

## Learning to Attend to Culturally and Linguistically Diverse Learners through Teacher Inquiry in Teacher Education

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# **Learning to Attend to Culturally and Linguistically Diverse Learners through Teacher Inquiry in Teacher Education**

## **Structured Abstract**

### **Background/Context:**

Learning to meet students' needs challenges new teachers often focused on procedures, management, materials, and curriculum. To avoid this development pattern, student teachers (STs) need opportunities to concentrate especially on needs of culturally and linguistically diverse (CLD) students. Teacher inquiry (TI) holds promise as one such opportunity.

### **Purpose/Objective/Research Question/Focus of Study:**

We sought to understand how STs in a teacher credential program with a history of attention to diverse learners were learning about their CLD students through TI.

### **Research Design:**

We examined data collected from 80 STs over a six-year period, including 80 TIs; STs' data analysis field memos; questionnaires with reflections on TI processes and products; taped ST peer discussions and conferences with instructor. Data also documented TI instruction, classroom culture, and opportunities to develop learning related to conducting TI. Drawing on research and theory, we developed, tested, and used a rubric of 17 indicators of attention to CLD learners, as a means to examine the range of ways and extent to which STs attended to CLD students through TI.

### **Findings/Results:**

STs took actions of various kinds to learn about diverse students: researching contexts and histories; examining student work and performance at full-class, subgroup, and individual levels; and asking and listening beneath the surface to students' reasoning, attitudes, beliefs, and concerns about school learning and other issues. Various assessment and inquiry tools supported the process, helping STs develop data literacy to attend to CLD learners. However, TI elements were used to varying degrees, in various ways, and with varying levels of success. Two cases illustrate the range of TI tools STs used to learn about their CLD learners, to generate data and evidence about learning, and to act in ways responsive to what they learned about students.

### **Conclusions/Recommendations:**

Those interested in studying multiple STs' inquiries for attention to CLD learners may need to develop frames and analytic methods to examine a corpus of cases. This study was grounded in an assumption that such crosscutting analyses accumulate knowledge to disseminate to larger audiences, challenging conceptions that values of TI are purely local, serving only those directly involved.

## **Learning to Attend to Culturally and Linguistically Diverse Learners through Teacher Inquiry in Teacher Education**

Teacher inquiry can help focus attention on individual student learners by allowing a teacher to compare data among individual students, giving a clearer, organized format in which they can observe growth and improvement or a decline in performance. In my own project, I observed lower performance among specific students concurrent with assignments in which instructions may have been difficult to decode for English learners or students with disabilities. (Tracey, Preservice English Language Arts Teacher)

Tracey is reflecting on inquiry she conducted with 10<sup>th</sup> graders as a student teacher (ST). Tracey's teaching placement was in a high poverty high school of 87% students of color, about equal numbers Latino and African American, slightly more Asian of varying ethnicity, and many English language learners (ELLs) with Spanish the dominant among many first languages. Tracey's remarks exemplify countless reports we have collected from White STs such as Tracey and STs of color on how teacher inquiry (TI) sharpens a focus on individual learners and supports learning to better serve culturally and linguistically diverse (CLD) students. As classrooms grow increasingly diverse, the need for teachers to deeply examine and understand students' experiences and learning grows more critical. Among approaches teacher education (TE) has used, TI holds promise to deepen knowledge, skills, and dispositions for teaching CLD learners.

TI uses intentional, systematic effort to understand and reform teaching and schools (Cochran-Smith & Lytle, 2009; Fecho & Allen, 2003). TI may foster learning to teach CLD students effectively. Little work, however, has treated knowledge constructed in TI as warranting analysis (Zeichner, 2009) or useful to inform a knowledge base of effective teaching (Cochran-Smith & Lytle, 2009). In TE, reports on inquiry tend to document tangible course designs and TI products instead of analyzing the inquiry process as it develops (Gore & Zeichner, 1991; Grossman, 2005; Price, 2001; Valli et al., 2006). Evidence of values and outcomes of inquiry in TE remains slim (Grossman, 2005), at best exploratory (Darling-Hammond & Bransford, 2005).

The present study (from which Tracey's remarks are drawn) addresses this dearth of attention, with process and product data from 80 ten-week TIs in secondary English language arts (ELA) and English language development (ELD) from a six-year period. TI was a capstone in a TE program that infused attention to teaching CLD learners, focused especially on ELLs. TIs were conducted in highly diverse, mostly high poverty urban and rural schools in northern California. We asked this research question: How are STs learning about their CLD learners through inquiry?

### **Framework**

#### **The Challenge of Learning to Focus on Learners**

Challenges of learning to teach CLD students add to a longstanding new-teacher pattern of focusing on self-image, procedures, and management, from self, to curriculum, to students (Fuller, 1969; Kagan, 1992). Though such stage models are challenged on many grounds (Athanasios & Achinstein, 2003; D'Alba & Sandberg, 2006; Levin, Hammer, & Coffey, 2009), they get invoked to argue that TE should focus on predictable concerns (e.g., Kagan, 1992) and less on instructional problem solving and learner-focused issues. Focused early attention to students and their learning may disrupt the pattern, particularly important as STs with greater learner-centered

orientation show greater interest in students and outcomes (Dunn & Rakes, 2009). Also, students in learner-centered classes are more likely to be academically successful than those in traditional teacher-centered, lecture-oriented, one method-for-all classes (McCombs & Whisler, 1997).

However, challenges persist for new teachers in developing learner-centeredness. These include developing the ability to diagnose and respond to learning challenges and providing a context and purpose for learning (Kilbourn & Roberts, 1991); mining moments for learning potential and gauging student time needed to figure things out (Tharp & Gallimore, 1989); and learning to scaffold to make course content accessible and meaningful (Grossman, 1990). Trying to meet learning standards--often with little guidance--leaves many new teachers feeling "lost at sea" (Kauffman, Johnson, Kardos, Liu, & Peske, 2002). New teachers also get caught in the challenge of navigating a climate of intimidation by assessment (Stiggins, 1999).

Despite these challenges, learner-centeredness can be developed. TE methods can help STs anticipate students' challenges with course content (Grossman, 1990). Attention to student reasoning while teaching and analysis of student work can lead to a focus on student thinking (Levin, Hammer, & Coffey, 2009). Mentoring can focus STs and new teachers on pupil learning (Parker-Katz & Bay, 2008), assessing individual student learning (Athanases & Achinstein, 2003), and equitable learning opportunities and achievement (Achinstein & Athanases, 2005).

### **Knowledge for Learning to Teach Diverse Learners**

In highly diverse schools, teachers need to focus on individual learners but also develop cultural and linguistic knowledge to foster learning. This requires general knowledge of learners (Shulman, 1987) and pedagogical learner knowledge (PLK) (Grimmet & MacKinnon, 1992). PLK includes knowledge of cultural, social, family backgrounds; ability to interpret properly learners' words and actions; and effective support for cognitive, social, physical, and psychological development (Darling-Hammond, 1998). PLK includes interacting "rigorously and supportively with learners" (Grimmet & MacKinnon, 1992, p. 387) and adapting and reconstructing contexts for specific learners and student groups (Athanases, 1993). Developing PLK is critical for work with ELLs, as U.S. teachers increasingly teach these students yet report inadequate preparation to do so (Darling-Hammond, Chung, & Frelow, 2002; Gándara, Maxwell-Jolly, & Driscoll, 2005).

Many TE programs prepare teachers to teach CLD students. Efforts include recruiting and supporting teachers of color (Bennett, 2002; Irvine, 2003) and fostering a social justice stance (Cochran-Smith, 1995; Darling-Hammond, French, & Garcia-Lopez, 2002; Quartz & TEP Research Group, 2003; McDonald, 2005). Others include culturally competent pedagogy (Ladson-Billings, 2001), linguistically responsive pedagogy (Lucas, Villegas, & Freedson-Gonzalez, 2008), and advocating for ELLs (Athanases & de Oliveira, 2011). Efforts also include book groups (Florio-Ruane, 2001); increasingly diverse yearlong teaching placements (Darling-Hammond et al., 2002); and work with CLD youth in out-of-school settings (Irvine, 2003). Efforts have achieved mixed results. A mismatch in teacher and student background may impede work for those adopting deficit perspectives on lower-SES and non-native English speakers (Garcia, 1996). Impediments include dysconscious racism (King, 1991); inadequate critical reflection on biases (Irvine, 2003); uneven preparation to enact a social justice stance with CLD students (McDonald, 2005); and teaching placements with few opportunities to teach ELLs (Lucas & Grinberg, 2008; Merino, 1999).

