sites. This was seen in the "what do you notice when looking at student data?" activity, during which teachers were told that everyone in the room was expected to assume a learning stance and that the teachers would all work together and "use the power of the network" to construct knowledge. Such a message about the value of distributed leadership, where expertise is recognized as stretching across the participants, reinforced the importance of everyone having a valuable contribution to the work at hand. Emphasizing the message to "push one another's thinking forward" invited dissenting opinions to be shared, as seen with the teachers' exchange on the use of video data, where they practiced what it could look like to "respectfully disagree" in professional conversations with their colleagues. The teachers were provided with many spaces to make important discoveries about the same knowledge they were charged with supporting their colleagues to learn. For example, they discovered firsthand that the type of data teachers collect influences what they can learn about their students' thinking and that certain data formats are more conducive to analyzing particular learning goals. They also learned through collaborative dialogue that one source of data can be used to examine many skills and dispositions among students—for example, behavior, attention, content, mastery of an objective, language, self-confidence—however, as one teacher discovered and shared, the linchpin for knowing how to effectively analyze data is starting with identifying student learning goals. Being guided through such important discoveries with facilitators who worked to make visible the intentionality in their thinking and decision-making process ("jumping in and out of the meeting") allowed the teachers to participate in data conversations both as teacher participants and by vicariously imagining themselves as TL facilitators responsible for guiding their colleagues' learning.

When teachers had an opportunity to brainstorm the challenges they were likely to face, the TLN facilitators were reinforcing the inherent complexities of teaching as an uncertain craft and leadership development as a demanding and dynamic process. Jaclyn's admonitions to the teachers that they could not let the challenges they would face (lack of time, background knowledge, data quality) stand in the way of their responsibility to support their colleagues' learning juxtaposed with the pitfall activity modeled to them that their journeys as TLs would not be devoid of missteps and frustrations. However, creating a protected space in which to name and talk about the demands of teaching, where burdens could be cast out to the group as shared responsibilities, is a strategy they can use with teachers to help them feel supported in navigating the hardships of their chosen profession.

Just as Bruner (1983) described scaffolding as a process of setting up a situation to be easy and successful with support and then gradually pulling back and handing off the role as an individual is skillful enough to manage it on his or her own, the TLN offered opportunities for the TLs to be scaffolded in learning how to facilitate productive data conversations. Through ritualized meeting protocols (e.g., welcome, whip around, input, thinking alone, thinking together, and closing) and guided data analysis activities, as seen with the pitfall brainstorming and fishbowl, TLs were provided with scaffolds in the TLN meeting that allowed them to practice and experience success with some of the skills they would be managing on their own back at their school sites. The scaffolds visible in the TLN meeting included opportunities for the TLs to practice using inquiry, strengths-based discourse to discuss students, reflective listening, building on one another's ideas, and the process of "peeling back the onion" and asking questions to deepen their understanding—characteristics of an improving stance in data discussions (Nelson, Slavit, & Deuel, 2012).

These scaffolds were an affordance by creating opportunities for TLs to have their own and their colleagues' professional knowledge highlighted, named, and made visible as central to the process of developing leadership. The fact that the teachers would return to the TLN meetings several times throughout the year meant that they would spiral between having these scaffolds and the experience of close guidance and a shift in agency as supports were withdrawn and they had to assume responsibility for facilitating professional learning communities on their own.

The opportunity for the social construction of knowledge exemplified the reciprocity the TLN meetings afforded. The teachers were guided to learn to think and to communicate in a manner that encouraged them to work collaboratively to articulate, refine, challenge, and extend their ideas. This was the result not of the protocols and activities in isolation but instead of the dynamic interaction between the TLN meeting, the teacher participants, and the interactions that occurred in that particular environment. Creating a thinking space that allowed the teachers to draw on multiple perspectives to make sense of their teaching, their students, and their roles as developing TLs was an important political act. Placing value

### *Using a Teacher Leadership Network to Support Leadership Development*

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on relationship building and diverse perspectives put equity at the center of this model of professional development through recognizing that ethical leadership is commensurate with embodying a learning stance and that teachers' learning is most effectual with ongoing, systematic, collaborative inquiry into their teaching practice.

#### **Limitations of the Study**

It must be noted that although the number of transcript pages is significant (representing 5 hours of teacher conversation), an important limitation of this study is that our data represent only one point in time in the work of this learning community. We recognized a tension between reporting on a more comprehensive analysis of data and representing patterns and themes observed among teachers working in these network meetings over a longer period of time, and such an analysis will be reported in a future manuscript. Teachers' conversations in collaborative inquiry groups are dynamically constituted and highly influenced by such variables as the participants in attendance on a particular day, the protocols used for facilitation, and the purposes framing particular conversations and activities; as such, there is a risk in zooming in on one meeting that our gaze will be critiqued as too reductive, masking the complexities reflected in the interactive experiences and learning trajectories among teachers participating in this learning community. Recognizing that such a sharpened focus is a limitation of the current study, we also believe that an authentic documentation of the "hows" in teacher leadership development is well served by a microexamination that allows a voyeuristic opportunity for readers who want to experience firsthand the conversational turn-taking, the serve and return, of teachers working together to co-construct meaning from student data while simultaneously learning how to claim their voices as TLs.

#### **Conclusion**

Momentum is growing for schools to embrace distributed leadership models whereby principals and teachers share responsibilities for school improvement. For such empowerment models of TL to flourish in schools, power and authority must be redistributed, trusting relationships among faculty must be nurtured, and a collaborative culture must permeate school communities. Such conditions can only be realized in contexts where democratic principles are valued and teachers are provided with time and safe thinking spaces where they are supported to learn and take risks to improve their practice.

Moving teachers into positions of leadership brings hope to the work of schooling because this allows important decisions about teaching and learning to be made by the professionals actually doing the work of guiding student learning. If we want teachers to assume this new leadership role, however, they must be prepared and

supported in doing so. The TLN described in this article is one model with promise for supporting teachers to develop as effective instructional leaders.

## Notes

<sup>1</sup> See <http://millsscholars.org/>.

<sup>2</sup> All names of individuals, schools, and districts are pseudonyms to protect confidentiality.

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## **The Complexities of a Third-Space Partnership in an Urban Teacher Residency**

**By Jori S. Beck**

### **Theoretical Framework**

Urban teacher residency (UTR) programs have been widely endorsed (National Education Association, 2014; Thorpe, 2014) yet the body of literature on these programs has not definitively identified the benefits of UTRs over and above traditional teacher education programs—if any exist. The current study explored how faculty and staff working in one UTR program recruited, prepared, and supported residents within their program. A secondary goal of the study was to explore stakeholder perspectives on this model of teacher preparation. This study was situated within the literature on third-space teacher preparation programs which endorses school-university partnerships as a value-neutral political space for fostering preservice teacher learning.

The notion of the Third Space comes from the work of Homi Bhabha (1994; Rutherford, 1990) in hybridity theory. To Bhabha, the Third Space “displaces the histories that constitute it, and sets up new structures of authority, new political initiatives, which are inadequately understood through received wisdom” (Rutherford, 1990, p. 211). The Third Space is at once political and value neutral, it is a space in which “we may elude the politics of polarity and emerge as the others of our selves” (Bhabha, 1994, p. 39). In teacher education, Zeichner (2010) noted

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### *The Complexities of a Third-Space Partnership*

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the potential for third-space programs to collapse hierarchies between university faculty and school personnel and to reject traditional notions of power, privilege, and knowing in these spaces. This notion was embodied in the work of Miller and Hafner (2008) who studied a community-based teacher education program that was specifically rooted in the work of Paulo Freire on dialogue and collaborative relationships. Despite the explicit mission of the program to promote mutual dependence and benefits, community partners still felt disenfranchised within this program—a testament to the persistence of power dynamics in school-university partnerships and the complexities of creating a third space in teacher education.

The notion of third-space teacher education has been applied directly to early research on UTR programs. In their study of the Newark Montclair Urban Teacher Residency (NMUTR), Klein, Taylor, Onore, Strom and Abrams (2013) identified this program as a deliberate instantiation of the third space. They investigated the development of their UTR program through qualitative methods, and they uncovered the challenges and successes of developing a third-space teacher education program. Because of the situation of the program within a school district, the authors could work closely with school personnel such as administrators to ensure that mentors and teachers had sufficient planning time to foster resident learning. However, this third-space model also provided challenges such as garnering support from university personnel, sustaining the residency post-grant funding, locating intellectual tools for reform work, and encouraging residents in this STEM-focused residency to implement inquiry learning. The authors concluded that, “third-space work is utopian work...It is improvisational in the sense that there are no pre-set meanings, roles, and responsibilities to be filled” (p. 52). I add that these improvisational spaces are enacted differently within respective urban areas because UTRs are responsive to context; therefore, more needs to be learned about how UTR programs operate in these different urban environments.

UTR programs prepare candidates for urban schools during an intensive, year-long experience working in an urban school with a master teacher (Urban Teacher Residency United, 2006). The term “residency” is appropriated from the medical residency model and is a reference to the situated learning that is intended to occur in these programs as a result of their apprenticeship structure and preparation of candidates in cohorts. After their residency year, graduates commit to three years or more of teaching in a specific district while receiving induction support. UTRs are one of the few types of teacher education programs that mandate yearlong, well-supervised student teaching experiences despite calls for implementation of this model that span two decades (Berry, 2001; Darling-Hammond, 2006; NCATE Blue Ribbon Panel, 2010; Sykes, Bird, & Kennedy, 2010; Van Roekel, 2011; Zeichner, 2010; Zimpher & Howey, 2005). Furthermore, UTRs’ commitment to rigorous recruitment processes that aim to identify teachers specifically for urban districts sets them apart from many other teacher education programs. In 2012, the Urban Teacher Residency United (UTRU) Network boasted 400+ residents enrolled in

the 2011-2012 cohort; 100+ training sites in P-12 public and charter schools; and a resident retention rate of 85% after five years for program graduates. Moreover, 86% of residents noted that their residency prepared them to teach in an urban school; 89% of mentor coaches reported that taking on this role improved their own teaching; and 79% of principals felt that being a host school made a positive improvement in school culture. UTRs are a relatively new phenomenon in teacher education and research on UTR programs is an emerging area. Of the studies conducted to date, it is possible to distill a few observations on the structure and processes within some of these programs.

## **Literature Review**

Research on UTR programs has focused on four residencies in the Northeast and Midwest regions of the United States: the NMUTR; the Boston Teacher Residency (BTR), the Academy for Urban School Leadership (AUSL) in Chicago, and the University of Chicago Urban Teacher Education Program (UChicago UTEP). It is important to note the significance of context in each UTR program and how it shapes the learning of teacher candidates. Boggess (2010) studied this contextual preparation in depth in the BTR and the AUSL. Specifically, he questioned how stakeholders in each program defined “teacher quality” and how the organizational structure of each program influenced those meanings. Although both programs required candidates to maintain high expectations for urban students, participants from the BTR and the AUSL cited other qualities that were important for candidates in their programs. For example, because of the BTR’s focus on activism, stakeholders in this site privileged race awareness and teaching for social justice. As a program, the AUSL was more focused on reform and turnaround schools and participants at this site professed a preference for candidates who were accountable and persistent. Thus, exceptional licensure requirements may be appropriate for special settings such as urban education, and the political context may drive the dispositions and skills needed to teach in a particular environment.

Matsko and Hammerness (2013) further explored the notion of specialized teacher preparation in the UChicago UTEP program—another residency. The authors uncovered a layered program in which levels of context were nested, overlapping, and interrelated. The outermost layer was the federal/state policy level which candidates were afforded the opportunity to learn about through their participation in the program. Successive layers included the public school context, the local geographical context, and the local socio-cultural context. The latter two layers, although distinct, sometimes overlapped. The next layer was the district context, and the final layer—at the core of the program—was the school context. Within the UTEP program, a deep understanding of all of these layers was necessary for successful teaching within Chicago Public Schools and UTEP and it was fostered within this residency program. This work provides



### *The Complexities of a Third-Space Partnership*

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additional insight into specialized teacher preparation that occurs within UTRs. Other researchers have investigated the outcomes of UTR programs, thus providing another lens for evaluating residencies.

Papay, West, Fullerton, and Kane (2012) explored the effectiveness of BTR graduates by comparing these individuals to their peers teaching in Boston Public Schools (BPS) who did not graduate from the BTR on the measures of students' test scores in reading and math. Because the sample size in this study was small (n=50) the results are not generalizable, and the measures were limited to student performance in two subject areas; however, this study provides a contextualized picture of how this residency program influences a district. Controlling for years of teaching experience in their regression analysis, the authors found no statistically significant difference among BTR and non-BTR graduates in the content area of English-Language Arts (ELA). In math, however, the results were more nuanced. BTR graduates underperformed in comparison to their non-BTR counterparts by 9% of a standard deviation during their first year as teachers of record. However, by their fourth and fifth years of teaching the BTR graduates were predicted to catch up to and outperform their non-BTR peers and even more veteran colleagues. Thus, the benefits of residency preparation may take years to surface.

In addition to these findings, researchers have discovered that residencies are meeting other needs of urban districts in recruitment and retention. Papay and colleagues (2012) found that the BTR hired a disproportionate share of the district's math and science teachers (62% and 42% respectively), and that BTR candidates tended to be more ethnically diverse—specifically, BTR teachers were 52% less likely to be White than their non-BTR counterparts. In their study of the BTR and the AUSL, Berry et al. (2008) found that in the 2007-2008 cohorts almost 60% of BTR and 32% of AUSL candidates were being prepared to teach in high-need subject areas. Furthermore, 55% of BTR and 57% of AUSL candidates in this cohort were minorities, thus supporting Papay et al.'s findings about the diversity of these teacher candidates. Perhaps most significant for a hard-to-staff, urban school, Papay et al. found that BTR graduates remained in the district at a rate that exceeded that of other hires by 20% after five years. Urban schools may experience up to a 15% annual attrition rate due to teachers moving to other schools or leaving teaching entirely (Ingersoll, 2003). Although BTR graduates commit three years of service to BPS, this study demonstrated that candidates were staying beyond this contractual commitment and thus becoming fixtures in the district. Berry and colleagues' study confirmed these findings as well, and demonstrated that 90% of BTR graduates and 95% of AUSL graduates were teaching after three years in their respective districts. These studies provide evidence that residency preparation may foster teacher retention in urban schools.

Some UTR programs were designed to compete with higher education (Solomon, 2009) while others were specifically created as partnerships between institutions of higher education (IHEs) and school districts (Matsko & Hammerness, 2013). Thus,

UTR programs are interesting for their place in the teacher education continuum between alternate route and traditional teacher education programs (Berry et al., 2008). These innovations warrant deeper investigations into methods and outcomes. The current study sought to explore the following research questions in an effort to provide a rich description of a particular residency program's methods of teacher preparation: (1) How do faculty at one UTR program prepare residents for the classroom? (2) What do faculty identify as the unique elements of the Residency that separate it from traditional teacher preparation programs? (3) How were these elements designed for the Residency? and (4) What do these elements look like in action?