## Teacher Inquiry and Data Literacy to Promote Learning to Focus on Diverse Learners

Among promising methods, TI may facilitate a sharpened focus on learners within specific contexts (Cochran-Smith & Lytle, 2009; Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005). TI typically includes positioning practitioner as researcher rather than object of study, collaboration of participants in formal or informal inquiry communities, systematicity in gathering and analyzing data, and development of an inquiry stance (Cochran-Smith & Lytle, 2009; Fecho & Allen, 2003; Gore & Zeichner, 1992; Goswami, Lewis, Rutherford, & Waff, 2009; Valli et al., 2006). TI begins in “problems and contexts of practice...and in the ways practitioners collaboratively theorize, study, and act on those problems in the best interests of the learning and life chances of students and their communities” (Cochran-Smith & Lytle, p. 123). New teachers need facilitated activity to understand and act on context-specific needs of diverse learners (Shulman, 1987; Putnam & Borko, 1996). TI offers opportunity to jumpstart STs’ capacity to observe patterns in performance, ask questions about learning, and attend to CLD learners’ needs.

Stage models of teacher learning and mechanistic models of TE cast the ST as unprepared to conduct rigorous student-focused inquiry. However, activity theory provides a framework of tools that support learners in social contexts of learning. These include *conceptual* tools such as principles, frameworks, and heuristics that organize a learner’s understanding, as well as *practical* tools such as strategies, methods, and practices that support the learner through immediate utility (Grossman, Smagorinsky, & Valencia, 1999; Grossman, Valencia, & Evans, 2000). This activity framework relates to arguments that professionals learn through abstract generalizations from practice but need opportunities to develop embodied understanding through deep engagements with the richness and nuances of particular learning situations (D’All Alba & Sandberg, 2006). TI may promote such embodied understanding of teaching CLD learners. Inquiry during TE is conducted in activity settings of TE coursework and a student teaching placement class, is guided by a TE instructor, and may be mediated by conceptual and practical tools to guide and support the inquiry process. Also, inquiry often is situated in cohort structures, supported by ST peers.

TI is grounded in perspectives on learning through action and reflection (Dewey, 1934, 2005; Schön, 1983). As teachers conduct inquiry, tools and the data they generate can prompt reflection on teaching and learning. Attending closely to student learning includes pattern-finding. This is a process not altogether natural to teachers, who may need analytic tools to promote conscious understanding that fosters logical ordering and coherent framing to deeply understand a variety of similar situations (Korthagen, 2010). STs in particular need scaffolding (Wood, Bruner, & Ross, 1976) to increase success with attending to pattern-finding and the learning of CLD students. The structure of conducting inquiry may serve as one such scaffold.

Inquiry may, in part, support such learning through development of data literacy, capacity to understand how to generate, interpret, and use data in teaching (Earl, 2005; Popham, 2008; Stiggins, 1991; Schield, 2005). Standardized test scores typically are the primary dataset used to evaluate students, schools, and districts, but data literate educators recognize that multiple data sources enable a more balanced understanding of student achievement, including “student work, teacher anecdotal notes, student projects, demographic data, criterion referenced tests, portfolios, progress monitoring, intervention data, and so forth” (Jacobs, Gregory, Hoppey, & Yendol-Hoppey, 2009, p. 42). A data literate educator can generate data-based questions, select and evaluate data to answer questions, and develop inferences and explanations based on interpretations of data. The range of forms of data also reflects the TI data collection toolkit.

## **Studies of Teacher Inquiry to Focus on Diverse Learners**

Experienced teachers have documented ways TI enabled them to learn about their CLD students. Prompted by African American students' belief that a poem by an African American poet presented stereotypical dialect and made fun of African American speech, Fecho (2004), a White educator, engaged students in inquiry on language and power. Ongoing inquiry enabled him to learn about language and diversity through students' perspectives. Teachers in U.S. urban settings conducted mentored inquiry on diversity issues in teaching as part of a group project (Freedman, Simons, Kalnin, Casareno, & The M-CLASS Teams, 1999). Project reports featured, for example, learning about an ELL student's writing needs and development (Lew, 1999) and learning ways Black males felt their knowledge was not honored in school and how Black teachers pushed them harder while White teachers coddled them with low expectations (Shakespeare, 1999).

Recent work documents parallel attention in TE. Dana, Yendol-Hoppey, and Snow-Gerono (2006) found a "focus on a particular child may be a developmentally appropriate place to begin cultivating an inquiry stance toward teaching" (p. 64). In their study, one ST, Amy, focused on the rapidly developing oral language of an energetic ELL whose activity level often exhausted Amy. She studied how peer interaction might facilitate this ELL's writing development, capitalizing on his interpersonal skills and peer interactions as writing resource. Quinn, another ST, struggled with a defiant student who repeatedly ignored directions and struck Quinn. Quinn's inquiry focused on how her classroom management choices impacted behavior of her defiant student.

In another study of TE inquiry focused on CLD learners, STs targeted three to five ELLs with academic difficulties, gathered baseline data, taught specific strategies, collected evidence on intervention results, and reflected on the process (Dresser, 2007). TI helped STs "better understand and serve the linguistic and academic needs" of ELLs (Dresser, 2007, p. 64). Price (2001), in a study of 11 STs, found STs explored intellectual and cultural dimensions of students' learning, synthesizing inquiries through experiences of students because TI provided a framework to understand teaching practices in relation to children's lives. These studies offer early evidence of teacher inquiry's potential to promote attention to CLD learners, even during preservice. They provide accounts of work requiring STs to move far beyond resource-gathering, classroom management, development of routines, and clarification of a teaching identity. Nonetheless, more research is needed to delineate how TI offers potential to focus STs on CLD learners in depth.

### **Model and Practice of Preservice Teacher Inquiry in the Focal Project**

#### **Program of Research and Study Context**

This study is part of a program of research on the potential of TI to support effective teaching. We studied 80 secondary ELA STs' inquiry processes and products collected over six years in a California university TE program. The program annually enrolls 150+ students with Bachelors degrees to earn a credential, with an optional second year to complete an MA.<sup>1</sup> Students complete a Cross-Cultural Language and Academic Development or Bilingual Cross-Cultural Language and Academic Development Credential--designed to increase knowledge of culture and diversity and to prepare teachers to work effectively with students developing English proficiency.

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<sup>1</sup> In California, teaching credentials are earned only through post-baccalaureate programs.

Prior studies of the program found coherence in preparing teachers to teach and advocate for ELLs (Athanases & de Oliveira, 2011). Graduates reported advocating for equity for CLD learners, especially ELLs, tracing practices to TE coursework and supervision (Athanases & Martin, 2006; de Oliveira & Athanases, 2007; Athanases & de Oliveira, 2008). One study featured a case of a first-year teacher from the MA year doing inquiry supported by peers and mentors (Merino & Ambrose, 2009). Against this backdrop, we sought to understand ways the TI series in particular may be associated with STs' focused attention to the learning of CLD youth.

## **Overview of Teacher Inquiry in the Program**

During preservice, STs enrolled in a pair of inquiry classes. The first introduced fieldwork using data collection and analysis with tools such as observation fieldnotes, surveys, interviews, and assessments of student work. The second worked to develop TI in a student teaching placement class, with more extended data collection and analysis. For this course, ELA STs met as a cohort for three hours 8-10 times for 10 weeks, supported by conferences with instructor and TAs. The optional second MA year included additional TI coursework, workshops, and cohort support to complete a longer TI. The present study focused especially on work from the credential year second course that serves as site for the first full TI, template for longer-term inquiry in the MA and beyond, and the door between preservice and in-service at the close of the credential year.

## **Model: Responsive Teacher Inquiry**

While foci and practices overlapped across subject areas and grade level ST placements, the model described here refers specifically to the secondary ELA coursework on teacher inquiry. The framework that shaped the ELA inquiry course called for TI that is responsive to issues situated within particular contexts and responding to, reacting to, engaged with, and flexible about a set of concerns. The course instructor demonstrated through multiple means evidenced in data that this meant more than conducting inquiry that merely explores areas of an ST's personal or professional interests or that follow a pathway isolated from context, sources, and inputs.

**Content focus.** TI in this model features subject matter content learning. The instructor noted the importance of this especially in ELA, given evidence of inadequate preparation and supervision of ELA teachers for challenges of ELA teaching (Grossman et al., 2000; Valencia, Martin, Place, & Grossman, 2009). Content-focused TI may help develop pedagogical content knowledge (Ball, Thames, & Phelps, 2008; Grossman, 1990; Shulman, 1987). STs convened in ELA cohorts to explore content-specific issues in full and small-group work. Instructors, TAs, and guests over the six years all were or had been K-16 teachers (mostly secondary ELA) who tapped their own expertise and experiences. The instructor noted that while issues of structuring group work, classroom management, and other more generic concerns could make for viable TI work, TI in this model needed to focus on ELA/ELD concerns. However, STs could choose foci, guided by evidence justifying a particular ELA learning need that warranted inquiry attention.

**Context specific.** Aligned with our framework, in ELA coursework, TI was designed, in part, to promote STs' early-career capacity to attend to CLD learners' needs. Responsive TI was grounded in challenges of student learning. Some authors refer to these as puzzling events, moments, or students (Ballenger, 2009; Gallas, 2005). The present model, then, features inquiry situated in specific contexts with specific diverse learners. The model guided use of evidence of student work, from which STs could document patterns, particularly important for novice teachers, and clarified that responsive TI responds to and taps students' worlds in instruction and inquiry—

the cultures, languages, and out-of-school literacies of youth as resources. TI in the present model and study worked to foster attention to understanding that good teaching is teaching in a particular context, not context-free. TIs needed to be student learning focused. While attention to instruction was integral, focus was on students and their learning, not on instructor and his/her practices or other more teacher-focused concerns that often are the focus of self-study.

**Professional community.** TI included ST collaboration in topic-alike groups of 3-5 who met on an ongoing basis for mutual support, feedback on emerging foci, and critical scrutiny to minimize questionable analyses. K-12 teacher guests presented TI models and offered resources, lessons, and ways to reflect on student progress. The model also encouraged STs to enter into a larger community of researchers, collapsing hierarchical structures of knowledge generation. The model and practice clarified that TI knowledge construction may reach beyond conventional academic research, but sources remain key to providing ideas and tools to shape practice, inform inquiry, frame issues theoretically, and provide explanatory power for findings (Athanases, 2011). The instructor and a librarian led an interactive literature search workshop that included ELA, ELD, and literacy research journals, books, handbooks, and websites and featured discussion of research elements and genre features of articles, full-group searches for topic-based sources, swapping of resources to support each other's TIs, and one-on-one instructor and librarian support. STs were guided to focus on relevant features of the research, to raise critical questions about the work, and to articulate how it might inform one's inquiry. The instructor included: (a) guidance to manage complexities of reporting; (b) exhortation to neither idealize work of academic researchers nor dismiss it as irrelevant; and (c) motivation to find value in research resources and to see themselves as part of an ongoing conversation of ideas about effective ELA/ELD teaching.

### **Teacher Inquiry Scaffolds and Tools**

Much TI features experienced teachers in facilitated professional development or collegial groups; in contrast, work of the present study included instructor guidance and evaluations in university-based TE. While routines can constrain TI and swamp deeper purposes (Cochran-Smith & Lytle, 2009), the present model used scaffolding and routines for support. Practical tools linked to conceptual tools for grasping TI purposes and processes. These included supports such as one-on-one conferences, workshops on pattern-finding in both qualitative and quantitative data, and field memos to foster data analysis and aid pattern-finding. Memos featured understanding things STs observed, noted, learned about, or things emerging from data. Memo writing served to push thinking, help STs identify areas to be explored in next steps, enable recording of fresh insights, and pave the way for more detailed analyses. Other tools were a PowerPoint presentation template to guide construction of a research presentation, TI scoring rubrics, and ongoing installments of PowerPoint slides and Notes receiving critical feedback for revision. Notions of baseline and exit data were clarified and illustrated, with comments that some STs might do more descriptive studies, documenting evolving learning, and others would target areas of need in a kind of "intervention," or a process of ongoing data analyses informing next-steps actions. STs mapped designs but were encouraged to respond to emerging information, data trends, and new insights.

### **Summary of Inquiry Elements Linked to Study Focus and Research Question**

Concepts of the model (content, context, and community) interact, but the present study features *context*—ways STs used TI to attend to CLD learners. The TI model and scaffolding provide a foundation for developing attention to CLD learners. Elements of the model and supports, then, link to the study's focus on how STs used inquiry to focus on CLD learners. STs'

voices through questionnaire and interview data also helped shed light on elements of the model, scaffolding, and tools that did and did not support developing attention to CLD learners.

## **Study Goals and Hypotheses**

Although our study did not pursue hypothesis testing in an experimental and statistical sense, we outline here our study goals and informal hypotheses that shaped methods. Our study was guided by the question: How are STs learning about their CLD learners through inquiry? Embedded within this question was the hypothesis that, by participating in a learner-focused TI, STs would learn to focus attention on special needs or concerns of CLD learners. This hypothesis was grounded in knowledge that (a) STs were required to complete a scaffolded TI on teaching ELA as part of their coursework, and (b) STs were purposefully placed in classrooms for their pre-service teaching that contained a majority of CLD learners, including ELLs.

The overarching question and hypothesis had underlying questions with connected hypotheses. First, several levels of student focus may be possible through TI: individuals, groups, or full-class. Doing well at one level does not mean an ST is good at others. Different data yield different information on student performance. Our analyses needed to explore this variation. Also, TI required STs to report community, school, and classroom demographic data. We hypothesized that by engaging in TI, STs would move beyond essentializing CLD learners (as reported in our framework) and show evidence of using knowledge about their CLD learners to guide instruction. However, we maintained a necessary open-ended stance to inquire into ways STs used such data.

We also hypothesized that despite scaffolded instruction, TIs would evidence variation in ways of attending to CLD learners. We sought to uncover these, hypothesizing that TIs would vary widely in number of indicators of attention to CLD learners. We assumed that questionnaire and interview data that included STs' own voices would shed light on these variations. We further hypothesized that there would be nuances to explore beyond coding, that STs might demonstrate attention to CLD learners in ways that would require deeper examination. For example, a TI might reveal attention to learning about students' lives and interests yet not demonstrate high challenge for CLD learners (an indicator of attention to CLD students' learning). Also, we hypothesized that the collaborative and mentoring dimensions of TI in a professional community of TI were needed to help check assumptions and biases and to uncover low-challenge or inequitable teaching practices. These various hypotheses shaped data analytic procedures and reporting of results.

## **Method**

### **Participants**

The 80 secondary ELA STs whose work is the focus of this study (averaging 13.5 STs annually over six years) included 46 White females (57.5%), 15 White males (18.8%), and 19 women of color (23.8%). These 19 women were divided almost evenly among 7 Latinas, 6 East Asian Americans (5 Chinese, 1 Filipina), and 6 Middle East/South Asian Americans. Many STs, including some White STs, reported being bilingual.

### **Researchers' Roles**

The team had three researchers, all former K-12 teachers with experiences and interests in ELA and TE, and all White educators who have worked with students and teachers on issues

related to CLD learners. The ELA inquiry instructor all six years is first author of this article. The other authors recorded inquiry class fieldnotes, wrote memos on themes in STs' TI processes and products, and conducted some analyses of STs' work independent of the instructor/first author.

Our work seeks to describe and understand STs developing understanding of CLD students through TI. Our methods draw on two theoretical perspectives: (a) constructivism, or describing participants' perspectives, experiences, and meaning-making processes; and (b) hermeneutics, or striving to holistically understand and interpret these experiences, perspectives, and meaning-making (Koro-Ljungberg, Yendol-Hoppey, Smith, & Hayes, 2009). We acknowledge the situated, contextual nature of human experience and the transactional impact of behaviors on both the inquirer and respondent (Guba & Lincoln, 1982). Guba and Lincoln advise a qualitative researcher to capitalize on "inquirer-respondent interactivity" to sharpen focus on relevant issues and ideas within a particular context. The "insider status" of the member of our research team who also served as ELA inquiry instructor added additional potential to illuminate nuances of STs' learning.