## **Methods**

### **Research Context**

I chose the Lewistown Teacher Residency<sup>1</sup> (LTR) as the unit of analysis for this study because it adhered to various criteria for UTR programs including providing residents with yearlong experiences; tying theory to practice; and building relationships between an IHE and a school district (Urban Teacher Residency United, 2006). Many of these criteria, such as relationship-building between a university and a school district, are also an embodiment of third-space ideologies because of their implicit mission to collapse hierarchies in teacher education and privilege knowledge outside of the university (i.e., practitioner knowledge).

Like all UTR programs, the LTR is a partnership between multiple entities; UTR programs often connect not only IHEs and school districts, but sometimes community agencies and teachers unions as well. The premise behind these partnerships is twofold: not only does it require multiple stakeholders to fortify teacher preparation and retention, but—because learning to teach is a long, complex process—these partnerships are essential in supporting this ongoing learning as well (Urban Teacher Residency United, 2006). The LTR is a partnership between Lewistown Public Schools (LPS), Sinclair University (SU), and the Center for the Development of Education Talent. LPS is predominantly Black (80%) and the majority of its students come from low socioeconomic backgrounds (approximately 76% of K-12 students qualify for free or reduced lunches). SU identifies as an urban, research-intensive university and is located within the city limits of Lewistown. The Center for the Development of Education Talent cultivates teacher leaders and is affiliated with SU.

Because the focus of my study was on the methods of faculty and staff preparing residents for LPS, anyone working within the LTR who had such contact with residents was eligible for participation in my study. However, LPS would not allow me access to schools, administrators, faculty, or staff for this investigation so my unit of analysis was truncated because I was unable to gather data from coaches

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### *The Complexities of a Third-Space Partnership*

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(i.e., cooperating or mentor teachers) who are an integral element of any residency program. This is problematic in a study of a UTR program that explicitly aims to build relationships between a school district and an IHE. My status as an outsider likely caused suspicion and warranted this restriction. However, this outsider status afforded me a degree of objectivity—which is particularly important in studying UTR programs because much of this research has been conducted by stakeholders within these programs (e.g., Klein et al., 2013; Solomon, 2009). As in any research, there are tradeoffs (Patton, 2002) and the inability to access LPS was one limitation of the current study.

At the time of this study, the LTR was preparing its third cohort of residents, and produced only secondary teachers. The LTR is a master's-degree granting program, and recruitment targets candidates who have undergraduate degrees in one of four content areas: English, science, math, or social studies. SU operates a traditional master's-degree granting program alongside the LTR. This program is traditional in the sense that preservice teachers completed only one semester of student teaching rather than a yearlong, clinical experience. Furthermore, these preservice teachers do not commit to teaching specifically in LPS either during their student teaching experience or as teachers of record. SU teacher candidates and LTR residents sometimes completed coursework together; for example, residents took their content-area methods coursework with these teacher candidates. However, because the LTR operated on a cohort model, residents completed 18 credit hours of coursework in this cohort between May and August in ethics and policy; content-area literacy; secondary curriculum; human development and educational psychology; and classroom management. The latter course also continued throughout the year as a seminar for residents. Residents were not in LPS schools on Fridays and they used these days to complete SU coursework and to participate in the classroom management seminar. As a result of this structure, my participants taught both traditional candidates and LTR residents and often compared the two programs and the two types of preservice teachers even though the design of my study was not intentionally comparative.

#### **Research Design and Data Collection**

I employed a case study design (Yin, 2009) for this investigation because my research questions focused on learning more about the unit of analysis in depth: the LTR. I defined the case as LTR faculty and staff perspectives on their program; there were 12 individuals who were eligible for participation in my study and 11 elected to participate. My participants worked in various aspects of the LTR including recruitment and marketing; residency coursework; content-area methods coursework; and field support.

I began to collect data for this study in May 2013 and this process concluded in October 2013. I collected interview data, observation data, and documents in order

to explore my research questions. I designed my interview guide (see Appendix A) around my research questions and goals for this study and used a semi-structured approach to these interviews (Patton, 2002). The interviews ranged from 20 minutes to 86 minutes in length—some participants had just begun working in the LTR and thus were not able to provide as much information as their veteran peers. In all, I collected 11 hours and 52 minutes of audio data, which resulted in 274 pages of transcript data. I included member checks in interviews by summarizing to participants what I thought I heard them relating and asked for their confirmation, elaboration, or correction (Sandelowski, 2008). I also wrote short narratives about each participant based on my data analysis and shared them with participants to elicit this feedback as well. Eight of my 11 participants returned these member checks.

I also conducted observations of an ethics and policy class, Residency workshop, classroom management seminar, Residency seminar, and a content-area methods class. My role in each observation changed but fell along a spectrum from observer to participant (Patton, 2002). For example, during the Residency workshop residents and LTR graduates candidly discussed their classroom management and instructional struggles so I participated by sharing my own struggles from when I taught middle school. In my observation of the content-area methods course, I was strictly an observer who sat in the back of the room. I collected 15 pages of field notes from these observations, and three of my participants reviewed my summaries of these observations and confirmed their accuracy. Finally, I collected 117 pages of documents from the LTR including recruitment materials, candidate selection rubrics, syllabi, and course handouts.

### **Data Analysis**

I conducted four rounds of data analysis. The first part of this process was an initial round of coding, or “pre-coding” (Layder, 1998 cited by Saldaña, 2009), that occurred during verbatim transcription. Pre-coding mainly involved highlighting significant words and phrases. After transcription was complete, I organized data by participant (e.g., interview, observation, and syllabus from a particular participant) and conducted a line-by-line coding of these data in which I used three types of codes: attribute, descriptive, and in vivo coding (Saldaña, 2009). I used attribute codes for background information about each participant because this type of code is useful at this level of organization. Descriptive codes allowed me to locate basic topics in the data that sometimes evolved into larger themes for a particular participant. Finally, in vivo codes<sup>2</sup> were used to identify particular words or phrases used by participants to capture significant ideas. For example, one participant described the program as lacking “synergy” which became a recurring theme in the data. I used these codes to synthesize the data for each individual and compile them into a short narrative that I shared with the appropriate participant for member checking.

***The Complexities of a Third-Space Partnership***

After these two initial rounds of data analysis and member checks, I conducted a cross-case analysis of these narratives for recurring themes (see Table 1). Finally, using the three major themes that emerged from this round of analysis as lenses I returned to the raw data to conduct another round of analysis. I created Word documents for each theme and organized data into each document in order to see how robust each theme was, to aid in further refining explanations within each theme, and to facilitate reporting of my findings. In all, three major themes emerged from the analysis: (1) the ongoing development of the LTR; (2) lack of coherence within the LTR; and (3) the potential of the LTR.

**Findings**

The current study was part of a larger case study on the LTR and other findings will be reported elsewhere. Here I will relate three themes—(1) the ongoing development of the LTR; (2) lack of coherence within the LTR; and (3) the potential of the LTR—with illustrative quotes from participants.

***Ongoing Development: The Evolution of a UTR***

Perhaps due to the novelty of UTR programs, faculty and staff noted that the development of the program was ongoing work and that the LTR was constantly being evaluated and revised through a process of evidence-based decision-making. This theme addressed my first and third research questions, (1) How do faculty at

**Table 1**  
***Recurring Themes from Cross-Case Analysis***

LTR faculty or staff member name	Cohort model is appropriate for residency	Lack of coherence in the LTR	Social justice	Trouble with dual admission process	Ongoing development	Critical pedagogy	Residency hasn't proven itself yet	Selection day is robust	Residency model has its place in teacher preparation	The LTR builds relationships with LPS	Residency can inform traditional teacher preparation
Patrick	X	X	X		X	X		X	X		X
Michael	X	X		X	X			X	X		
Susan	X					X	X				
Sarah	X	X	X	X	X			X			
Lori	X				X		X	X			
James		X	X							X	X
Jessica	X	X	X			X					X
Erica			X			X					
Diana		X	X	X	X		X		X	X	
Barbara		X			X					X	X
Lauren								X			X

one UTR program prepare residents for the classroom? and, (3) How were these elements [those that are unique to the LTR] designed for the LTR? This ongoing development was a priority that was explicitly conveyed by the administration at the LTR and it pervaded the program. Barbara, an SU professor, explained this culture of development and responsiveness,

I'm always impressed at the extent to which the people at the top of that organization...are sincerely interested in continual improvement, are reflective and open to criticism from the outside... We're not always going to agree on the problem, or what the problem is, or what the solution might be, but I know that when I bring something that it'll be followed up on, and that we'll have an honest conversation about it where people are speaking openly and that both sides will walk away rethinking things and considering the other position.

Faculty and staff regularly collected data from program stakeholders including residents and coaches in order to improve the program. Specifically, development was evident in negotiations around candidate admission and coursework as well as essential program elements such as the Community Project. Another explicit area of development was nurturing the nascent relationship between SU and LPS.

Diana, a veteran faculty member at SU, provided some background information regarding why this third-space partnership had been difficult to navigate from a university standpoint,

[T]here's been a *huge* amount of adjustment, because you've got a university structure: credits, hours, procedures. And then you've got a school system. And I really think that the people downstairs in administration have done an excellent job trying to figure out how we can jam our system into what the students need. (original emphasis)

Because it did not identify as an alternate route program, the LTR was not only bound by state requirements for candidate licensure, but also SU requirements for admission and coursework. Thus, this element of the program had to be negotiated in order to accommodate the 14-month, expedited schedule.

The Community Project was an essential element of the LTR that was developed to facilitate residents' entrée into the Lewistown community and LPS. Patrick and James, SU faculty members, spearheaded the Community Project and made major revisions to it after each of the three iterations employed with the cohorts. James described this process, "That's been a lot of trial and error. Which I think that's to be expected in programs like this." Due to the dearth of empirical research on how to support preservice teachers' assimilation into a community, the two faculty members had tried a variety of approaches to this project and relied on resident feedback to amend these efforts. The first cohort of residents did not complete the project because it had been rushed and a partnership with a community organization did not come to fruition. The second cohort of residents balked at their task to conduct home visits. Thus, Patrick and James chose a different approach for the third cohort of residents.

### *The Complexities of a Third-Space Partnership*

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The third iteration of the project was steeped in community, social justice, and critical ethnography. Patrick described the revamped project as, “a wider acceptable range of more modest as well as ambitious experiences in the community.” Residents would be provided with a “menu” of options such as riding the city bus or visiting a local supermarket in order to learn more about Lewistown. The culminating project would be individual resident presentations to the cohort about their school culture. This project would be facilitated by a clear rubric as well as anchoring it into a weekly seminar for the residents. James summed this developmental process, “I feel like we’re stumbling towards something, and then I hope that’s right.”

The final area of development in the LTR was the burgeoning relationship between SU and LPS which was an intentional element in the creation of this residency program. Diana explained one of the functions of this relationship, “*You* [LPS] need prepared teachers, we need to know that we are preparing teachers” (original emphasis). Although all faculty and staff contributed to this relationship-building process, some faculty and staff members were more instrumental in facilitating these relationships than others. Lori, a former LPS teacher and administrator, helped other faculty and staff at the Residency to navigate the sometimes-tricky relationship with a defensive urban school district. Michael, who worked with Lori to provide field support to residents, described how Lori helped him to work with these schools,

[S]he was my cultural attaché. *Literally*. When we went out to the schools, I totally let her take the lead on everything and I learned the ropes. And because she did such a great job at that I’m welcomed in the schools. (original emphasis)

Lori also knew the hierarchy of LPS and how to work within this system to effect change—knowledge that she shared with other faculty and staff at the LTR, “And in [Lewistown] I think it’s probably the most rigid when it comes to hierarchy. You go through the right channels. They don’t appreciate anything less than that.” Thus, human resources such as Lori facilitated some of the relationship building that occurred within this third-space partnership. Regular meetings between program stakeholders were another method that the LTR used to foster these relationships as well. Patrick expressed his thoughts on the LTR’s growth, “I think we *should* become more critical as we grow with it. I think it would be very bad if we didn’t” (original emphasis). It was not merely development and growth, but also critical reflection that spurred innovation in the LTR.

#### ***Lack of Coherence Within the LTR: Complexities of a Third-Space Teacher Preparation Program***

Although the LTR was an opportunity to build relationships between LPS and SU, the third space was also an area of discord—partially due to the number of players involved. This theme answered my fourth research question, What do these elements [those that are unique to the LTR] look like in action? Patrick summed

participant consensus when he explained, “[S]ometimes it just feels like we’re all just doing our little pieces and it doesn’t add up to a whole... I don’t feel always that there’s synergy.” James concurred, “The idea of the program is that we’d be kind of seamlessly integrated and we’re not. And I don’t know that it’s the structure or if it’s just in our implementation, it’s probably a little bit of both.” This dissonance was a result of both organizational barriers as well as conflicting viewpoints within the program.

An SU faculty member, Barbara, addressed the first organizational barrier: institutional differences between a public school system and a university:

When you’re a professor you just have different things that you deal with every day. You’re institutionalized into a different institution. And so it’s hard, but important, to maintain that connection with the struggles of classroom teachers every day. I think it makes us better methods instructors. I mean there’s always this weird kind of gulf between the abstract and the practical, but the gulf isn’t always as big as people perceive it to be.

Discord within the LTR was thus sometimes due simply to perceptions about differences between academics and teachers. Furthermore, even at the SU level there were difficulties in getting faculty members to work in harmony due to scheduling conflicts. Those faculty who taught LTR classes did not all work within the same department and there was not always consistency in communication about the program because they did not attend the same meetings. This program dissonance was further evident in conflicts regarding the dual-admission process and duplicated efforts among faculty and staff.

Because the LTR was bound by both state and SU requirements, candidates had to meet licensure and admissions requirements on assessments such as Praxis I and II (Educational Testing Service, 2014), Graduate Record Examination (GRE; Educational Testing Service, 2014) or, alternatively to the GRE, the Miller Analogies Test (MAT; Pearson Education, Inc., 2011). SU requirements for admission to the teacher licensure program also mandated a minimum grade point average of 3.0 in a particular undergraduate content area. Because the LTR had the explicit mission of preparing teachers for LPS and a social justice focus it was also difficult to find candidates who had appropriate dispositions for this work, and a performance assessment process, called Resident Selection Days, was designed to tease out this temperament. Candidates traveled to Lewistown to participate in these performance assessments which included teaching a mini-lesson to LPS students, a two-on-one interview, a writing activity, and a group discussion activity. Faculty and staff were divided in their feelings about this plethora of admissions requirements, and the crux of the argument seemed to lie in whether academic abilities or non-academic abilities were more important in selecting candidates for the program.