The study aligns with a TE research tradition of instructors' studies of their students' learning and program processes as the modal study (Grossman, 2005). In such work, researchers frequently fail to identify the relationship they have with those they study (Clift & Brady, 2005). In contrast, we make transparent the roles the instructor did and did not play in data analysis. Advantages to such insider studies are various. First, against a reality of poor funding for studies of TE processes and outcomes, faculty who wish to improve their own practices and contribute to larger knowledge production can focus on their contexts as opportunities for empirical study. Second, as noted, faculty researching their own practice and students' learning can provide rich insider perspectives on STs and their goals, often more fully than an outsider can (Grossman, 2005). Third, personnel involved as both faculty and researcher increase the possibility that data can be collected and archived over time, particularly in the case of multi-year projects such as the one in the present study. Collecting and managing data over time can pose challenges for an outside researcher, especially in collecting forms of qualitative data, such as student work, questionnaires, observation field notes, and interviews. These forms of data seldom can be accessed retroactively through databases such as those that store test scores or survey data.

That a course instructor can have deeper knowledge of what occurs is both a blessing and a curse in writing about practice (Lampert, 2000). There is the possibility of uncovering "invisible, relational aspects of the work that have not been recognized by others" (Lampert, 2000, p. 91). However, there are also responsibilities to select among countless details the material needed to adequately and effectively contextualize practice and to tease out complexities of teaching and learning to teach (Borko, Whitcomb, Byrnes, 2008). Researchers who have been insiders may need research partners to assist in uncovering complexities of context by raising critical questions and collecting and analyzing context data. No single method can capture the full complexity of TE processes, so teams must articulate both affordances and limitations of particular methods (Florio-Ruane, 2002). Research on preparing STs to work with CLD learners particularly needs a full account of program context, especially the degree to which attention to diversity issues permeates a program (Hollins, 2005). We address this concern with new data and published studies.

When instructors and researchers are the same, classroom contexts need rich descriptions of processes and course dynamics, with inclusion of TE students' voices (Clift & Brady, 2005). To address this, we described course processes in the previous section and sample ST voices related to themes in the results. Additionally, accounts of data collection and analysis need attention to dual roles played as researcher and instructor (Grossman, 2005). This may include treatment of

power dynamics of an instructor researching students, or additional data collection, analysis, or critical review of course processes and STs' work by outsiders "to interrogate findings and challenge the possibilities of self-fulfilling findings" (Clift & Brady, 2005, p. 333). Following this principle, research team members who were not program or course insiders at time of the study conducted portions of research methods independent of the instructor. These included developing, testing, refining, and using analytic tools and drafting related results reporting.

## Data Collection

Table 1 provides an overview of data purposes, sources, and analytic methods. Core data included 80 TIs (collected 2004-09) as PowerPoint presentations replete with detailed Notes for slides (ranging 18-35 slides). Slides and Notes documented inquiry focus; community, school and class contexts; research question(s) (RQs); and evidence justifying need for a study focus and plan of action. Components also included literature source documentation, including abstracts and how sources informed the TI and provided explanatory power for results; visual representation of TI overview; methods for data collection and analysis; results and commentary; synthesis of learning through the inquiry; and next steps if one extended the study to future work.

Other data included data analysis memos; questionnaires with reflections on processes and products; taped discussions in the TI class, conferences, and discussions; and reflections in taped full-class talk. Often in TE research, pedagogy is invisible. To counter this, data were collected to document coursework instruction, classroom culture, and opportunities to develop learning related to conducting TI. These data included observation field notes, reflective memos, taped classroom events, and students' anonymous course evaluations. Finally, the team used ongoing reflective conversations to complicate and critique the TI instructional process and STs' engagement with it. Critiques often took the form of analytic memos available for further analysis later and problematized perspectives of the TI as it unfolded over several years with varied participants.

## Data Analysis

**Database and analysis overview.** We worked to maintain integrity of TI products and processes while developing a database and methods to analyze a corpus of TIs. Detailed TI information was entered into databases that included the following: student demographics in inquiry schools and classes; TI title and class grade level; and primary and secondary RQs per TI. We also coded other data and entered these into the database, developing and refining categories.

**Development of rubric of CLD indicators.** Of particular importance in our analytic procedures was rubric development to code 80 TIs on ways they evidenced indicators of attention to CLD students. In consultation with the course instructor, the two research team members not involved in instruction at time of the study developed, tested, refined, and used a rubric. Table 2 shows the final version, with data samples from TIs to guide raters' coding process.

The rubric was grounded in TI practices and requirements of the TI course. We sought to create a through-line from problem, to theory, to methods, to create transparency in our claims and assertions (Koro-Ljungberg et al., 2009). We began by naming domains included in most forms of TI (Cochran-Smith & Lytle, 2009) (Table 2, column 1), then analyzed TIs to identify all possible ways each domain potentially could be addressed, and finally mapped these onto existing domains. We further aligned these domains with existing knowledge of ways teachers potentially focus on CLD students' needs (column 2, "Indicator"). For example, for Inquiry Domain *Design*

*Action*, following Hammond (2006), we considered instruction with high levels of challenge and support indicative of attention to CLD students' needs. Furthermore, when STs linked instruction to students' homes, communities, and cultural experiences, we recognized their attempts to attend to home literacies and funds of knowledge (Moje, 2007; Moll & Vellex-Ibanez, 1992).

We further specified attention to CLD to guide raters to an aligned understanding of each indicator. An example appears in the Inquiry Domain *Collect data on student performance and beliefs, values, attitudes*. In TI courses, STs were taught that surveys, interviews and observations all were potential data sources, and these tools were found in various TIs. When considering them as indicators of attention to CLD, however, we specified ways this tool might promote a positive focus on CLD. This was essential because existing research in our framework indicates that tools may enable STs to enact a social justice stance with CLD students (McDonald, 2005) or they may be inadequate to mitigate dysconscious racism (King, 1991) or deficit perspective (Garcia, 1996). The final rubric column further clarifies each indicator through examples from our data.

**Refinement and testing of rubric of CLD indicators.** We pilot tested with a rubric draft. Following Tinsley and Weiss (2000), we sought intercoder agreement for coding and analysis of TI content. With an initial rubric version, team members sought to score each TI's attention to CLD learners on a 1-4 scale. Piloting this rubric with TIs not included in this study demonstrated rubric problems, including challenges of reaching agreement on scale scores; needing to clarify some inquiry domains; and needing to omit, add, or revise language of some indicators. The next instrument, collaboratively constructed by all research team members, resulted in a Table of Indicators to reveal ways STs demonstrated close attention to CLD learners. Pilot testing found binary judgments on these indicators (1 for evidence of the indicator, 0 for no evidence) proved adequate for information sought and also enabled reliable coding. This Table of Indicators then was pilot tested and refined by the two research team members who were not involved in course instruction. Once the indicators were agreed upon, representative language of each indicator was selected from TIs included in the study and included in the Table as a guide for future scoring.

Using a random numbers generator, the two raters identified 20 TIs from the 80 (25%) to check intercoder agreement. To achieve calibration, each team member independently scored 4-6 TIs from the 20. The two researchers then compared results and, when discrepancies arose, discussed and came to agreement on appropriate score. The process continued until the same 20 had been scored by both raters, and near-perfect agreement was reached. The process, then, was independent coding, with periodic recalibration as needed. Results of the intercoder agreement check were as follows. For 20 TIs scored by both raters, these were obtained. The team first calculated simple totals and percentages of rubric scores assigned during interrater checking. Each of the 20 TIs received a total of 17 scores yielding an overall total number of codes or scores of 340. Of this total 340, the raters reached agreement on 317 total codes/scores, yielding a 93.2 percent agreement rate of total scores assigned. Looking at individual items, of the 17 CLD indicators coded per TI, raters reached 90% or higher agreement on 14. Three indicators fell in the 80 - 90% agreement range and none below 80% agreement. Team members divided the remaining 60 TIs of the full 80 and scored them side-by-side in one extended session, which allowed the two to discuss questions about the language of indicators as needed. Particular attention was paid to those indicators on which agreement during calibration had fallen in the 80 - 90% range.

**STs' inquiry process data and discourse data.** To understand what STs learned about students and how, we examined TI products but also STs' questionnaires, interviews, and discussion data to elucidate findings from the rubric analyses and to uncover additional issues.

STs' discourse was typed verbatim into files. We reviewed data for patterns of response from a preponderance of data, using the constant comparative method, yielding categories and themes (Merriam, 1998). Table 3 provides a sample of the trail from raw data to theme. The research team reviewed categories and data for goodness of fit and recoded as needed, before conducting a triangulation check to see if these themes emerged in teachers' actual inquiry work.