Diana noted that the GPA requirement was a minimum standard and she felt that many of the LTR candidates simply did not meet these requirements despite



### *The Complexities of a Third-Space Partnership*

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the mission of the program to attract the most academically talented candidates to teach in Lewistown. However, other faculty and staff saw the performance assessments as rigorous. Patrick related his feelings on the process,

I do really believe in that many-step process. The teaching and then the peer thing [group discussion], I love all of that. And every time you learn some whole different things coming out of folks when they're with their peers...Honestly I would say that it's the best recruitment process I've ever known...I think it's *so* well thought out... I like the fact that you observe them teaching and then you get that reflection afterward, I do think it's *really* important. (original emphasis)

Other participants, such as Michael and Sarah, expressed similar, positive views of the performance assessments. Other faculty were more tempered in their evaluations. Jessica, an SU professor, expressed, "I love that they teach the few minutes because it's the most *inauthentic* thing...*but* you really get a snapshot of how they improv[ise]" (original emphasis). She felt that the process was helpful despite its somewhat inauthentic nature. James noted a disconnect in the mission of the LTR and the performance assessments,

I applaud the effort to think about what they'll be like in the classroom context, but given that the whole point of the program is that we're set up to take people who have no background in education, I don't know why we evaluate them as teachers.

Barbara noted that the LTR vetting process was "extensive" but did not guarantee an optimal outcome, "You never know who's going to be good." She felt that both the SU and LTR requirements had merit but neither was a surefire way for selecting candidates. This adherence to two sets of admissions requirements resulted in a 2% selectivity rate for LTR admission and cohorts had not exceeded 20 residents at this point in the program—a testament to the difficulty of navigating this dual-admission process.

The third-space partnership also provided the opportunity for faculty and staff to duplicate efforts. For example, as part of an ethics and policy class, the instructor, James, required residents to read about and discuss the history of desegregation in Lewistown. This summer coursework was compressed, and thus time was valuable, and James carefully chose the content to include in this course. During this same time, staff at the LTR coordinated a seminar on the topic of desegregation in Lewistown with a panel of speakers who had experienced these events as teachers and students. James was frustrated by this duplication of efforts,

[I]t's an exciting, weird, and problematic thing that there's two added layers, or partners...that SU and then LPS and [LTR], and it's the [LTR] layer. The SU part's fine, it's the [LTR] layer that, for this kind of stuff, like the kind of bureaucratic part, that gets difficult. Like about who's doing what, and there's duplication of efforts, and I'm sure they're [staff] frustrated. I'm sure they are frustrated with what the professors are doing. And I sometimes feel my toes get stepped on. Everybody's trying to do the best they can.

He further noted that this overlap was unique to the LTR because there were no seminars in the traditional SU program. Thus, the residency model posed new challenges because of its third-space structure.

### ***The Potential of the LTR***

The final theme answered three of my research questions: (1) What do faculty identify as the unique elements of the LTR that separate it from traditional teacher preparation programs? (2) How were these elements designed for the LTR? and (3) What do these elements look like in action? The consensus among faculty and staff was that the partnership between SU and LPS was a distinguishing feature of the program. Furthermore, faculty and staff at this residency thought that they could learn from the innovative structure and mission of their program, but they were uncertain about the efficacy of the model based on their own implementation.

Diana was just one participant who explained that the partnership between her IHE and a public school was a unique aspect of the LTR. She explained, “We’re not adjuncting this out. These are our full-time, tenure-eligible [and tenured] people who are teaching in the program.” For this participant, who had held leadership roles within the university, it was important that the LTR utilized tenure-line faculty to teach in the program because it conveyed their dedication to this relationship and to teacher education. She summed, “It’s a moral commitment.” Barbara also described this aspect of the program as unique and professed SU’s dedication to teacher education generally,

And this is an institution that really cares about teacher education *still*, we’ll see how long we can maintain that with our current pressures to produce academic work, but we do really care about it and we care about improving practice and it gives us an opportunity to try things differently which is great. (original emphasis)

Thus, SU valued both scholarly work as well as teacher preparation and this reward structure afforded faculty the opportunity to be recognized for their work in the LTR. Thus, an important benefit of the third-space partnership was the relationship between a public school district and an IHE.

Faculty and staff were tempered in their views about their program. James noted that it was a “fool’s errand” to identify the best model of teacher preparation, that there were benefits to traditional models of teacher education as well as apprenticeships, and faculty and staff supported this view by elaborating on various innovations and challenges in both of their programs. First of all, faculty and staff expressed the idea that the residency model afforded them opportunities to try out new techniques and structures. Lauren thought that the yearlong apprenticeship model was exemplary and expressed, “I think this is a fantastic program. I would like to see us as a *whole*, in terms of our teacher prep[aration] program, move in that direction” (original emphasis). Barbara was more measured in her response, and noted specific areas of the program that were promising,

### *The Complexities of a Third-Space Partnership*

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I also think the [LTR] program, because we can do some things differently, another hope for the program [traditional SU teacher preparation program] is that it helps us inform how we do things and maybe think about some ways to do some things differently—especially the summer program that they have with them [residents]... It shakes things up a little bit and allows people to do different things and explore things a little differently.

Thus, the expedited summer program was one facet of the LTR that this faculty member saw as novel and potentially informative to the traditional program. Patrick noted that activities and assignments that he used in the LTR program bled over into his teaching in the traditional program at SU—thus indicating the influence of the program at the individual level. For example, he used readings and discussions about race and privilege in his LTR course and he transferred these into his teaching in his traditional SU courses. He expressed, “I am *absolutely* adamant that this [social justice and critical pedagogy] needs to be for everybody” (original emphasis).

Indeed, faculty and staff hoped that the social justice mission of the LTR program would begin to inform their traditional program. Jessica was one proponent of a more pervasive social justice mission in the college of education,

Patrick told me about the LTR, that got me really excited because I was like, “Oh good, social justice, urban, that’s what the whole program needs to be.” So maybe we could look at the [LTR] and bring some of those elements into the whole teacher ed[ucation] program.

Because SU identified as an urban institution, many faculty saw an explicit social justice mission as not only suitable, but essential to their programs. However, feelings about the efficacy of the program overall were inconclusive.

Aside from the innovations which the LTR had introduced to program scheduling and mission and vision, faculty and staff expressed that the LTR was an expensive program that had not yet proven itself to outperform their traditional teacher education program. Susan estimated that it cost approximately \$50,000 to prepare each resident. She noted, “But at least with a *good* regular program, which I think [SU] has, you know that those guys going through that regular program are going to stay twice as long as people going through alternative, shorter programs. So that’s something” (original emphasis). Lori summed participant consensus on the value of the program when she noted, “Right now it’s up in the air to be honest with you.” It seemed as though having two teacher preparation programs, a traditional program and the LTR, was an effective approach for SU and Lewistown.

### **Limitations and Implications**

What are absent from this study are the voices of school personnel working in the LTR: the teachers who played a critical role in fostering resident growth and the administrators who could testify to the benefits and challenges of a third-space

partnership. These perspectives are vital in teacher education research on third-space teacher education programs, and this case study is truncated without their funds of knowledge. The perceptions of veteran teachers on their own growth as a result of their experiences as mentor teachers has been explored elsewhere (Arnold, 2002) and should be taken up within the UTR literature since these programs have an explicit mission to differentiate roles for veteran teachers (Urban Teacher Residency United, 2006). Access to schools is vital in supporting teacher education research and the implications of this access will be discussed in another article. Here, it serves as a limitation of this study.

The current study illuminates the practices, challenges, and successes of one UTR program reinforcing the notion that third-space teacher preparation is improvisational and utopian (Klein et al., 2013). The Council for the Accreditation of Educator Preparation (CAEP) (2013) has mandated that teacher education programs track their own impact regarding P-12 student learning, completer (i.e., graduate) effectiveness, employer satisfaction, and completer satisfaction. The findings of the current study show how such data collection can contribute to ongoing improvement and revitalization of a teacher education program, thus testifying to the importance of regular data collection and evidence-based decision making in teacher education. Specifically, the LTR had systems in place for collecting data from stakeholders such as residents and coaches that informed how they structured their program and provided scaffolding for these individuals. Moreover, this study illuminates the importance of adopting a posture of growth and development in a teacher education program to enable the collection of feedback and to build buy in and support from program members.

Another finding from this study was how the specialized elements of the LTR—such as the Community Project—were piloted and refined throughout the course of the program in an effort to make a contextualized curriculum for the residents. Although the elements of successful field work have been uncovered elsewhere (Beck & Kosnik, 2002; Koerner, Rust, & Baumgartner, 2002), UTR programs warrant special considerations since program graduates are specialized to serve specific, urban populations and this specialized teacher preparation is slowly being uncovered and defined (Bogges, 2010; Matsko & Hammerness, 2013). The current study conveys how another UTR program struggled and succeeded in carving out its own specialized preparation for an urban context. It also supports the findings of these researchers by showing the need for unique program elements to encourage resident assimilation into a city and school district. In the case of the LTR, Lewistown had a specific history of massive and passive resistance to desegregation that warranted special consideration. However, more generally, a specific curriculum for UTR programs may be necessary to foster resident growth and perseverance in urban classrooms and should continue to be investigated and considered.

The current study conveyed that the challenge of coherence in teacher education is still prescient after more than two decades of research on this topic (Ham-

### *The Complexities of a Third-Space Partnership*

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merness, 2006). Indeed, the third-space structure of the LTR seems to introduce new problems for coherence in teacher education because of the number of stakeholders involved in these programs who come from a variety of epistemological backgrounds. Other researchers conducting investigations on coherence in teacher education have found that coherence can be confronted, but not resolved, through program evaluations and corresponding action to address identified weaknesses (Hammerness, 2006). Initial actions include identifying a vision of good teaching and designing coursework and key assignments around this vision (Hammerness, 2006; Matsko & Hammerness, 2013).

The LTR lacked a vision of quality teaching, and what qualified a candidate to teach in LPS. Although Boggess (2010) found that the BTR and the AUSL in Chicago had specific visions of candidate quality based on disposition this was not the case in the LTR. The research on teacher candidates suggests that it is important for program stakeholders to define the outcomes that they would like to see in program completers. For example, it has been found that those candidates who profess a commitment to urban teaching tend to stay in these schools longer than those who do not (Taylor & Frankenburg, 2009). Retention in urban schools has also been tied to demographic information; specifically, Ronfeldt, Reininger, and Kwok (2013) found that Hispanic and Latino teachers professed a greater commitment to working with underserved student populations, and that African American candidates planned to spend fewer years in teaching than their White counterparts. Regarding student learning, Rockoff, Jacob, Kane, and Staiger (2011), in their study of New York City math teachers, found that students learned math best from a teacher who majored in that subject area. Thus, both academic and non-academic abilities may be significant in vetting for quality candidates for UTR programs and “quality” should be clearly defined in order to facilitate candidate selection and may include P-12 student learning as well as candidate retention.

Issues of power, equity, and community in UTR programs should continue to be investigated in order to improve these relationships for all stakeholders—including fostering P-12 student learning. Specifically, of interest to the field may be avenues for facilitating collaboration between teacher educators who work within schools (i.e., veteran teachers) and those who work within university settings (i.e., professors). It is also important to facilitate this collaboration at both the inter-institution and intra-institution levels.

Finally, faculty and staff’s emphasis on their program as a teacher education program—not an alternate route—conveys an innovative structure for teacher preparation that emphasizes the importance of tenure-line faculty as teacher educators. University faculty viewed the program as a commitment to serving the students of LPS and the university structure in this program rewarded faculty for their roles in the LTR. In 1990, Goodlad found that university reward structures did not privilege teaching in colleges of education—a finding that Zeichner (2010) has recently echoed. It is time to restructure teacher education so that faculty in these

programs are rewarded not only for their research, but their work with preservice teachers as well.

The findings from this study on the LTR have implications for practice and research—specifically, the need for a portfolio of pathways into licensure (Berry et al., 2008) as well as a portfolio of research. This variety in licensure routes provides a degree of flexibility that may attract candidates. Regarding a portfolio of research on teacher education, the structure of teacher preparation at SU allowed for comparative studies to be conducted because the LTR operated alongside a traditional program which is an exemplary model for teacher education research. Although the purpose of this study was not to compare traditional teacher education to a UTR program, this site is ripe for research that can inform the field and I suggest that other programs consider operating innovative designs alongside traditional programs in order to facilitate these comparisons and generate knowledge about effective teacher preparation. For decades, teacher educators have failed to compile a body of knowledge that gives insight into the effects and effectiveness of practices. Residency models, operating in the third space, are rare opportunities to uncover the “black box” in teacher education. Yet the complexity of teacher education must be respected in this research and not reduced to simple, linear solutions (Cochran-Smith et al., 2014). Indeed, the findings reported here are a testament to the complexity of teacher education and the importance of continual evaluation and growth. Other researchers (e.g., Cochran-Smith et al., 2014) have put forward frameworks for privileging this complexity which should be applied to teacher education research in earnest. We need to strengthen teacher education by making it more rigorous and complex (Lampert et al., 2013), while simultaneously conveying the wealth of professional knowledge that is needed to be successful in the classroom. UTRs are a bridge in this goal, and we should continue to refine and hone these programs so that we can create a new teacher education profession that serves P-12 students, teacher candidates, community stakeholders, and teacher educators.

## Notes

<sup>1</sup> All names of people and places are pseudonyms.

<sup>2</sup> In vivo codes were originally developed by Strauss (1987).

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## *The Complexities of a Third-Space Partnership*

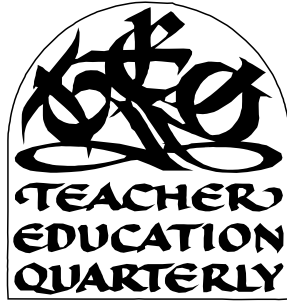
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### **Appendix A**

#### **Interview Guide**

1. Tell me a little bit about your background and how you ended up at SU.
2. Why did you decide to teach in the LTR?
3. What do you see as the unique features of the LTR that separate it from traditional teacher preparation?
4. What is your role within the LTR?
5. How do you design your class and/or seminar/family study project for the residency?
6. How do the residents you work with compare to traditional preservice teachers at SU?
7. What are your thoughts on the candidate selection process?
8. How does the cohort aspect of the program contribute to the overall residency experience? Specifically, does the requirement to live in the loft apartments contribute to the camaraderie of the cohort?
9. Have you worked with and/or met any of the CRCs? What are your thoughts on these individuals?
10. What are your thoughts on the residency in general? The partnership with LPS?
11. What are your thoughts on the partner consortium of urban teacher residencies?
12. If applicable: How have you seen the residency change during the first three years?
13. Demographic information: Doctoral work, years teaching in other programs, age, etc.



## **“I Didn’t Know of a Better Way to Prepare to Teach”: A Case Study of Paired Student Teaching Abroad**

**By Stephanie Behm Cross & Alyssa Hadley Dunn**

It has been a year since Sarah<sup>1</sup> and Brian traveled to Malmo, Sweden, as part of a fellowship through their U.S. teacher preparation program. Their experience was unique and life changing, not only because it occurred in another country but because they completed their student teaching in a paired format. They planned and implemented all of their lessons together, worked with the same mentor teacher, and jointly posed and solved problems in the classroom. Their experience of paired student teaching abroad is the subject of this study.

Research has shown the positive benefits of completing student teaching abroad (Bradfield-Kreider, 1999; Casale-Briannola, 2005; Cushner & Mahon, 2002; Germain, 1998; Mahon & Stachowski, 1990; Marx & Moss, 2011; Zeichner & Melnick, 1996), including increased cultural sensitivity and competence (Fung King Lee, 2011; Mahon & Cushner, 2002; Phillion & Malewski, 2011), confidence (Cruickshank & Westbrook, 2013; Vall & Tennison, 1992), and global awareness (Fung King Lee, 2011; Romano, 2008). Separate literature has illustrated the potential advantages of paired student teaching, whereby two student teachers work with one cooperating teacher in the same classroom and complete the same

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## *Paired Student Teaching Abroad*

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required assignments for their entire practicum experience (e.g., Baker & Milner, 2006; Bullough et al., 2003; Dang, 2013; Dee, 2013; Smith, 2004). However, no empirical research to date combines these two interventions to improve traditional student teaching. Our research on paired student teaching abroad fills the gap in the literature, and our findings demonstrate the possibility of using such a model to improve student teachers' experiences and development. Using data from interviews, videos, lesson plans, written reflections, collaborative journals, and formative and summative assessments from Sarah and Brian's placement in Malmo, we explored one central research question: How does paired student teaching abroad influence preservice teachers' experiences while learning to teach?

## **Review of the Literature**

### ***Student Teaching Experiences***

Most teachers view field-based experiences, and student teaching specifically, as the most valuable and beneficial part of their preparation and suggest that most of what they know comes from firsthand experience (Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2006; Dunn, Donnell, & Stairs, 2010; Feiman-Nemser & Buchmann, 1985). Many policy documents also speak to the importance of student teaching in learning to teach; a recent report from the Council of Chief State School Officers (2012) on transforming educator preparation concluded that "quality of preparation often determines the success a teacher has in the classroom . . . especially in the first few years in their respective roles" (p. 3). What we know for certain is that teacher education, and student teaching specifically, matters.

Despite the assumed importance of field experiences in learning to teach, many stakeholders problematize the traditional model of student teaching. For example, 30 years ago, Feiman-Nemser and Buchmann (1985) described the "cross-purposes pitfall" in teacher education. As the authors explained, K-12 schools are generally not set up as places for teacher education; when preservice teachers enter classrooms, they are confronted with the responsibility of teaching while still learning how to teach. As a result, there are often missed opportunities for learning to teach and for critical reflection on teaching practices. Not much has changed today; the traditional student teaching model frequently does not prepare teachers adequately for their entry into the profession, and many student teachers report feelings of frustration and isolation and engage in "survival only" mode (Darling-Hammond, 2006; Korthagan & Kessels, 1999; Zeichner, 2010).

This survival mode may be related, in part, to the lack of purposeful field placements. For example, as Zeichner and Liston (1996) reported, K-12 field placements are often dictated by cooperating teacher availability and administrative considerations rather than by what is best for teacher learning. The nature of relationships within typical student teaching placements might also add to this survival mode;

Valencia et al. (2009) found that the mentor teachers, university supervisors, and student teachers in their study were facing competing demands and that there were numerous instances of lost opportunities for student teachers to learn to teach. In a related study focused on relationships among student teachers and their mentors, Lane, Lacefield-Parachini, and Isken (2003) found that most mentor–student teacher relationships were “unidirectional, based on the transmission concept of a mentor/mentee relationship where there is just one learner and one teacher” (p. 56).

In response, many teacher education programs have started working closely with local K–12 systems to develop professional development schools aimed at better supporting student teachers in the field (Bohan & Many, 2011). Faculty in other programs are starting to investigate alternate models of student teaching, such as coteaching between mentor teachers and student teachers. Still others have investigated what happens when two student teachers from the same university program are placed within the same classroom to engage in student teaching experiences. This paired student teaching context is discussed in what follows.

Despite the importance placed on student teaching internships, scholars in the field continue to point out that student teaching has a limited research base and suggest more studies focused on preservice teacher (PST) learning throughout student teaching. In 2011, Anderson and Stillman argued that “student teaching remains a ‘black box’; little is known about how student teaching enables (or constrains) PST learning” (p. 446). A more recent review suggested that the field remains unclear on what PSTs learn from student teaching (Anderson & Stillman, 2013).

### ***Paired Student Teaching Placements***

Paired student teaching, or the placement of two student teachers in the same classroom, is a newly researched innovation that has developed to address shortcomings in typical student teaching placements. It also seeks to address the increasing difficulty for field placement personnel and teacher education faculty to secure the number of placements necessary for their teacher candidates (Dee, 2013). In addition, as Gardiner and Robinson (2011) suggested, “preservice teacher preparation is the optimal time to develop skills of and favorable dispositions toward collaboration” (p. 9).

Most studies on paired placements within student teaching and practicum experiences have reported positive results. For example, Bullough et al. (2002, 2003) found that paired student teachers came to appreciate the value of working closely with other teachers when learning to teach and felt that feedback throughout student teaching was more conversational and less one-directional. Their paired student teachers appeared to take more risks related to instructional innovation and also appeared to positively impact student learning. In a follow-up study, Birrell and Bullough (2005) found that seven of the eight student teachers reported that their paired student teaching experience made them prepared and successful in

### *Paired Student Teaching Abroad*

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first-year teaching, specifically in their understanding of the importance of critical feedback, their understanding of students, their openness to new ideas, and their increased confidence.

Other studies have shown similarly positive results. Dee (2013) reported that student teaching pairs found the feedback from their peers highly valuable in their development as new teachers and also added that the paired experience provided emotional security and reduced stress. Baker and Milner (2006) found that paired student teachers learned more from their mentor teachers than did students who taught alone.

Another study focused on paired student teaching at the secondary level reported both strengths and weaknesses to the paired student teaching model (Nokes et al., 2008). The benefits included high levels of confidence and instructional innovation by student teachers; a decrease in time spent on the mundane tasks of teaching, which freed up more time for planning and reflection; and reports of increased teacher attention by the pupils of student teachers. On the other hand, this study also reported tensions between some student teacher pairings.

Other researchers have focused specifically on the collaboration that occurs during paired student teaching. For example, Dang (2013) found that “conflicts within the collaboration, for example, as manifest in the negotiation of teachers’ multiple identities as friends, students and becoming teachers, opened up initial opportunities to learn” (p. 58) and suggested that more attention needs to be paid to the process of collaboration within student teacher pairs. Similarly, Gardiner and Robinson (2011) found that tensions arise from “both the act and perceived value of collaboration” (p. 8) and recommended that teacher educators understand where and why PSTs struggle in their peer relationships. Taken together, the paired student teaching context seems to help push back against student teachers engaging in “survival mode” during their teaching internship. Instead, it calls for increased collaboration and provides more space and time to focus on reflection and learning about teaching.

### ***International Student Teaching Experiences***

Studies focused on student teaching abroad have highlighted that living and teaching abroad increases PSTs’ (inter)cultural awareness, knowledge, sensitivity, and competence, as well as their ability to understand, respect, engage with, and ultimately teach diverse cultural groups (Bradfield-Kreider, 1999; Casale-Briannola, 2005; Cushner & Mahon, 2002; Dunn, Dotson, Cross, Kesner, & Lundahl, 2014; Fung King Lee, 2011; Germain, 1998; Mahon & Stachowski, 1990; Marx & Moss, 2011; Phillion & Malewski, 2011; Vall & Tennison, 1992; Zeichner & Melnick, 1996). Gilson and Martin (2010) found that principals were more likely to hire new teachers with international experience because they felt an overseas placement helped the teachers develop a global worldview; a better understanding of diverse cultures; and increased confidence, ambition, and tolerance. Mahon and

Cushner (2002) concluded that student teaching abroad “can be the catalyst that starts teachers on a path of learning from others: their students, their colleagues, their community, and their world” (p. 7), while other studies have reported that international teaching experiences encourage PSTs to “question all areas of their teaching knowledge, skills, and beliefs” (Cruickshank & Westbrook, 2013, p. 65).

Romano (2008) investigated the emerging critical consciousness of student teachers through a Freirean lens. She argued that students who taught abroad returned to the United States more confident and ready to serve as “cultural workers” in their schools because they had the opportunity to transform their vision of teaching and their own identities. Like Vall and Tennison (1992), Romano (2008) explained that her student teachers, while abroad,

see everything about a school as “new” or “different” . . . providing an invaluable opportunity for the new teacher to really see, to become consciously aware of the physical, the social, and the academic manifestations of the life of a school. (p. 92)

Concurrent with the benefits of global awareness and increased confidence and reflective thinking, student teaching abroad presents some challenges. In addition to culture shock, cited by many researchers as a difficulty understanding and adapting to new cultures (e.g. Germain, 1998), Quezada (2004) identified difficulties including adapting to the curriculum and feeling isolated from peers. What happens, then, when the benefits of international teaching are combined with the opportunity to student teach with a peer? Will the benefits of learning from others, as Mahon and Cushner found, be increased? No research to date, however, has focused on paired international student teaching experiences, and this is therefore the focus of our work.

## **Theoretical Framework**

In addition to examining our participants’ narratives in light of literature on paired student teaching, we analyze their experience through the theoretical lens of Freirean banking versus problem-posing education (Freire, 1990). We argue that, although traditional student teaching placements offer components of problem-posing education, they often reflect a banking model of education. In contrast, we suggest that paired student teaching placements are more closely aligned with problem-posing theory, with a more dialogical and balanced relationship between teacher and student. Freire argued that problem-posing education results not only in more knowledge but in more humanity: “Knowledge emerges only through invention and re-invention, through the restless, impatient continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other” (p. 72).

Freire’s (1990) theory offers new insight into the ways that student teaching placements have long been structured as an apprentice model, whereby the more experienced cooperating/mentor teacher deposits his or her knowledge into the less experienced student teacher. Such a relationship automatically places PSTs in

### *Paired Student Teaching Abroad*

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subordinate roles, even if they have previous experience with content and pedagogy. Like the banking model, mentor teachers are often viewed by the administration and university (even if they do not self-identify as such) as the authorities who “deposit” knowledge about teaching and learning into the PSTs. We are not arguing that all student teaching placements are evidence of the banking model or that such placements do not also contain elements of problem-posing education. Rather, we assert that traditional models of student teaching run the risk, intentionally or not, of serving to dehumanize PSTs by treating them as mere receivers of knowledge rather than as partners in the learning process.

Paired student teaching placements are one way to structure the student teaching experience in a way that better utilizes the prior knowledge of student teachers and views them as co-constructors in their education. As Freire (1990) noted, in a problem-posing relationship, “no one teaches another, nor is anyone self-taught. People teach each other, mediated by the world” (p. 80). We return to Freire’s model in our findings and discussion to analyze how this individual case represents a careful movement away from banking concepts to problem-posing opportunities for student teachers.

## **Methodology**

### ***Participants and Setting***

Sarah and Brian completed their student teaching internship in spring 2012, during their final semester in a middle-grades teacher certification program at a large, urban research university in the southeastern United States. The program focused specifically on preparing teachers for urban settings, and though there were not many opportunities that allowed for student teaching abroad, the university as a whole encouraged international experiences. In fall 2011, Brian and Sarah both applied for an international student teaching fellowship in Sweden, where English is a primary language. Of the six students who applied for the fellowship, they were two of the three students selected to participate. Although Brian and Sarah had taken classes together in previous semesters, they were not friends, nor even acquaintances, before they left.

Sarah was a nontraditional student who was preparing to teach middle school language arts. She was 28 years old during her time in Malmo and, as the oldest international student who lived in the dormitory with other traveling students, became known as “Mama.” Sarah had lived in the same city in the southeastern United States for her entire life, and though she had traveled briefly around Europe in high school and to Turkey to visit her husband’s family in recent years, Sarah had never spent any significant length of time abroad. Brian, like Sarah, was preparing to teach middle school language arts. Brian was 25 years old while in Malmo and had lived in the same southeastern U.S. city as Sarah from the

time he was 3 years old. He had never traveled internationally prior to his trip to Malmo.

To help them prepare for their semester abroad, Brian and Sarah completed online Swedish language modules during the fall semester and also met with the director of international programs at the university several times to finalize travel arrangements and school placements. When they first arrived in Malmo, Brian and Sarah also participated in their host university's weeklong orientation on education trends in Sweden.

Brian and Sarah were both placed at an international school in one of the most diverse cities in Sweden. Malmo,<sup>2</sup> located in the south of Sweden on the border with Denmark, is home to a large immigrant and refugee population. Their school utilized the International Baccalaureate (IB) Curriculum, and all courses were taught in English. Sarah and Brian were placed in the Middle Years Program to work with 11- to 16-year-olds. According to Brian and Sarah, "a large proportion of the students are multilingual with English being their second language. [Our school] is a very multicultural school with students from all over the world." The student teaching structure in Malmo was very similar to structures within the United States (and the structures familiar to Sarah and Brian from fall semester in local U.S. schools), with one student teacher placed with one cooperating teacher for an entire semester. Similar to their peers in the United States, Brian and Sarah would be placed in a middle-grades classroom for most of the semester and would gradually take on more and more teaching responsibilities as the semester progressed.

Brian and Sarah were originally assigned to two different mentor teachers. Brian was initially placed in a mathematics classroom and immediately felt that he was in an "uncomfortable situation." Not only was this not his primary content area but he also did not feel his mentor teacher wanted him there, and he did not support the "dictatorial style" in which the mentor conducted lessons. Owing to these challenges with his first placement teacher and because of the limited availability of other mentor teachers, Brian was eventually placed in Sarah's classroom to work alongside her and her mentor teacher, Patrik. Patrik, a 7-year veteran, had been teaching at the international school for 2 years as an English language arts teacher. According to our participants' joint writing from their Teacher Work Sample (TWS) project, Patrik "has a great rapport with the students. Most students genuinely admire and look up to him. He has a playful, yet appropriate attitude with the students." Though not initially or intentionally placed as a pair, Brian and Sarah's paired student teaching context became part of our data collection and is the focus of this case study.