**Case methods.** We used emerging themes to develop a case template, then examined TI artifacts and discourse data for exemplars and contrasting examples. From these, we constructed cases. We considered cases alongside each other to enable new perspectives and crosscutting themes to emerge. Cases went through drafts to preserve particulars and maintain analytic threads across cases. Case authors reflected on distilled drafts and thematic threads. Cases, as well as STs' resulting themes and supporting evidence, served as data for a kind of meta-action research (Radencich et al., 1998). The constant comparative method (Merriam, 1998) guided analysis, supported by insights gleaned from intimate knowledge of TIs. We constructed frameworks, used illustrative examples and cases to compare and contrast TI products and processes, discussed thematic currents, and critiqued each other's perspectives on salience of themes.

### **Credibility and Transferability**

Guba and Lincoln (1982) advise that questions of validity and generalizability often sought in positivist research should be substituted with credibility and transferability in the interpretivist paradigm. We maintain credibility in ways recommended by Guba and Lincoln. First, the project includes prolonged engagement within the study context: Data collection spanned six years and included 80 STs. Second, methods included debriefing between instructor/researcher and non-teaching team members through weekly research meetings, field notes, and reflective memos written after observations of instruction. Non-teaching members of the team transcribed and analyzed all taped data. Third, we conducted member checks with participants, asking clarifying questions to ensure authentic and accurate representation of ideas. Fourth, we collected multiple data sources and triangulated to represent participants' knowledge and practice, and constructed cases from review across data sources for individuals. Finally, we made transparent all data collection and analysis methods. This included generating Tables for documenting TI elements; clarifying templates for constructing cases and coding for emerging themes; and clarifying the role of a priori categories. These various procedures strengthened credibility and transferability.

## **Results**

Our study asked: How are STs learning about their CLD learners through TI? We report number of TIs evidencing each indicator of attention to CLD learners, with examples. Next, we report the distribution of number of CLD indicators present by number of TIs. Three focal STs exemplify low, medium, and high points in the range of number of CLD indicators evidenced per TI, with particular attention to the TI planning phase. Finally, we use cases of Janice and Martha to examine ways key themes played out. In all results, we extend analyses beyond products, drawing upon data from course activities, observations, and ST discourse and self-reports.

### **Ways of Learning about Learners through Teacher Inquiry**

Table 4 shows the number of TIs evidencing each CLD indicator in each TI domain. We report results in each domain to answer our RQ: describing ways STs demonstrated attention to CLD students and what parts of the process facilitated this focused attention. Column 4 shows that

for 8 of the 17 indicators (just under half, in bold text), more than 50% of TIs evidenced their use. In reporting, we integrate mention of this kind of high and low frequency of particular indicators.

**By formulating questions and framing inquiry.** Formulating questions required researching one's teaching context, generating and framing RQs, and researching literature for what was known about a topic and ideas of areas to explore.

**Researching contexts.** For Formulating Questions, the first 3 indicators (Table 4, Column 2) concern demographics. The Table shows 70 of 80 STs provided demographic details about schools, and 65 about their classes. Only 43, just over half, detailed community, despite directions to do so. Detailed demographic data STs did collect, summarize, and document at classroom and school levels, however, provide a crosscutting look at contexts for TI. We used print and online resources to fill out school data for 10 TIs lacking them. To check accuracy of data STs provided, we did a demographic data check on a sample of 25 schools where TIs were conducted and found nearly 100% accuracy. We tabulated class data to construct a portrait of the cultural and linguistic diversity of STs' focal classes, and school data for a view of economic diversity of schools. Classes typically were representative of school demographics. These data provide a picture of the degree to which TI contexts afforded opportunities to learn to attend to CLD students.

Figure 1 shows all but one (99%) of TIs were conducted in classes with majority students of color, with 43 (53.8%) in classes with 80% or more students of color, and 23 (28.8%) in classes of 90% or more. Classes and schools typically were extremely diverse, often with nearly equal numbers of Latino/a, African American, and Asian American students. Additional demographic data on classes indicated that just under one-third of classes had 100% ELLs and just under half were high-density ELL classes of 33-100% ELLs. First languages for ELLs were richly varied, with Spanish the dominant home language. At one middle school, site for several TIs, for example, 25% of students were ELLs, with 5 home languages comprising 87% of the ELL population: Spanish (40%), Hmong (31%), Vietnamese (8%), Cantonese (5%), and Mien (Yao) (3%), with 15 other languages comprising the bulk of the remaining home languages.

STs' report data and other data indicated most schools were urban, some rural, few suburban. Figure 2 shows all but one ST conducted TI in schools with percentage of students in poverty above the national average of 19% in 2008 (Child Trends Data Bank, 2010), 58 (72.5%) at schools with 40% or more students in poverty, more than double the national average. Also, 37 (46.3%, nearly half) did TI at schools with triple the national average of students in poverty, and 12 (15%) at schools with more than four times the average. Poverty alone is associated with greater risk for adolescents of lower attendance, lower academic outcomes, and higher dropout rates (Child Trends Data Bank, 2010). Taken together, these data offer a portrait of TI contexts as majority students of color, racially and ethnically diverse, high ELL, and high poverty.

**Framing and developing RQs.** For some, researching demographics of teaching contexts was a platform to frame TIs and design RQs. Table 4 shows 31 STs (38.8%) explicitly linked a TI focus to students' CLD data through RQ, focus, or framing. This often was evidenced in ways STs reported how observations and concerns for CLD students justified a TI focus. For instance, an ST working with 11<sup>th</sup> grade ELLs on improving critical thinking noted that she chose to focus on language: "Before they leave this class I want them to be able to express themselves fully. Most of the students in this class are close to fluency and yet they continue to struggle putting their deepest thoughts into English words." This ST cited her students' CLD characteristics as justification for

her TI. To help formulate her focus, she combined knowledge of her students' diverse language backgrounds, previous observations of their performance, and high but reasonable expectations.

***Through literature sources.*** STs overall recognized usefulness of research resources; 100% cited 3-5 sources, at least 1-3 of which typically were research studies. As one ST explained, "By reading the literature sources and researching other times your topic has been worked on, you gain a greater insight into how to help your individual students." Table 4 shows a third of STs moved beyond general research literature to a particular focus on CLD in sources cited. Table 4 also shows 31% of STs articulated links between selected literature sources and their CLD students, regardless of whether diversity issues were featured in sources.

***Through designing actions.*** For Design Action, Table 4 shows 68 STs (85%) focused TIs on instruction appropriately challenging for students. High-challenge alone does not explicitly link to attention to student diversity. However, as STs were in contexts with high numbers of CLD students, many living in poverty, this attention is significant, given the unchallenging curricula in high-need settings with diverse youth (Foster, 2004; Oakes, Wells, & Jones, 1997). Also, 76 STs (95%) included scaffolds that facilitated access to appropriately high-level curriculum. These results suggest that STs were not only aware of their students' needs but took special actions with CLD students to meet their own TI goals. While the vast majority of STs focused TI on high-challenge, high-support instruction, Table 4 shows 29 (36.3%) also included explicit links to their CLD students' out-of-school experiences. For instance, one ST working in an ELD class with majority Latino immigrants included texts and writing activity about familiar locales in Mexico.

***By collecting data.*** The TI work required a minimum of three datasets. Data included surveys, questionnaires, discussion and interview transcripts, students' tests, quizzes, and essays. All 80 STs collected the required minimum. Table 4, "Collect Data on Student Performance and Beliefs, Values, Attitudes," highlights four forms of data that facilitated a focus on CLD learners through careful attention to students' interests and views, both collectively and individually.

***Learns about student interests, views through surveys.*** STs learned to design and conduct surveys to learn students' ideas and attitudes. Not surprisingly, 45% used the tool to learn about classroom and out-of-school issues. Many reported value in this method. One reported how a survey provided input from students (many of them ELLs) who rarely expressed opinions in class:

I learned that the group of three quiet, well-behaved Hmong girls that consistently perform well, but rarely speak in class, was still having trouble with the more complex transition words, and wanted to know how to use them in an essay. This is information I wouldn't have gotten from speaking with or observing these students in class.

Surveys helped STs supplement analyses of student work with data on what one ST referred to as "what they know and don't know, and why." She added that TI "allows us as teachers to get to know our students on a much deeper level and produce real results." That 45% used surveys for such purposes indicates at least during the TI process they were applying their learning about TI.

***Learns about student interests, views through observations.*** STs also were taught how to record observations so these may be accessed later as data. Table 4 shows 45% used observations to learn about their CLD students. One ST documented observations of 6 focal students while they participated in a think-aloud. She recorded which students took notes, their oral participation, and if they demonstrated active listening to peers. Another ST recorded observations of types of talk

students engaged in during a literature unit on empathy. She found evidence of students deviating from topic, making text connections to the unit, staying on topic, posing questions, and connecting text to life experiences. These data enabled her to justify the need for her study and to plan work that especially would support her CLD students. She found it evident that “students still need more instruction and guidance in learning how to have an academic discussion...learning to develop thoughtful responses to questions and comments, and they need practice with staying on topic.” Analysis of observational data gave STs opportunities to reflect on student classroom behaviors.

***Learns about student interests, views through interview/discussion.*** Table 4 shows that a small number of STs (10, or 12%) used student interviews or discussions as data. To track these discussions, STs used audio and video recording. Transcription enabled close looking unavailable in fleeting instruction. One ST noted that in transcript review, she realized her CLD 10<sup>th</sup> graders

had extremely interesting insight into the characters and themes of the play and wanted to take it in a meaningful direction. In the moment of whole class discussion, a teacher has to create follow-up questions on the spot, and it is difficult to avoid moving the students’ thinking in a particular direction because that is what is comfortable and familiar.... transcripts helped me understand my students better, especially how they create meaning.

This ST’s remarks highlight how taping and transcribing discussion helped her see meaning-making processes in language, on the page, for analysis and reflection. She also addresses acts of teaching: “a teacher has to create follow-up questions on the spot...” and “...it is difficult to avoid moving the students’ thinking in a particular direction....” These remarks show how analysis of transcribed classroom discourse helped this ST reflect on her role(s) in shaping opportunities for student participation in discussion. Several STs offered testimonials about the power of brief interviews in helping them learn about CLD students’ habits, learning processes, and needs.

***Includes CLD focal students.*** STs who selected and followed focal students uniformly reported value in this work. While more than 18 STs identified focal students in their research, Table 4 shows that 18 reported specific CLD details about their focal students. One ST remarked: “Pay attention to the individual needs of your students. This can be especially difficult if your inquiry is based on whole class data, as opposed to a case study of a small number of students.” She added: “Oftentimes, addressing the needs posed by specific individuals in your intervention can benefit the entire class.” Another ST shared: “I think it can be a very positive experience for low performing students because the teacher is taking an active role in trying to understand their struggles and how to improve their learning experience.” Still another ST reported how inquiry pressed her more deeply into understanding students than anything she had done in 10 months of TE. She described power in understanding four focal students’ learning processes, illustrated by the story of one ELL who used Spanish to organize his writing on the backs of papers before moving into English. Because of this ST’s close attention to focal students during TI, she could see the boy’s writing process unfold and learn how to further scaffold his learning.

### **Through analysis of data.**

***Patterns.*** Identifying patterns is part of learning to do TI analysis and of using results to respond to learners’ needs. Table 4 shows 75 STs (93.4%) were able to identify patterns from close analysis of student work. One explored reasoning strategies in navigating text that “forced students to try and analyze an issue and devise thoughtful solutions to complex problems.” He reported trends in students’ critical thinking, analysis skills, and questioning skills, providing him

access to “how students tend to think,” adding that he only “scratched the surface” in analysis. Another ST taught how to differentiate summary and analysis and found that keeping track of analyzed data focused his attention, giving him specific information: “I might have noticed how students performed on the assignment as a whole, but I would not have seen differences between students who grasped the concept of summarization but not that of analysis.” This example highlights how close analysis of student work revealed patterns of understanding that differed for two elements of written text (summary and analysis).

Analytic rubrics illustrated in the TI course proved especially helpful in teasing apart full-class performance trends because of how they demonstrated ways to delineate achievement on task elements. Though rubrics target some goals and miss others, STs reported finding them valuable TI tools for looking beyond holistic grading to analyze patterns where growth was occurring and where it was not—and for whom. Many STs reported refining their TI based on results gleaned from analyses. Some valued being able to quantify patterns, even from short answers, and to discern target components that remained tough challenges. One ST who focused on writing with a class of ELLs described how making “subjective information in students’ writing samples...objective definitely informed me with data I would not have otherwise seen.” Using fairly simple rubrics, he produced detailed measures of students’ capacity to generate and use evidence in writing. His peers were impressed with his passion for constructing elaborate data displays with information enabling him to locate student progress. Far beyond a deficit lens using only normative standards, this ST found ways to chart specific progress his ELLs made.

In addition to analytic rubrics, STs found data displays to be particularly helpful to visually represent data crunched as patterns. One ST extended her use of data display by showing students a graph of class performance trends, telling her students, “This is what we need to do.” In this case, the inquiry tool of data display also became an instructional tool to help high school students see their own class performance trends and to see targets their ST had in mind for their learning.

***Examples to illustrate patterns.*** Beyond noting patterns, 67 of STs (83.8%) provided examples to illustrate, demonstrating emergence of researcher using collected data to support findings. One ST who sought to understand how modeling and daily discussions would affect students’ ability to question and analyze texts in daily text logs noted that after collecting a second dataset, the quality of work of high- and low-achievers was unchanged, but mid-achievers were improving in ability to analyze, find support, and provide insights. She included chunks of text from individual students to demonstrate trends. After including and analyzing an excerpt from a high-achieving student, this ST included an excerpt from a low-achiever with this analysis:

This log demonstrates poor comprehension or inability to structure an argument when he says that “they probably met a farmer.” His uncertain restatement of a given fact, as well as the supported claim that “Angel might kill the farmer to take his horses,” show me that this student has not improved with this intervention.

Throughout the TI, this ST used examples to illustrate patterns she noted in students’ performance. Including this elaboration was critical as STs began to use TI to help guide their instruction.

***Unpacks examples of patterns.*** Progressing as a researcher includes unpacking examples to explain how and why they connect with patterns and with overall TI focus. As expected of emerging researchers, fewer STs included this analytic process than those who simply noted patterns and provided examples. Nonetheless, 57 (71.3%) used patterns to reflect on learners’

needs and the pedagogy used. For example, after presenting a chart illustrating types of questions she observed students asking, one ST focused on discussion skills noted, “From the data I collected, I realize that my students need more practice at posing...deeper thinking questions.” She concluded that opportunities were needed to practice such questions in both writing and speech. She used the chart first to reflect on patterns, then reflected on how she could facilitate students’ further development in posing critical questions of one another. Another ST described how she analyzed patterns in reading processes that posed problems for students. Teasing apart these differences enabled the ST to plan next-steps instruction to more precisely target students who needed additional attention to an element of the content under study.

***Articulates patterns in terms of CLD.*** While pattern-finding, illustrating, and interpreting are hallmarks of any deep inquiry, Table 4 shows 24 STs, nearly a third, examined and reflected on learning patterns of their CLD students, foregrounding these demographic characteristics in analyses. For example, an ST working with all ELLs reflected at the end of her TI on the impact of language on her students’ attitudes and habits toward reading. She noted that she found:

the language barrier ELL students face as they read an English text also plays a major role in determining their attitudes towards and habits related to reading. My third data set led me to believe that students who have lower English fluency simply struggle translating and comprehending individual words and are unable to have a strong interaction with the text.

Although this ST was working exclusively with CLD learners, this excerpt highlights that she went beyond thinking generally about her students as learners to think specifically about the unique needs of ELL students. One ST reported of working with diverse youth that being perfect is impossible, “but conducting research allows us to look beneath the surface of student grades and behavior. We learn who our students really are, and what type of instructors we need to be to teach those students.” In this way, this ST links TI with a sharpened focus on CLD learners and then connects that deepened understanding of individual students to her teaching.

### **Distribution of CLD Indicators Present in Teacher Inquiries**

In the previous section, the unit of analysis was indicator of attention to CLD learners, and we reported the frequency with which each indicator was evidenced in the work of STs. We now shift to the individual ST as the unit of analysis. We totaled the number of indicators per TI. The mean score (0-17 scale) for 80 STs was 9.5. Figure 3 shows the range in number of CLD indicators present within TIs. The x-axis shows the range of possible CLD indicators per TI. Along the y-axis is the total number of TIs for each total number of CLD indicators evidenced. The Figure shows the total number of indicators ranged from 2 to 17, with most TIs displaying 6 to 12 indicators. The modal point of the distribution is 10 CLD indicators (near the mean of 9.5). As a whole, the Figure shows STs emerging in attention to CLD characteristics of their students.