### ***Data Collection and Analysis***

Through the initial data collection phase, we asked "open questions about phenomena as they occur[ed] in context" (Carter & Little, 2007, p. 1316), which led



### *Paired Student Teaching Abroad*

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us to a specific focus on paired student teaching when two participants specifically mentioned the importance of their partner teacher. Drawing on our theoretical lens of Freirean (Freire, 1990) banking versus problem-posing education, we were particularly interested in capturing our participants' perspectives on paired student teaching abroad. From January through May 2012, one of the authors collected course work artifacts for both Brian and Sarah. These artifacts included (a) collaborative journals that Brian and Sarah used as an ongoing "dialogue" about their student teaching experience ( $n = 14$ ); (b) weekly lesson plans that Brian and Sarah created together ( $n = 6$ ); (c) individual lesson analysis papers that Brian and Sarah each wrote about the lesson-planning process and curriculum ( $n = 6$ ); (d) individual teaching reflections that Brian and Sarah each wrote after they taught ( $n = 8$ ); and (e) a TWS, a 28-page summative assignment in which Brian and Sarah described their placement setting, implemented a curricular unit, analyzed data from pre- and postassessments, and drew conclusions about curriculum and instruction. In addition to these documents, when Brian and Sarah returned to the United States, they participated in separate interviews with one of the authors that lasted approximately 90 minutes. Interviews were semistructured and used a protocol as a conversational guide to discuss their student teaching experience (Rubin & Rubin, 2005). Interviews were audio-recorded and transcribed verbatim for inclusion in the data set. Finally, Brian and Sarah each participated in a follow-up interview in January 2013, 1 year after their original departure to Malmo.

Data analysis began at the end of the spring 2012 semester, at the completion of the first round of data collection. In our analysis of Brian and Sarah's paired student teaching experience, we drew on grounded theory methodology (Glaser & Strauss, 1967). Our goal was to use a variety of qualitative data to develop a theory that might help explain the experiences of student teachers who participate in international paired student teaching. Once all data were collected, we created an online database and two printed binders that included participant artifacts and interview transcripts. These files were reviewed separately by both researchers several times with the aim of making sense of the data and making initial notes about recurrent issues and codes in the data. Shortly after initial coding was complete, we came together to develop overall codes and concepts. Initial codes included, for example, coreflection, compromise, more time to learn about themselves, and increased confidence. We then grouped our codes into seven overall concepts that eventually evolved into three categories, which fed into our final theory related to paired student teaching abroad. Finally, in reporting our findings, we utilized participant voices as much as possible through direct quotations from a variety of data sources.

Throughout the research process, we sought to connect our theoretical framework to the ways in which we collected and analyzed our data. For example, we first chose qualitative methods because we felt this better matched Freire's commitment to dialogue. We then designed an interview protocol using semistructured, open-ended questions, with portions of the interviews being completely unstructured,

versus a more structured protocol, following on Freire's (1990) charge that "if the structure does not permit dialogue, the structure must be changed" (p. 54). Recognizing, too, that language is never neutral, we positioned our participants as subjects rather than as objects, taking care to document the ways in which power dynamics played a role in both what we were asking and how we were asking it.

## **Findings**

On the basis of our analysis of Sarah and Brian's documents and interviews, we found that working as a pair had a positive influence on their student teaching in three concrete ways. First, Sarah and Brian demonstrated an enhanced ability to navigate their new environment and their program requirements. Second, the paired placement gave them frequent and critical opportunities for peer reflection. Finally, they expressed new levels of confidence in themselves and their teaching methods. In the following, we explore these three findings in detail using Freire's notions of humanization and subject voice.

### ***Enhanced Ability to Navigate New Environments and Requirements***

Our first major finding is that working with a peer during student teaching enhanced participants' ability to navigate their new environment and their specific student teaching requirements. As outlined in the literature review, during traditional student teaching, PSTs are expected to successfully navigate the experience with little support or guidance from anyone at the university, leading to feelings of isolation, frustration, and disconnection between university and classroom. However, the addition of another student teacher from the same program positioned Brian and Sarah as conavigators of the student teaching context and the new cultures and policies related to student teaching abroad. More specifically, we argue that paired student teaching enabled Brian and Sarah to more effectively navigate (a) the structures and required assignments of student teaching, (b) the opportunities for trying new teaching methods and exploring the type of teacher they each wanted to be, and (c) the new school policies and overall culture shock related to living abroad.

***Student teaching structures.*** Pairing appeared to provide Brian and Sarah with in-the-moment help and relief during their student teaching. Sarah explained, "If there was a day that I wasn't feeling it or there was a day that Brian wasn't feeling it, we could fall back a little and not talk as much or not interact as much." Both Brian and Sarah referenced taking the lead or filling in when the other was "off" or feeling ill. Additionally, Brian talked extensively about supporting Sarah at the beginning of student teaching, when she was nervous to be in front of the classroom. Sarah was "scared to death," so Brian sometimes stepped in and calmed her nerves. After Sarah and Brian were both comfortable, Brian appreciated "the way that we played off each other" in the classroom.

### *Paired Student Teaching Abroad*

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Working together also helped the pair complete student teaching requirements more efficiently and effectively. According to the program requirements, student teachers had to complete a TWS where they planned, implemented, and reflected lessons around a curricular theme of choice. The pair decided to focus their TWS on a poetry unit that incorporated “critical and creative writing.” Brian and Sarah were able to engage in the required planning and teaching but had the added bonus of doing so collaboratively, a skill critically important for PSTs. This collaborative planning, as Brian explained, meant “we were very proud of what we turned in and what we accomplished,” which he called an “ultimate success.” Brian also referenced their commitment to student teaching and to making things work: “Sarah and I wanted it to work. We were committed to it working. We busted our asses to make it work. . . . We went 100%.”

***Opportunities for experimenting and reflecting.*** Paired student teaching also provided Brian and Sarah the opportunity and support to try new teaching methods and consider the type of teacher they each wanted to be. Brian recalled, “It was just a lot of experimenting and trial and error.” Different from more traditional student teaching placements, in which student teachers have to follow the plans or pacing guides set by the teacher, school, or district, Brian and Sarah were given freedom to try new things in the classroom. As Brian described in his journal, Patrik “gave us complete control over his classroom and let us run with ideas that some teachers may have thought were a little crazy.” While Sarah and Brian did “take advice from Patrik each day,” they appeared to have more time, space, and confidence to communicate with each other and reflect on the type of teacher they each wanted to be. As they explained in their TWS, “as we reflected on our lessons from each day . . . we listened to each other and told each other how we felt about the lessons.” Brian explained, “I feel like it definitely prepared me better than I think it would have [if I were] just teaching by myself in Patrik’s class. I don’t think I would have gained as much out of the experience as I did.” This continuous development, through collaborative thinking and the space to reinvent their practices and themselves, aligns with Freire’s (1990) concept of problem-posing education.

***International school policies and culture shock.*** Finally, Brian and Sarah were able to conavigate new school policies and culture shock related to living abroad. Sarah explained, “I’m glad I was able to navigate with [Brian] because we were both in a new place with a new curriculum. Navigating it together was that much easier.” Brian expressed similar thoughts as he reflected on how difficult it was to figure out student teaching and school requirements while living abroad: “It was literally every possible thing you can think of was just crazy up in air: living situation, working situation, and personal situation.”

An important related consideration is what the student teachers learned in the international setting that they could not or would not have learned by student teaching in the United States. Although it is beyond the scope of this article to

explore this question in depth, the international context was an important feature of their paired student teaching (Dunn et al., 2014). Malmo, as a truly diverse city, offered the possibility of engaging with students from a variety of racial, ethnic, and socioeconomic backgrounds. On one hand, Brian and Sarah's placement at an international school enhanced their opportunities to engage with diverse students; on the other hand, the English-medium feature of the school offered more similarities to U.S. schools than a traditional Swedish school may have offered. Brian and Sarah had the opportunity to teach an IB curriculum, and though there are public IB schools in the United States, neither had interned in one previously. Additionally, working with an IB curriculum with international students offered, as Brian explained, unique insight into the best ways to prepare students to "develop the intellectual, personal, emotional, and social skills needed to successfully live, learn, and work in a rapidly globalizing world." Sarah also mentioned how teaching in Malmo exposed her to a variety of alternative pedagogies, including project-based learning with assessments like videos, papers, and speeches, options that she had not witnessed in U.S. schools because of the increased testing at home. As explored in the following discussion, we argue that the international context was vital to the success of their placement, but we also see the challenges of working within an English-medium, IB school as the placement. Perhaps their learning could have been enhanced even more if they had had experience—even through observations and dialogue with students and teachers—in traditional public schools abroad.

### ***Unique Peer Reflection Experiences***

A second major finding is that paired student teaching abroad allowed our participants to engage in substantial peer reflection. During a traditional internship, student teachers may have the opportunity to reflect privately—through journals, portfolios, or other course work—or with their cooperating teachers. However, the addition of a fellow student teacher offered Sarah and Brian the chance to share their feelings and ideas with each other in unique ways. We found that peer reflection challenged Sarah and Brian to (a) give positive reinforcement and praise, (b) offer constructive criticism and suggestions for improvement, and (c) pose and solve problems together.

Working together helped our participants reflect on their teaching and share their thoughts about successful lessons, activities, and strategies. Sarah remembered that, if there was a particular suggestion that Brian had for a lesson, after they taught it together, she would tell him, "That was a great idea. I think that was amazing. It went really well. The kids really liked it." Conversely, if something did not go well, Sarah and Brian were able to be honest with each other and offer constructive criticism. This finding contradicts previous research (Smith, 2004) that negative feedback from peers is not advisable. We think this was a very important part of Brian and Sarah's relationship, as too often student teachers may only hear

### *Paired Student Teaching Abroad*

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the positive feedback from their cooperating teachers. This “halo effect,” though encouraging at the time, may have a long-term detrimental effect because the students are never told what areas need targeted improvement. However, with Sarah and Brian, their honesty was a vital part of their professional relationship. Sarah explained, “I was never nervous to be critical around him. He was the same, I think. We were just able to be very open with each other, be like, ‘This lesson sucked. This was terrible or this was awesome.’ We were able to do that very openly.”

Brian shared Sarah’s feelings that having a coreflector was an important part of his overall experience. He distinguished Sarah from a typical cooperating teacher who did not have as much “insider” knowledge, because they were both intimately involved in the planning and teaching process. Brian spoke at length about how Sarah was the only one who knew enough to give him in-depth feedback and whom he trusted to be honest:

All my other [mentor] teachers [in previous semesters] tried to put a nice spin on it. Sarah had no reason to do that. She could have been like “Brian, what the hell? Why did you do that?” There was [sic] some times that she did that. . . . Having that person that was with me teaching all the time, she gave me feedback that nobody else could give me. . . . She was the only person that had all the insight.

Finally, serving as peer reflection partners enabled Sarah and Brian to pose and solve problems together. As opposed to a traditional student teaching experience where a single student teacher is moving from challenge to challenge and working independently to “put out fires” in her new classroom, Sarah and Brian were able to think more critically about the struggles and challenges in their setting. For example, Brian noted multiple times that he “learned a lot” about himself, his style of teaching, and pedagogical gaps because Sarah helped him to think in new ways about problems they were having in the classroom. Sarah also mentioned how the pair would tackle challenging students or classroom issues by talking with each other and engaging in an iterative problem-posing and -solving process. As opposed to going to their mentor teacher, Sarah recalled, “I’d go to Brian most of the time . . . cause we were teaching it and we knew what was going on.” She framed problem solving as a “challenge for us” that they would not have “learn[ed] unless we work[ed] it out together.” Furthermore, Sarah commented, “I liked the fact that we could solve problems together. It was definitely . . . part of the experience, figuring it out.” Here we see evidence that Brian and Sarah were engaging in problem-posing education.

#### ***Newly Acquired Skills and Confidence***

A third finding is that paired student teaching abroad helped our participants to acquire new skills and confidence. Sarah and Brian repeatedly stated that they learned “so much” from each other, in part because “it was beneficial to see and work with somebody who had a different teaching style.” As in traditional student

teaching placements, improvements were made in their pedagogical skills. Additionally, we argue that Sarah and Brian also developed interpersonal skills related to communication and compromise, skills that are not commonly developed during solitary student teaching placements but that are fundamental for successful practice.

*Pedagogical skills.* Pedagogically, the pair increased their skills related to content, creativity, and classroom management. Sarah and Brian described content in terms of “ideas” for what to teach, whereas they described “creativity” as the ways they made their ideas more unique and relevant to students’ lives. Sarah believed her strength was content and noted that she brought many ideas to the table, which she was then able to “bounce off” Brian. Brian wrote that working with Sarah helped him “see topics in ways that I may not have seen otherwise.”

Working collaboratively also allowed participants to develop their creativity. For example, Sarah said her lessons would not have been as creative “had it not been for Brian [be]cause he really helped me tap that part of myself and within the classroom.” Sarah described this further in her journal: “I am learning lots of new and creative ideas from Brian. . . . I believe the best lessons have happened when we put our own ideas together.” One creative idea that the pair utilized, at Brian’s suggestion, was using popular songs to teach poetic devices. Students then wrote their own poems and collected them into a portfolio. For critical pedagogues, this may seem more traditional than revolutionary, but compared to the formats in which poetry was traditionally taught (both in Malmo and in their previous placements in the United States), Brian and Sarah found such methods to be liberating for their own practice. They saw these methods not just as adapting the norm but as transforming it in new ways for themselves and their students. Together, Brian and Sarah spoke of their utopia (of an English classroom) and then engaged in a dialogue to find ways to engage in practices consistent with this vision.

Finally, Brian and Sarah believed that their classroom management strategies improved as a result of the pairing. Classroom management is one of the most often cited worries of new PSTs and one of the things they feel is most lacking in their teacher preparation programs (LePage et al., 2005). Working with a peer for their first teaching experience alleviated some of these worries for Sarah and Brian and allowed them to experiment with different ways of managing the classroom. For instance, Sarah stated that “sometimes I would be the bad cop and Brian would be the good cop. We’d really play off each other.” As she explained, they learned to give each other “the look” to signal who was going to assume what role at a particular moment.

Part of classroom management is the focus on individual students, and working as a pair enabled Sarah and Brian to focus their attention on helping individual students who were having personal or academic challenges. This was linked to their ability to coreflect, as mentioned in the previous section, because they shared students and were able to discuss ways to intervene if a particular child was having difficulty.

### *Paired Student Teaching Abroad*

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**Interpersonal skills.** Interpersonally, the pair increased their skills related to communication and compromise, two critical skills for successful teachers (Hargreaves & Fullan, 2012). Working together on a daily basis required that Sarah and Brian learn how to communicate effectively with each other, both outside and inside the classroom. Brian stated that his paired placement helped him with collegial communication, idea sharing, and support. Sarah also believed that working so closely with Brian improved their on-the-spot communication when teaching. She said, “Towards the end, we didn’t really plan who was gonna say what. We were just able to bounce off each other.”