To illustrate, we selected the low, medium, and high points in the range of CLD indicators present in TIs. At the low and high points were TIs completed by Matthew and Raymond, two White males. For consistency, we selected a mid-level TI completed by Frederick, a White male, as well. The medium and high performers on the CLD indicators worked in classrooms of all ELLs. Aligned with the responsive inquiry model, STs completed planning notes, analyzed data justifying need for a particular ELA focus, and responded to community inputs from instructor, peers, and literature sources. During this planning phase, all 3 of these STs evidenced a need for extra support on designing action to strengthen specific students’ learning as a focus for inquiry.

Although all three struggled in planning, the 2 STs at the medium and high points demonstrated emergence as researchers of their own practice and engagement in designing action and studying its impact on their CLD students. In contrast, the ST at the low point, Matthew, showed little development through inquiry in his attention to the CLD characteristics of his students.

Figure 3 shows Matthew's TI had evidence of 2 CLD indicators. He presented focal class demographics and created high support for students to explore "vocabulary in context." However, demographics data were thin. He described his class as "rambunctious teenagers in sophomore English, college-prep, period two," and "Like the school as a whole, my class has significant diversity: nearly equally divided among African American, Asian, Hispanic, and white students. A little more than one-fifth of the class are ELL." This information appears on Slide 2 (of 17 total) with no elaborating notes. We do not learn again of demographic characteristics or individual students until Slide 16 as Matthew comments in notes about a vocabulary game that "The class is about 2/3 male, but the female students as well enjoy the competition." His question-framing and design of action are devoid of context. His TI activities lacked high challenge, but his vocabulary baseball activity did provide access to content knowledge he aimed to develop. The TI reads as an account of activity and inquiry conducted in a decontextualized manner, with accounts of individual students, their characteristics, engagements, and performances mostly invisible.

At 10 CLD indicators, Frederick's TI illustrates mean and modal performance in attention to CLD issues. Frederick taught a diverse group of 22 students in a grade 9-11 Early Intermediate ELD class. On his context slides, accompanying notes, and field memos, Frederick demonstrated a great deal of knowledge about his students' home cultures, traditions, first languages, English language proficiency, and time since immigration to the US. The largest home language groups in his target class were Spanish and Vietnamese, with smaller groups of Chinese and Hmong, and one speaker each of Farsi, Marshallese, and a Niger-Congo language. Despite knowledge of his CLD learners, Frederick had not yet found ways to use such data to guide his teaching and inquiry. Due to curricular guidelines, he needed to focus on writing structures, grammar, and vocabulary, but he also noted an emerging problem of lack of student motivation for writing tasks.

In the transcript of one conference, the inquiry course instructor prompted Frederick to consider ways to engage students in the writing and to mine their cultural experiences as writing resources. Frederick responded, "I know that they like writing a lot about their home country and we've started on this discussion of culture and tradition, and the United States versus their home country." His students had reported informally on cultural traditions about love and marriage. Frederick and the instructor discussed genres to explore, with attention to Frederick's observation that students wanted to learn more descriptive words. Frederick noted:

I feel like having them write a description would be a really good idea and even, you know, you brought up this whole hot topic of how long they've been here, and I was thinking if it's still fresh in their memory then they could even describe like more specific, like what it was like, immigrating from their home country to the United States....

This move in discussion prompted a trajectory of mining cultural and linguistic resources for writing activity. This led to deepened discussion between Frederick and the instructor on how to investigate and measure growth students might make in this area of writing development. Through this mentored exchange, Frederick began to map a data collection plan and began to outline plans for analyzing students' work. However, the journey from plan to completion demonstrated less evidence of ongoing responsiveness to diverse learners' needs.

Raymond's TI represented the high end of CLD indicators present, evidencing all 17 CLD indicators. His class context was different from either Frederick's or Matthew's—Beginning to Intermediate ELD English 10 with 23 Hmong students, fairly recent arrivals to the US. Raymond struggled to engage students and felt he remained a cultural and linguistic outsider. The assigned text for his class focused on supporting reading comprehension and vocabulary, explored through traditions in U.S. music. Raymond reported students disengaged, not doing well with the text.

In his cohort group, ST peers and his instructor reviewed the text and observed how chapters on bluegrass, jazz, and blues packed in countless hard-to-grasp references to U.S. history and culture and used sentence structures with complicated subordination making the content fairly inaccessible to Raymond's students. The group urged Raymond to let the content live through musical recordings as models, to find ways to break down the complex language of the text, and to explore Hmong musical traditions, as well. This cohort discussion helped Raymond turn the corner and focus his instruction and inquiry on bridging culture and language from students to course content. The remainder of his TI provided evidence of actions designed to support this bridging effort, and his inquiry was highly situated in this particular context of recent-immigrant Hmong ELLs, responsive to varied ways the students engaged activities he designed.

These examples illustrate varying degrees and ways STs emerged as attendant to CLD characteristics of learners through scaffolding of TI and coursework. They also demonstrate how STs worked, supported by professional community, to use data on contexts to plan and study targeted instruction. The examples particularly illustrate early planning to mine CLD students' cultural experiences and link them to academic tasks. These goals then became foci for data collection and analyses on student performance—with varying degrees of consistency and success.

## **Two Cases of Preservice Teachers Learning about CLD Learners through Inquiry**

While the previous ST examples highlighted especially the planning phase, the following two cases look across the full span of inquiry. We selected two cases that illustrate the range of ways STs demonstrated learning about their CLD learners through TI. Embedded within the case reports are references to ways the TI model and course scaffolded this work. The cases also provide contrasts in the contexts for inquiry (Table 5). Contrasts included grade levels (7/8 and 12), curriculum and instruction foci in attending to CLD learners, methods of gathering data to enable this to occur, and school locations (one urban, one suburban). Still, both classes were comprised of a majority students of color, with high percentages (well above national average) certified for free/reduced lunch. Both focal classes had students of a range of ethnicity, and both had 50–100% ELLs, with a range of students' home languages, Spanish the dominant of these.

### **Janice: Developing synthesis-writing skills with diverse learners.**

As noted in Table 5, Janice fell just below the modal point of all STs, demonstrating 9 indicators of attention to CLD students. Janice's case provides an example of a very thoughtful TI project that informs an ST's developing pedagogy, with modest explicit attention to CLD learners.

***Inquiry overview.*** Just under half of Janice's 12<sup>th</sup>-grade students were ELLs, diverse in first languages (Table 5) and levels of English proficiency. Janice, a White woman, was working with students on writing a research paper. Over the course of three analytical essays students wrote previously, Janice noted their inability to explain the significance of text passages and correctly

include quotations from sources. Through TI, Janice hoped to determine whether providing multiple scaffolding techniques, including graphic organizers and think aloud activities, could help students improve synthesis skills. When detailing her TI focus, Janice made explicit links to her CLD learners' language proficiencies and their need to develop academic language.

***Inquiry activities.*** The first targeted instructional activity Janice used was a think aloud, as a way to listen beneath the surface to students' thinking and reasoning. In pairs students read two articles and then discussed and recorded main ideas of each and relationships between them. For her second targeted activity, Janice taught students to use a graphic organizer to organize and synthesize text from multiple sources. Finally, Janice provided students with additional readings and a pre-constructed synthesis paragraph about them. She asked students to revise and elaborate that paragraph with a specific criteria check-off list as guide.

***Inquiry data.*** Baseline data included a synthesis paragraph written by each student using two provided texts. Students then completed a survey of open-ended questions about the activity, another way to ask and listen beneath the surface. Janice collected written work from each of the three targeted activities named above. She also recorded observation notes during the think-aloud. Finally, exit data mirrored baseline: Students wrote a synthesis paragraph using information from two provided texts, then completed a survey of open-ended questions about the activity.