Communication also involved a lot of compromise. Both Sarah and Brian spoke and wrote about compromise on many occasions. For example, Sarah felt that compromise was important for their planning because it helped them have a “better, concrete plan” drawn from their many ideas. She explained further,

We did a lot of compromising, a lot of compromising with what activity we would do and how we would do it, and how it would play out. We would spend—I mean, just because we had so many creative ideas between the two of us, it made it harder to plan. Because we’re, like, “Oh! What about this? No. What about this? Or what about that?” It made it more difficult to plan because there was so much in our heads that we wanted to see happen, but only have 50 minutes. There’s a lot of compromise.

Both Sarah and Brian stated that they “didn’t mind” compromising because they “learned a lot that way.” The strongest lessons that enabled successful teaching of poetry and other topics were derived from a combination of individual ideas that each brought to their planning sessions, plus new ideas that they generated together.

**Confidence.** In addition to pedagogical and interpersonal improvements, we also found that Sarah and Brian’s confidence increased because of their paired placement. Sarah said upon returning to the United States, “My mom said I was a different person over there. I changed, not in a bad way. She just said that ‘you’re more confident in yourself . . . very assertive.’” Sarah also believed that working with Brian and learning creative ideas from him made her “feel more confident.” Thus, for Sarah, student teaching abroad (with Brian) improved both her personal and professional confidence.

Brian also discussed how paired student teaching “helped me gain a lot more confidence.” Brian felt that he “learned a lot about going with your gut and believing in yourself from Sarah.” He elaborated that, when he is teaching,

It’s one of the only times I ever feel totally comfortable with myself even though I don’t really understand myself or anything. . . . I definitely feel like it [paired student teaching] helped me more; it really prepared me. If I was seeking a job here [in the United States], I would feel incredibly well prepared having co-taught this past semester. Honestly.

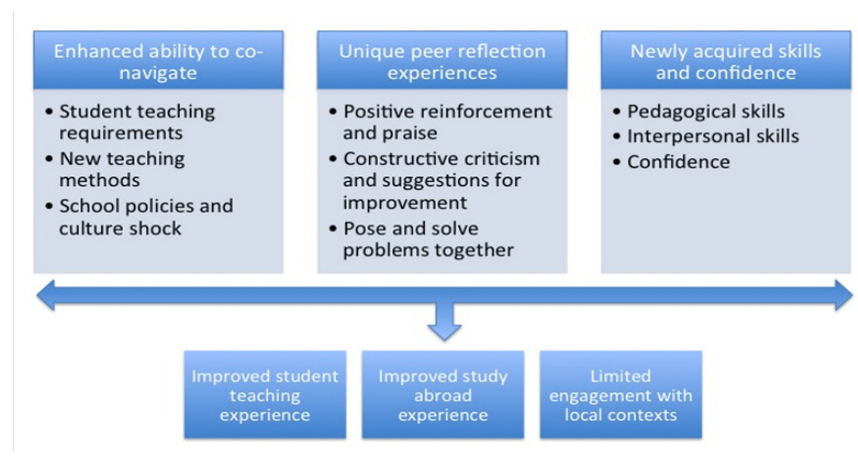
## Discussion

Overall, our findings point to multiple benefits of paired student teaching abroad. Brian and Sarah were able to conavigate program requirements and new school policies as they participated in paired student teaching, while also supporting one another as they experimented with novel teaching methods. Furthermore, while conavigating these experiences, Brian and Sarah engaged in in-depth and sustained peer reflection that may not have been available to them outside of paired student teaching. They offered each other positive reinforcement and constructive criticism while posing and solving problems together. Finally, Brian and Sarah perceived new pedagogical and interpersonal skills as well as increased confidence related to their own teaching.

In addition to discovering that our study confirmed the findings of previous researchers about the benefits of paired placements on the overall student teaching experience (Baker & Milner, 2006; Birrell & Bullough, 2005; Dang, 2013; Dee, 2013; Smith, 2004), we also found unexpected outcomes of the paired format. First, we conclude that the benefits of paired student teaching, as identified earlier, also improved Sarah and Brian's overall study abroad experience. Second, we found our student teachers' enhanced ability to conavigate experiences while teaching abroad and their unique peer reflection experiences may have limited their engagement with the local contexts as they came to rely so heavily on each other. Figure 1 includes an illustration of these ideas.

The benefits of paired student teaching had a positive influence on the study abroad experience. As discussed in the literature review, there are challenges associated with studying abroad, such as culture shock. The paired student teaching

**Figure 1**  
**Outcomes of a Paired Student Teaching Relationship**





### *Paired Student Teaching Abroad*

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relationship mediated these challenges for Sarah and Brian, and it made the study abroad experience more productive and more personally fulfilling. For example, though Brian struggled with some personal challenges related to his self-esteem, working with Sarah on a daily basis and having her support as a conavigator and friend enabled him to overcome these difficulties and feel successful in his placement. For Sarah, who had never been abroad for an extended period and who expressed much predeparture anxiety about being in a new country, having Brian as a work partner seemed to ease her fears and make her more comfortable inside and outside the classroom.

Additionally, our findings revealed that Sarah and Brian were able to co-construct their student teaching as a space of dialogue and balance. As they began working together, Sarah and Brian's paired activities—lesson planning, constant and critical reflection, and daily teaching—led them to be critical thinkers in the Freirean sense. Most significantly, as they learned to teach their students, Sarah and Brian also taught each other, “mediated by the world” (Freire, 1990, p. 80).

Despite these potential benefits, our findings also point to potential missed opportunities for learning. More specifically, a critical analysis of our results left us wondering if our student teachers' enhanced conavigation and peer reflection experiences may have led to limited engagement with their local contexts. For example, Brian mentioned frequently that Sarah was able to provide him with valuable feedback on his teaching and “was the only person that had all that insight.” This leaves us wondering if Brian and Sarah's paired teaching format may have left them overdependent on one another and less likely to search out feedback and professional opinions from other, local insiders. We are left to wonder, in the absence of interaction between the pair and their mentor and other teachers in the school, whether their experiences teaching in an international setting were limited in scope. Could this paired placement be another, albeit different, case of “confined student teaching”? Does paired student teaching limit opportunities for cultural immersion? Despite the positive outcomes of paired student teaching abroad in this case study, we also believe there were missed opportunities for cultural immersion.

### **Implications and Conclusion**

This study suggests that paired student teaching may be a uniquely beneficial structure for student teaching abroad. Paired student teaching has the ability to engage student teachers in the type of collaborative work and peer reflection that are critically important as they learn to teach while far away from supportive family, friends, classmates, and professors. Paired student teaching also appears to mitigate some of the challenges related to teaching abroad. Despite these benefits, paired student teaching abroad may also work to limit engagement with local contexts. We encourage teacher educators to look carefully at their study abroad programs to determine whether paired student teaching might be a viable option

for some study abroad experiences. Though doing so is time consuming, we have found making adaptations to required course syllabi and offering virtual supervisor observations to be well worth the effort. We also encourage teacher educators to consider the qualities and dispositions that would be important for an effective pairing. For example, when considering pairs, might it be important to look for complementary strengths, for students who are open to coplanning, or for students who are naturally reflective? Alternatively, might we consider placing students in paired student teaching placements who need additional work on or support from peers in these areas? Although our study does not get at these issues—Brian and Sarah’s pairing happened naturally and without our help—their overall development and satisfaction point to the importance of a good match.

As teacher educators and researchers, much of our teaching and research focuses on issues of social justice, equity, and teacher autonomy. We feel strongly that one of our goals as teacher educators should be to push PSTs to work collaboratively to pose and solve problems related to issues of diversity and equity in education (Stairs, Donnell, & Dunn, 2011). We suggest that paired student teaching—whether internationally or domestically—may provide space for additional autonomy, while also uniquely positioning student teachers to grapple with important issues related to issues of equity. Areas for future study should include investigations into, for example, how paired student teaching placements in the United States or internationally enable peers to engage in focused study and reflection about issues of diversity, or how paired student teaching abroad in non-English-speaking contexts or non-Western contexts influences participants’ experiences and development. Longitudinal research on the teaching methods, collaboration skills, and reflective habits of educators who have previously engaged in paired student teaching abroad would also be important in demonstrating the long-term impact of this student teaching format. Finally, we suggest that future studies compare the developing pedagogical skills of solitary student teachers teaching abroad to those of paired student teachers.

We see much promise in utilizing paired student teaching abroad as a way to combat the traditional banking models of student teaching that often dominate institutions of teacher education today. The international context provides a unique setting for novice educators to discover themselves and encourage self-reflection in ways that a more familiar setting may not. The additional factor of a paired placement allowed our participants to problem-pose together and to support each other in the delicate process of transformation.

## **Notes**

<sup>1</sup> All names used throughout the manuscript are pseudonyms.

<sup>2</sup> There was an existing partnership between Sarah and Brian’s university and the university in Malmo. The city offered a unique international context but, with many English

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### *Paired Student Teaching Abroad*

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speakers, also made it possible for students to travel abroad if they did not speak another language.

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## **Informing Teacher Education through the Use of Multiple Classroom Observation Instruments**

**By Nancy Dubinski Weber, Hersh C. Waxman,  
Danielle B. Brown, & Larry J. Kelly**

One of the primary goals of the No Child Left Behind Act of 2001 (NCLB) is increasing student achievement by holding schools, districts, and states accountable for academic growth. Under threat of governmental intervention, schools must reach adequate yearly progress, which measures annual standardized test scores and graduation rates to assess how the overall student population, as well as key demographic student groups, performs regarding state academic content standards. In 2009, the Race to the Top legislation placed further pressure on educators to raise achievement as it called for the use of data-driven instructional practices and mandated

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### *The Use of Multiple Classroom Observation Instruments*

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the development of statewide longitudinal data sets to assess teacher effectiveness. Recognizing that simply comparing teachers' standardized test scores, regardless of the student population, does not provide a valid assessment of a specific school's or teacher's effect on student learning, methods such as value-added modeling (VAM) have emerged in an effort to estimate teacher quality based on student improvement from year to year (Doran & Fleischman, 2005). This focus on individual teachers combats the common assumption that teacher effectiveness is consistent across classrooms within a particular school, while neglecting to appreciate the impact of each individual educator, also known as the widget effect (Weisberg, Sexton, Mulhern, & Keeling, 2009). Yet even the most sophisticated VAM techniques do not uncover what actually goes on in effective teachers' classrooms. Only direct classroom observations can reveal the subtle nuances and dynamic intricacies of effective teaching (Kane, Taylor, Tyler, & Wooten, 2011).

Observation research is a valuable method for studying classroom contexts because it allows researchers to collect detailed information about environmental characteristics and student and teacher behaviors within natural and authentic settings. It has been widely used to collect data with respect to student-teacher interactions (Pianta, la Paro, Payne, Cox, & Bradley, 2002), technology integration (Inan, Lowther, Ross, & Strahl, 2010), instructional quality (Stuhlman & Pianta, 2009), and specific teaching and learning behaviors (Waxman, Padrón, Franco-Fuenmayor, & Huang, 2009).

Classroom observation protocols are unique, as they focus on the aspects of teaching that can be reliably observed and assessed (Hamre et al., 2013) for the purpose of describing teachers' instructional practices (Ross, Smith, Alberg, & Lowther, 2004). The data collected from such measures directly inform the improvement of teaching practices (Hill & Grossman, 2013; New Teacher Project, 2013; Ross et al., 2004) based on what is determined to be effective (O'Leary, 2012; Taylor & Tyler, 2012). Furthermore, observations can be triangulated with other data, such as student achievement scores and survey responses, to identify specific teaching practices that lead to positive student outcomes (Raphael, Pressley, & Hohan, 2008), such as learner engagement (Raphael et al., 2008; Ross et al., 2004) and academic achievement (Kane et al., 2011). The incorporation of observation into the evaluation of teaching practices supports our overall understanding of effective teaching (Waxman et al., 2009) and directly responds to NCLB and Race to the Top's push for data-driven practice by allowing for the examination of how those teaching practices relate to student achievement.

### **Classroom Observations and Teacher Evaluation**

Stemming from the national emphasis on academic standards and quality teaching, classroom observations are commonly used as an evidentiary basis for assessing teachers in the field (Kane et al., 2011; New Teacher Project, 2013;

O’Leary, 2012) and as a method for holding them accountable for student learning (Hamre et al., 2013). Meaningful feedback gathered from observational tools encourages both new and experienced teachers to improve their practice (Kane & Staiger, 2012) while offering administrators strong evidence to guide instructional and personnel-related decisions. Of particular interest is the potential for classroom observations to overcome the limitations of the value-added approach to teacher evaluation (e.g., some courses and grade levels are not tested, and some assessments are not designed to measure student growth) to evaluate teacher quality. Classroom observations measure teaching practices and enable the researcher to establish relationships between ratings and student learning (Sartain et al., 2011; Stuhlman & Pianta, 2009).

### **Classroom Observations and Teacher Education**

Within the context of teacher education and preparation, observation practices are often implemented as a program requirement. Candidates are required to observe experienced educators, who serve as models of effective teaching practice. Previous studies have examined how these observational experiences develop an understanding of teaching and learning processes (Starks, Nicholas, & Macdonald, 2012) and of pedagogical content knowledge (Xiong, 2013), in addition to how their benefits are affected by method and type of observation (i.e., on-site vs. video; Pickering & Walsh, 2011).

In addition to content knowledge and candidate quality, clinical, field-based experiences are crucial for future teachers (Learning, 2010). Simply learning about teaching strategies and curriculum in course work is insufficient (Zeichner, 2010); candidates must be given opportunities to apply their knowledge in authentic settings, demonstrating that they can bridge the gap between theory and practice and develop a deeper understanding of the classroom environment (Darling-Hammond, 2006; Snyder, 2012). Teacher educators use a wide range of clinical practice models to develop candidates’ pedagogical skills (e.g., student teaching; Boyd, Grossman, Lankford, Loeb, & Wyckoff, 2009; Greenberg, Pomerance, & Walsh, 2011; coteaching; Von Zastrow, 2009; urban teacher residencies; Berry, Montgomery, & Snyder, 2008; Newman, 2009; Papay, West, Fullerton, & Kane 2012; internships; O’Brien, 2010), but, regardless of the model, teacher education field experiences must provide candidates the opportunity to measure their own success and effectiveness based on student learning outcomes (Snyder, 2012). The experiences of being observed in the classroom and receiving feedback from trained observers can directly facilitate this type of reflection and consequent growth, which is needed for preservice and early-career teachers to reach their potential.

Hundreds of research studies, policy analyses, and anecdotal reports have documented the challenges beginning teachers face (e.g., Veenman, 1984). As they try to keep up with planning and grading loads, manage their classrooms,



### *The Use of Multiple Classroom Observation Instruments*

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and navigate the responsibilities both in and out of the classroom that come with being an educator, early-career teachers transition from “survival mode” to tentative confidence when they begin to turn their attention toward developing their pedagogical skills and growing their toolboxes of teaching methods (Vonk, 1989). Preservice classroom teaching experiences clearly facilitate the growth of important pedagogical skills while easing the transition from candidate to teacher and the development of a professional identity. However, the increased interest in clinical experiences in teacher education has not led to the development of sensitive tools for evaluating these experiences. Existing observation tools have utilized rating scales or checklists rather than systematic observations (Kane, Kerr, & Pianta, 2014; Waxman, Weber, Franco-Fuenmayor, & Rollins, 2015). Furthermore, the tools currently available for classroom observation may not be appropriate for the study of teacher education programming and component outcomes. This potential shortcoming underscores the role that observational data should play in teacher education program development and evaluation. To address this need, the present study tested three existing observation instruments for the purpose of gathering classroom-level data for two distinct groups: (a) teaching candidates engaged in their final clinical field experience as full-responsibility teaching interns and (b) more experienced teachers. By comparing the observed behaviors, interactions, engagement with students, and classroom environments of the two groups, we were able to better understand how the teaching practices of novice teachers differ from those of more experienced educators. The knowledge gleaned from this study can be used to refine teacher education practices to better prepare novices for the realities of teaching.

The purpose of the present study is to examine how first-year secondary teaching interns’ classrooms compare to those of more experienced teachers. Through the simultaneous use of three unique observation instruments, we addressed the following research questions: (a) How do first-year secondary teachers’ classroom behaviors compare to those of more experienced teachers? (b) How do first-year secondary teachers’ students’ behaviors compare to those of more experienced teachers? and (c) How do first-year teachers’ overall classroom environments compare to those of more experienced teachers? Each of the instruments revealed a different perspective of the classroom procedures and combined to provide a comprehensive picture that was not otherwise possible through use of any one instrument alone.

## **Methods**

### ***Participants***

The internship program group consisted of 18 first-year secondary teachers in a field-based internship program that was part of their MEd course work at a large, research-based university in Texas. The internship positions were located at

a variety of middle and high school campuses in both rural and urban areas across Texas. The observations took place during the spring semester, and participants were notified within a week prior to the observations. The group consisted of a stratified random sample of teachers from the program who were teaching within a 100-mile radius of the university.

The comparison group consisted of teachers with approximately 8 years of successful classroom experience who had attended various teacher education programs. All participants in this group volunteered to participate in the study. The 18 members of the comparison group who were included in the study were matched to the intern group according to grade level and content area taught as well as by general school characteristics.

To ensure the validity of the matched samples and the comparison between the internship group and the comparison group, campus makeup information was obtained from the Texas Education Agency's Academic Excellence Indicator System campus reports. Based on the most recent available data, the 2011–2012 reports, an analysis of variance showed that there were no statistically significant differences between the schools where the two groups of participants taught in terms of percentages of economically disadvantaged, limited English proficiency, at-risk, African American, Hispanic, White, and Asian students.

All of the internship group cases were matched with cases from the comparison group. The participants in both groups of the study consisted of the teachers for each of the selected classrooms and three to five students from each classroom. The observed students were randomly chosen in each class by the observer at the beginning of the observation class period (~ 50 minutes) in an effort to closely represent the gender and age makeup of the group. Names and any other identifying information were not collected to preserve the anonymity of the students. The classes ranged from 8th to 12th grade, and the content areas included mathematics, science, social studies, language arts, and foreign language courses.

### **Instruments**

Three different descriptive instruments were used during the observations to collect data about the teachers, the students, and the overall classroom environments.

**Teacher observation instrument.** The teacher observation instrument was adapted from the Teacher Roles Observation Schedule (Waxman, Wang, Lindvall, & Anderson, 1988) for the authors' purposes. It consisted of behaviors and characteristics in the following categories: interactions (e.g., with student(s)—instructional, with student(s)—managerial), setting (e.g., whole class, individual), instructional orientation (e.g., direct instruction, seatwork), nature of interaction (e.g., questioning, explaining), purpose of interaction (e.g., focus on content, redirect student thinking), and instructional technology (e.g., to present material, as a communication tool). At the end of each 30-second observation cycle, the observer checked off each

### *The Use of Multiple Classroom Observation Instruments*

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observed characteristic or activity. At the conclusion of the observed class period, percentages were calculated for each based on how many times it was observed out of the total number of cycles. The mean interrater agreement across all observers was high (.94).

**Student observation instrument.** The student observation instrument was adapted from the Student Behavior Observation Schedule (COS; Waxman et al., 1988) for the authors' purposes. It included characteristics and activities in the following areas: classroom setting (e.g., whole class, individual), manner (on- or off-task), types of engagement (behavioral, cognitive, and affective), interaction (e.g., with teacher-instructional, with other students), activity types (e.g., written assignment, questioning, distracted), educational use of technology (e.g., gather information, word processing), and technology (interactive whiteboard, desktop computer). At the end of each 30-second observation cycle, the observer checked off each observed characteristic or activity. At the conclusion of the observed class period, percentages were calculated for each based on how many times it was observed out of the total number of cycles. The mean interrater agreement across all observers was high (.97).

**Overall classroom observation instrument.** The overall classroom observation instrument was adapted from Part 4 of the Classroom Observation Measure (Ross & Smith, 1996) for the authors' purposes. The instrument addressed behaviors of the teachers and students as well as characteristics of the classroom environment. At the closing of each observation, the observer utilized the instrument by marking the degree to which each behavior and characteristic was observed (1 = "not observed at all," 2 = "some extent [once or twice]," or 3 = "great extent [3 or more times]"). The mean interrater agreement across all observers was high (.89).

#### **Data Collection and Analysis**

All observers who collected data for either group were trained to use each of the three instruments in classroom settings, and Cohen's kappa and interrater reliability showed that all results are reliable. For both groups, observation data were systematically collected by one of seven trained observers over the course of single secondary class periods. The teacher and between three and five students in each classroom were observed by way of time sampling in cycles for 30-second intervals. The number of cycles ranged from 5 to 10, depending on the length of the classes. For each cycle, the observed characteristics and behaviors were checked off, and at the end of the class periods, the observer calculated and documented the percentage of the sampled time that each of those characteristics and behaviors were observed for the individual participants. The observer immediately completed the overall classroom and College and Career Readiness Standards instruments at the end of each observed class period. All classrooms observed in both groups

were focused on content-related lessons that were designed to address specific state-guided curriculum standards.

Multivariate analysis of variance (MANOVA) and follow-up univariate tests were used to analyze the observation data. Each section of each of the three instruments (e.g., nature of interaction, student activity types, and teacher instructional behavior) was independently analyzed. The teacher and student observation analyses were based on the percentage of class time occupied by the specified behaviors, actions, and interactions. The overall classroom analyses addressed the extent to which the teacher and student instructional practices and the classroom environment characteristics were observed (i.e., not observed at all, to some extent, or to a great extent).

## **Results**

### **Teacher Observation**

Table 1 reports the overall findings from the teacher observations. In the internship program classrooms, the predominant setting or context observed was whole-class instruction (59.45%), followed by individualized work (26.67%) and, finally, small-group instruction (7.78%) and dyads (6.47%). In these settings, direct instruction took place about 46.67% of the time, instruction was learner centered 34.44% of the time, and students participated in seatwork 17.78% of the time. The teachers interacted with their students in an instructional context (58.89%), in a managerial context (27.22%), collaboratively (10%), and in a social way (5.56%). The nature of these interactions most often involved explanation (58.33%), cueing or prompting (49.44%), and questioning (32.22%), with the purpose of focusing on content (62.78%) or work product (20%) and connecting content to real-life issues (18.33%). Instructional technology was used approximately 50% of the time, and most often with the purpose of presenting material (38.33%). It should be pointed out that the standard deviations are quite large across observed teacher behaviors and characteristics, with greater variability among first-year teachers than among more experienced teachers.

In the comparison group classrooms, the predominant setting or context observed was whole-class instruction (48.68%), followed by small-group instruction (29.62%) and, finally, individualized work (15.03%) and dyads (6.11%). In these settings, learner-centered instruction took place about 49.63% of the time, direct instruction occurred 41.91% of the time, and students participated in seatwork 5.06% of the time. The teachers interacted with their students in an instructional context (77.87%) and in a managerial context (14.33%). They did not interact with their students at all 6.56% of the time. The nature of the interactions most often involved explanation (69.01%), questioning (40.98%), and cueing or prompting (20.83%), with the purpose of focusing on content (67.88%) or work product (29.89%) and

*The Use of Multiple Classroom Observation Instruments*

**Table I**  
**MANOVA and Analysis of Variance (ANOVA) Results for Teacher Behaviors and Interactions**

	MANOVA df	F	Intern group <sup>a</sup>		Comparison group <sup>a</sup>		ANOVA, F
			M	SD	M	SD	
Interactions	5	2.60*					
No interaction			2.78	8.26	6.56	11.35	
Instructional			58.89	26.10	77.87	20.86	5.78*
Managerial			27.22	16.74	14.33	14.27	6.18*
Social/personal			5.56	15.04	1.79	5.61	
Collaborative			10.00	20.86	1.11	4.71	
Setting	5	1.97					
Whole class			59.45	34.38	48.68	26.22	
Small group (>2 students)			7.78	20.74	29.62	27.09	
Dyads (2 students)			6.47	16.18	6.11	18.52	
Individual			26.67	32.90	15.03	20.81	
Traveling			0.00	0.00	0.56	2.36	
Instructional orientation	4	1.27					
Direct instruction			44.67	35.65	41.91	28.20	
Seatwork			17.78	22.64	5.06	16.56	
Learner centered			34.44	34.17	49.63	29.66	
Other			3.33	7.67	3.39	8.46	
Nature of interaction	9	3.76**					
Questioning			32.22	29.01	40.98	28.49	
Explaining			58.33	27.06	69.01	22.06	
Positive commenting			4.44	8.55	9.23	7.73	
Negative commenting			0.00	0.00	1.17	3.42	
Neutral commenting			5.56	15.04	3.50	6.46	
Listening			3.33	7.67	16.80	16.44	9.92**
Cueing or prompting			49.44	35.39	20.83	28.71	
Modeling/demonstrating			15.00	26.18	12.41	16.87	
Other			5.56	11.49	9.11	13.55	
Purpose of interaction	19	1.86					
Focus on content			62.78	27.40	67.88	27.94	
Focus on process			18.33	22.29	17.84	28.38	
Focus on work product			20.00	14.14	29.89	23.40	
Connect content to other disciplines			1.11	4.71	0.00	0.00	
Connect content to real-life issues			18.33	22.29	24.32	33.01	
Redirect student thinking			2.22	6.47	17.67	19.13	
Show interest in student work			8.89	17.11	9.64	11.61	
Show personal regard for student			5.56	15.03	2.66	5.29	
Encourage students to help each other			2.22	6.47	2.78	9.58	
Encourage students to succeed			11.76	15.90	5.18	9.16	
Encourage students to question			0.00	0.00	3.89	9.79	
Encourage extended responses			8.89	15.68	16.05	22.31	
Encourage self-management			17.22	11.79	5.68	8.79	
Praise student behavior			1.11	4.71	0.00	0.00	
Correct student behavior			13.33	16.80	2.96	8.23	
Correct student performance			0.00	0.00	5.99	10.73	
Assess prior knowledge			11.11	15.68	14.44	28.12	
Assess new knowledge			1.11	4.71	0.44	1.89	
Other			2.22	6.47	6.44	12.99	
Instructional technology	5	4.36**					
Use tech to present material			38.33	33.30	15.57	19.85	6.21*
Assist students with tech			7.78	20.74	1.11	3.23	
Use tech as a communication tool			2.78	11.79	16.40	28.78	
Use tech to create			0.00	0.00	0.56	2.36	
Use tech to access the Internet			1.67	5.14	4.44	9.22	

<sup>a</sup>n = 18; \*\*\*p < .001. \*\*p < .01. \*p < .05.

connecting content to real-life issues (24.32%). Instructional technology was used approximately 38% of the time, most often as a communication tool (38.33%) or to present material (15.57%). It should be pointed out that the standard deviations are quite large across observed teacher behaviors and characteristics, with greater variability among individual teachers in the comparison group.

The MANOVA results reveal a significant multivariate effect for the project (i.e., internship group vs. comparison group) on the Interaction, Nature of Interaction, and Instructional Technology sections of the teacher observation instrument. Follow-up univariate tests revealed that the internship group was observed significantly more often to be (a) interacting with students in a managerial way and (b) using technology to present material than teachers in the comparison group. Conversely, teachers from the comparison group were observed (a) interacting with students in an instructional way and (b) listening significantly more often than the intern group.

### **Student Observation**

Table 2 reports the overall findings from the student observations. In internship group classrooms, the predominant setting or context observed was whole-class instruction (53.1%), followed by individualized or independent work (26.21%) and small-group instruction (12.87%). In these settings, students interacted with their teachers in either an instructional or a managerial context 11.27% of the time and with others (e.g., students) 21.61% of the time. The most prevalent activity that students were observed doing was watching or listening (41.49%). The next most prevalent activities were working on written assignments (35.06%) and reading (27.01%). Students were observed being on-task 77.01% of the time when they were engaged behaviorally (45.75%) or cognitively (34.26%). Interactive whiteboards were used 10.92% of the time, often for gathering information (17.01%). The standard deviations vary widely across the observed student behaviors for the internship group.

In the comparison group classrooms, the predominant setting or context observed was whole-class instruction (49.48%), followed small-group work (26.55%) and individual instruction (13.97%). In these settings, students interacted with their teachers in either an instructional or a managerial context 20.27% of the time and with others (e.g., students) 26.14% of the time. The most prevalent activity that students were observed doing was listening or watching (47.64%). The next most prevalent activities were working on written assignments (65.10%) and discussing (25.43%). Students were observed being on-task 86.90% of the time when they were engaged behaviorally (59.05%) or cognitively (26.91%). Laptop computers were used 18.60% of the time, often for gathering information (8.20%). The standard deviations vary widely across the observed student behaviors for the comparison group.

The MANOVA results reveal a significant multivariate effect for the project (i.e., internship group vs. comparison group) on all sections of the student observation

*The Use of Multiple Classroom Observation Instruments*

**Table 2**  
**MANOVA and ANOVA Results for Student Behaviors and Interactions**

	MANOVA		Intern group <sup>a</sup>		Comparison group <sup>b</sup>		ANOVA, F
	df	F	M	SD	M	SD	
Setting	5	2.70*					
Whole class			53.10	36.10	49.48	32.33	
Small group (>2 students)			12.87	28.77	26.55	31.05	7.59**
Dyads (2 students)			6.44	17.85	8.57	18.55	
Individual			26.21	32.47	13.97	24.91	6.13*
Other			0.00	0.00	1.85	12.88	
Manner	2	3.24*					
On-task			77.01	28.25	86.90	20.48	5.46*
Off-task			17.95	24.58	12.93	20.58	
Types of engagement	3	2.89*					
Behavioral (active response)			45.75	25.68	59.05	36.07	6.87**
Cognitive (expending mental effort)			34.26	24.09	26.91	35.92	
Affective (emotional reaction)			0.23	2.14	0.88	3.49	
Interactions	5	2.76*					
No interaction			67.13	28.40	52.27	33.47	8.46*
With teacher (instructional)			9.20	15.42	13.04	19.22	
With teacher (managerial)			2.07	6.13	7.23	18.02	6.14*
With other students			21.61	24.39	26.14	27.03	
Other			.023	2.14	0.47	2.48	
Activity types	16	2.27**					
Written assignment			35.06	25.28	35.10	28.75	
Assessments			2.30	9.49	1.18	10.30	
Discussing			11.95	26.80	25.43	28.75	8.54**
Reading			27.01	29.69	15.67	21.01	6.58*
Tutoring			0.00	0.00	0.00	0.00	
Working kinesthetically			0.92	4.21	0.51	2.26	
Answering teacher-posed questions			3.56	10.23	11.81	22.09	9.31*
Answering peer-posed questions			1.38	5.32	2.13	7.55	
Questioning			3.10	7.20	4.78	8.11	
Presenting			0.00	0.00	0.18	1.42	
Exploration/inquiry			5.06	14.38	15.81	25.81	10.49***
Using concrete learning materials			8.15	18.40	12.42	21.75	
Listening/watching			41.19	30.56	47.64	29.13	
Distracted			20.00	25.38	13.09	19.88	
Acting out (behavior)			0.69	4.77	0.71	3.29	
No activity/transition			2.99	8.09	2.13	4.53	
Other			4.48	11.98	4.32	11.33	
Educational use of tech.	6	4.99***					
Basic skills/drill/practice			1.38	5.32	2.72	11.38	
Gather information			17.01	23.33	8.20	14.96	6.74**
Organizing/managing/analyzing info			0.69	4.77	4.23	9.22	9.27**
Communicating/displaying findings			0.00	0.00	2.95	9.33	8.74**
Word processing			0.00	0.00	1.64	12.80	
Other			10.99	21.03	7.47	22.76	
Technology	5	16.75***					
Interactive whiteboard			10.92	22.55	4.10	18.20	
Laptop computer			0.00	0.00	18.60	30.19	33.14***
Desktop computer			2.30	15.07	0.00	0.00	
Other			19.89	21.21	19.79	30.80	
Other			0.46	3.01	14.04	23.71	27.97***

<sup>a</sup>n = 87. <sup>b</sup>n = 61.

\*\*\**p* < .001. \*\**p* < .01. \**p* < .05.

instrument, including setting, manner, types of engagement, interactions, activity type, educational use of technology, and technology. Follow-up univariate tests revealed that there were significant differences between internship and comparison group classes on the variables of small-group and individual settings; on-task manner; behavioral engagement; no interaction; managerial interaction with the teacher; discussing; reading; answering teacher-posed questions; exploration or inquiry; using technology to gather information, organize/manage/analyze information, and communicate and display findings; and laptop use. Students from the internship group classes were observed significantly more often (a) working in an individualized setting, (b) not interacting, (c) reading, and (d) gathering information with technology. Conversely, students from comparison group classes were observed significantly more than students from the effective school (a) in a small-group setting, (b) on-task, (c) behaviorally engaged, (d) interacting with the teacher in a managerial context, (e) discussing, (f) answering teacher-posed questions, (g) exploring or inquiring, (h) organizing, managing, and analyzing information, (i) communicating and displaying findings, and (j) using laptop computers.

### **Overall Classroom Observation**

Table 3 reports the overall findings from the classroom observations. In internship group classrooms, the instructional behaviors of the teachers that were observed to the greatest extent included providing feedback (2.72/3), having warm and supportive relationships with students (2.56/3), acting as a coach or facilitator (2.50/3), providing opportunities for problem solving (2.50/3), and asking open-ended questions (2.50/3). The most widely observed student behaviors included engaging in classroom activities (3.00/3), asking questions indicating reflection (2.44/3), taking responsibility or ownership of work (2.39/3), and participating in learner-centered activities (2.39/3). The most commonly noted characteristic of the classroom environment was that the transitions were quick and efficient (2.17/3). The standard deviations for all but two of the variables were less than 1, suggesting there is a relatively small variance among overall environmental characteristics from the internship group classrooms.

In comparison group classrooms, the instructional behaviors of the teachers that were observed to the greatest extent included having warm and supportive relationships with students (2.89/3), sharing intellectual control with students (2.83/3), providing feedback (2.83/3), creating occasions for students to work out content (2.78/3), and distributing feedback evenly (2.67/3). The most widely observed student behaviors included taking responsibility and ownership of work (2.83/3), engaging in classroom activity (2.78/3), participating in learner-centered activities (2.67/3), and offering and defending prior views (2.06/3). The most commonly noted characteristics of the classroom environment were that the transitions were quick and efficient (2.33/3) and that materials and/or manipulatives were available for



*The Use of Multiple Classroom Observation Instruments*

**Table 3**  
**MANOVA and ANOVA Results for Overall Classroom Environment**

	MANOVA df	F	Intern groupa M	SD	Comparison groupa M	SD	ANOVA, F
Instruction (teacher)	29	3.49					
Shared intellectual control with students			2.28	0.83	2.83	0.38	
Created occasions for students to work out content			2.06	1.00	2.78	0.55	
Provided choice and independent decision making			2.06	0.94	2.56	0.70	
Provided diverse ways to experience success			1.56	0.62	2.11	0.76	
Promoted talk that was exploratory, tentative, and hypothetical			2.22	0.88	2.28	0.75	
Encouraged students to learn from other students			1.38	0.79	1.83	0.92	
Built an environment that supported risk taking			2.28	0.83	2.11	0.76	
Used intellectually challenging teaching procedures			1.78	0.65	1.67	0.77	
Used teaching procedures designed to promote quality learning			2.33	0.69	2.11	0.83	
Developed students' awareness of the big picture			2.28	0.89	2.06	0.80	
Raised students' awareness of different aspects of quality learning			1.44	0.62	1.39	0.61	
Promoted assessment as part of the learning process			1.89	0.68	1.50	0.86	
Facilitated students' activities and encourage participation			2.33	0.69	2.50	0.62	
Linked concepts and activities together			2.44	0.62	1.94	0.64	
Applied new concepts to similar situations			1.94	0.80	2.00	0.77	
Acted as coach/facilitator			2.50	0.71	2.61	0.70	
Provided opportunities for problem solving			2.50	0.71	2.17	0.92	
Asked open-ended questions			2.50	0.71	2.56	0.70	
Provided feedback			2.72	0.46	2.83	0.51	
Provided wait time for student responses			2.11	0.83	2.33	0.77	
Integrated technology into the lesson			2.33	0.69	2.00	0.91	
Distributed feedback evenly			2.39	0.70	2.67	0.59	
Scaffolded/redirected student thinking			2.22	0.65	2.61	0.61	
Related concepts to real-world problems/solutions			2.33	0.77	2.33	0.77	
Used a variety of modalities			1.89	0.76	1.72	0.89	
Varied instructional styles			1.94	0.80	1.61	0.78	
Offered encouragement of students' efforts			2.33	0.59	2.22	0.81	
Had warm, supportive relationships with students			2.56	0.62	2.89	0.32	
Linked students' prior knowledge to the current lesson			2.39	0.70	2.61	0.61	
Student	21	2.52*					
Offered and defended prior views			1.72	0.83	2.06	0.87	
Took responsibility/ownership of work			2.39	0.78	2.83	0.50	
Challenged/questioned content			2.22	0.65	1.56	0.70	8.74*
Asked questions indicating reflection			2.44	0.70	2.00	0.69	
Connected ideas and concepts			2.28	0.67	2.00	0.69	
Used different ways to answer			1.50	0.71	1.50	0.71	
Used technology for problem solving/creativity			1.50	0.71	1.67	0.97	
Used technology to learn basic skills			1.28	0.67	1.17	0.51	
Used technology to access the Internet			1.28	0.67	1.33	0.77	
Engaged in classroom activity			3.00	2.54	2.78	0.43	
Activities were learner centered			2.39	0.70	2.67	0.69	
Solved problems using real-life objects in the classroom			1.50	0.86	1.17	0.51	
Engaged in activities that integrated multiple subject areas			1.39	0.50	1.50	0.86	
Freedom of movement and placement during activities			1.61	0.85	2.00	0.84	
Classroom arrangement/ environment	3	1.50					
Materials and/or manipulatives available for hands-on practice			1.72	0.96	2.33	0.91	
Student work was displayed			1.72	0.83	2.17	0.92	
Transitions were quick and efficient			2.17	0.62	2.33	0.69	
Technology was accessible for student use			1.72	0.89	2.06	1.02	

Note.  $n = 18$ . 1 = not observed at all; 2 = some extent (once or twice); 3 = great extent (3 or more times).  
\*\*\* $p < .001$ . \*\* $p < .01$ . \* $p < .05$ .

practice (2.33/3). The standard deviations for all but one variable were less than 1, suggesting that there is a relatively small variance among the overall environmental characteristics from the comparison group classrooms.

The MANOVA results reveal a significant multivariate effect for the project (i.e., internship group vs. comparison group) on the Student section of the overall classroom observation instrument. Follow-up univariate tests revealed that there is a significant difference between internship and comparison group classrooms on the variable of challenged/questioned content, which was observed more often in the internship group classrooms.

Overall and across all three instruments, we found substantial variability within both groups for many of the observed behaviors and environmental aspects. This large variability may be due to school-related factors and student demographic characteristics that impact classroom instruction. Content-related differences may also account for the wide variation with groups.

## **Discussion**

Berliner (2004) pointed out that novice teachers tend to be very literal and rigid in their interpretation of what it takes to be a successful teacher. As experience accumulates, they begin to develop pedagogical intuition and become more flexible and responsive to the needs of their own classrooms (Berliner, 2004). This is consistent with the findings of this study. Overall, the first-year teachers in the internship group were focused on maintaining control of the classroom by requiring individual activity as well as using projectors to present material in a more traditional role as the “sage on the stage.” The limited student interactions organized by the novice teachers resulted in mostly independent learning activities, suggesting that novice teachers do not feel as prepared to manage work groups of various sizes (Melnick & Meister, 2008). Conversely, teachers in the comparison group were observed facilitating more student-centered classes with a diverse range of instructional and learning practices. Their students were more often found to be on-task and behaviorally engaged with their peers in discussions and small-group activities. These findings and existing research assert that experienced teachers feel more confident in their own abilities to deal with a variety of behavioral issues that might arise in the classroom (Melnick & Meister, 2008).

The more experienced teachers in the comparison group were more at ease with classroom management and utilized a larger and more diverse range of teaching and learning strategies, giving the students a greater amount of autonomy and control over their own learning. The implementation of student-centered approaches, such as working together in small groups on inquiry-based activities, suggests that with experience comes a greater understanding of what management tactics work and an expanded collection of instructional strategies. To address this disparity in teaching styles between novice and experienced teachers, and to ensure that first-year teach-

### *The Use of Multiple Classroom Observation Instruments*

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ers feel better prepared and more at ease, teacher training may need to focus more on classroom management and instructional technology integration techniques.

The simultaneous use of multiple observation tools to examine several facets of the classroom environment supplied a rich, multidimensional conceptualization of the student–teacher dynamics for both groups. In this case, the different systematic instruments substantiated and expounded on each other, validating their respective findings. By dividing the focus of the observations between the three areas, teachers, students, and classroom environments, we were able to gain deeper insight into the dynamics of the observed classrooms than would have been possible with a single instrument. By using multiple observation protocols to study the classrooms of both novice and experienced teachers, we were able to discern differences in pedagogy and classroom environment that would not have been evident via other data collection methods. It would be prudent to extend this line of research in the future by observing more teachers who fall into each category to build a more robust database with greater reliability.

To effectively prepare teaching candidates for a smooth transition into the profession, teacher education programs should provide the knowledge and nurture the skills and dispositions of successful experienced teachers (Melnick & Meister, 2008). To do so, we must gain an understanding of the gaps in these areas between novice and experienced teachers. By conducting multifaceted observations of both groups, we have taken steps toward developing that understanding.

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### *The Use of Multiple Classroom Observation Instruments*

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Karen Lafferty, Claremont Graduate University & San Diego State University (2018)  
Zaida McCall-Perez, Holy Names University (2016)  
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The California Council on Teacher Education (CCTE) invites submission of proposals which address: (1) Research related to teacher education, including policy issues, classroom-based issues, teacher effectiveness, or other related topics; (2) Projects or programs reflecting best practice; and (3) Other innovative sessions related to teacher education. Proposals are invited for several diverse formats: presentations, roundtables, demonstrations, interactive sessions, and poster sessions.

**General Procedures:** CCTE is interested in receiving papers from faculty directly involved in teacher education programs, school district personnel engaged in teacher development efforts, and graduate students conducting research related to teacher education.

**How To Submit Proposals:** You must submit proposals electronically as follows: Submit (a) an email file cover sheet listing the names, affiliations, addresses, work and home telephone numbers, and email addresses, along with requested audiovisual equipment; and (b) an email file attachment (preferably in Microsoft WORD or Microsoft Office) of a maximum 3-page, single-spaced proposal without names of the presenters. Proposals should be e-mailed to: [hansenl@uci.edu](mailto:hansenl@uci.edu)

**Content of the Proposal:** Include the following: A brief overview of the study/project/program session including purpose/objectives, theoretical framework, methods, data source, results/conclusions/points of view, and significance to the field of teacher education. Indicate clearly whether the proposal is for a presentation format, a roundtable discussion format, or an interactive format, and describe how the format will be carried out.

**Criteria for Selection:** The criteria are: the proposal contributes to the knowledge base of preservice and inservice teacher education; the proposal is methodologically or theoretically sound; the proposal format is well organized and clearly described; and the proposal clearly states its significance for teacher educators.

**Upcoming Deadlines:** The deadline for proposals for spring conferences is January 15 of the year of the conference. The deadline for proposals for fall conferences is August 1 of the year of the conference.

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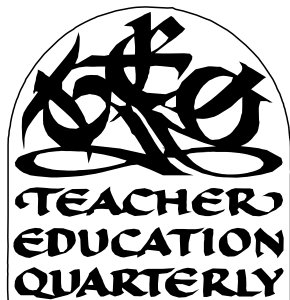
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