***Evidence of learning about learners.*** Janice used several data collection tools (Table 5, bottom row) to learn about and attend to CLD students' learning: student work, observations of behavior, surveys, and attention to patterns. First, she researched resources on CLD demographics, also listing the range of standardized test scores to demonstrate that her learners crossed the spectrum from far below basic to advanced. She provided language proficiency data for ELLs and specific data on students with 504s (to promote a level playing field for special needs students) or Individualized Education Plans outlining remediation and assistance for disability. Janice looked closely at student work and performance through observations and analyses to determine educational needs. She noted, "Despite the vast educational differences within this class, the students have shown they work well together and have shown they are socially adaptable."

As noted, Janice used open-ended surveys to learn how students felt about synthesizing information, gaining insight into what was challenging for them. From her first survey, she learned that 48% cited "combining or comparing the articles" as the most challenging part of the task and 26% thought "it was confusing or hard to do." In the final survey, 35% stated they still struggled with what to include, though another 13% did "show understanding and confidence."

After collecting and analyzing observational notes from the think-aloud, Janice noted three categories of patterns in students' behavior: management, challenges for students, and informing practice. Some comments were due to schedule interruptions the day of the activity. However, Janice also unpacked noted examples of patterns, explaining how she used what she learned from her comments in the latter two categories to inform next-steps instruction: "I noted that 'the next intervention will need to be more guided to model the appropriate process for citing sources.'"

Janice looked closely at student work and performance at the levels of full class, ELLs in class, and focal students. Janice followed two focal students (though not specifically CLD) throughout her analysis while noting patterns across the class. For example, in discussing the written work submitted with the think-aloud, Janice stated, "Students' average scores in every category improved from baseline indicators." She then highlighted work of her two focal students

to illustrate points she was making about the whole class. Janice continued to document student progress in this way: widening her scope to note patterns of students' developing proficiency across the class and then narrowing to highlight work of focal students. In this way, she demonstrated ability to focus on individual learners while monitoring progress of the whole class.

### **Martha: Close looking at focal students: Male ELLs and reading motivation.**

As noted in Table 5, Martha fell towards the high end of the class range, demonstrating 13 indicators of attention to CLD students. Martha's case provides an example of thoughtful TI that also demonstrates focused attention to learners' CLD characteristics. In this way, she represents an ST using inquiry to inform strong pedagogy focused on particular needs of CLD learners.

***Inquiry overview.*** Martha, who identified as Latina/Anglo mixed, enjoyed her advanced ELL Language Arts and Reading class of 26 students in an urban Title I<sup>2</sup> middle school. Class demographic data revealed that her students' primary first languages included Spanish, Hmong, Mien, and Vietnamese. By detailing both community and school demographics, Martha revealed that her student population was representative of the community. After realizing from observations and test scores that students' reading abilities and attitudes varied greatly, Martha administered a reading survey to listen beneath the surface. She learned most of her male students had negative attitudes towards reading and did not read regularly outside of class. Based on survey results, Martha chose males with positive, mixed, and negative attitudes and behaviors toward reading. CLD focal students varied in ethnicity and first languages: three were Mexican, one Hmong, one Hmong/Mexican, and one Mien of Yao ancestry, who arrived in Laos from Southern China before immigrating to the US. The students represented skill levels in ELA from Basic to Highly Proficient. Martha chose to implement a focused Silent Sustained Reading (SSR) program to learn how changes in time and reading choice might impact her male students' attitudes toward reading.

***Inquiry activities.*** Martha implemented a twice-weekly 15-minute SSR period in class. Students kept reading logs for each session, noting what they read and the number of pages. After each SSR, Martha engaged the class in book talks to share what they had read. She also set up an incentive program for students who finished books and submitted book reports. To increase engagement, Martha took students to the library regularly to allow them to select books.

***Inquiry data.*** Data included reading surveys before SSR began, after a month, and after another month. The first asked if students liked to read for pleasure and if they currently did so. The second open-ended survey inquired about attitudes toward SSR and ways to make it more enjoyable. A final survey asked students again about attitudes toward SSR and to discuss their favorite book. Martha also collected data reading logs, book reports, and observational notes. At the end of the TI, she held conferences with all six focal students to gain further insight.

***Evidence of learning about learners.*** Martha carefully documented progress of six focal male students, all ELLs, selected because of varied interests in reading as reported on the first survey. Thus, two were males with positive feelings toward reading, two with mixed feelings, two with negative feelings. Martha provided specific information about the academic proficiency of each; used self-reports and other resources to describe each student's cultural and linguistic

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<sup>2</sup> U.S. government designation providing supplemental funds to assist schools with the highest student concentration of poverty to meet school educational goals.

background; and described students' general demeanor, information she had obtained from careful observation notes and memos (tools for close looking at student work and performance).

Throughout, Martha traced changing attitudes and reading practices of these individuals, also noting whole-class trends and including and unpacking specific examples to illustrate trends. From the first book reports she collected, Martha noted, "Most of the boys enjoyed reading books with non-human characters." She also drew upon other sources: "From the observational data, I can conclude that students, when motivated, become initially excited about reading. Boys were literally calling out for 'nexts' on books." She recorded how the "excitement about sharing SSR plots each day dies down" and that motivation does not continue without booktalks or other actions, a need Martha continued to address. Throughout her TI, she used what she learned from observations to inform next instructional decisions and actions.

As noted above, Martha drew heavily on surveys to learn students' attitudes. When she asked on the second survey what could be done to make SSR more enjoyable, she was surprised to learn many students wanted more time. As with her observation notes, she used what she learned to redirect plans, extending SSR sessions from 15 to 20 minutes and adding a third day per week. At the end of her TI, Martha used students' final reading logs and surveys and her observational notes (an array of data collection tools) to shape the design of interviews she conducted with each of six focal students to learn more about their reading practices and attitudes. Here, Martha learned very specific information about each boy. For example, she had been puzzled by Thomas, an outgoing boy of Hmong and Mexican descent, a highly proficient English speaker and somewhat proficient reader. Thomas had reported that he did not like reading, though he read all the time. She learned that his uncle made him read books he was not interested in and had Thomas explain them: "Right now he is reading a book about the jungle that he thinks is absolutely boring but he feels that he has to in order to please his uncle." Martha also learned why many boys started multiple books but never finish: They forgot their library cards and could not renew the books. When they finally remembered the cards, they would choose a new book instead.

Synthesizing all data and analyses across her TI, Martha concluded: "Frequent access to books and sufficient time (3-5 days per week for 20-30 minutes) to read increases motivation and interest in reading, which then increases students' attitudes towards reading lengthy texts." Martha's abstractions about her students' learning were grounded in a range of data kinds and sources. These data enabled close looks at six male ELLs of varied cultural and linguistic backgrounds and varied levels of English language proficiency--whose work, patterns of performance, and likes/dislikes Martha got to know intimately through her inquiry.

**Summary of the cases.** As Table 5 and our narrative reporting document, both STs used a range of inquiry tools to learn about their learners and to redirect their instruction. Both showed attention to their CLD students, and both used data to uncover things they might not otherwise have learned. Janice and Martha noted patterns and trends of their learners, provided examples to illustrate, and used patterns to reflect on learners' needs. In addition, Martha articulated her understanding of how the patterns played out in terms of her CLD students.

## Discussion

In a program with a history of preparing teachers to work effectively with CLD learners, we sought to uncover how 80 ELA STs over a six-year period might be learning about their CLD students through scaffolded learner-focused TI with CLD students. We hypothesized that STs used

TI to support this learning, but that TI elements were used to varying degrees, in various ways, and with varying levels of success. Our data confirm these hypotheses and shed light on the issues.

Variations occurred at all phases of TI. As STs researched contexts and framed inquiries and RQs, they more consistently reported on school and classroom demographic data and less on community, with nearly half showing no evidence of researching community demographics, despite directions to do so. Without researching community demographics, forging instructional links between classroom and community may be more difficult. This finding relates to previous research demonstrating that STs frequently fail to build connections to students' families and communities (e.g., Irvine, 2003). Also, the classroom is nested in multiple spheres of context (McLaughlin & Talbert, 2001). Researching these can support development of pedagogical learner knowledge (Darling-Hammond, 1998; Grimmet & MacKinnon, 1992).

Our data revealed classes were mostly racially and ethnically diverse students of color, many ELLs, many living in poverty. Contexts offered STs opportunities to work with CLD students, many from low-income households, to explore instruction, inquiry, and reflection on ways to better meet the needs of all youth. Such opportunities are not always available to STs, making it difficult to practice instruction for CLD learners as espoused in TE (Lucas & Grinberg, 2008; McDonald, 2005; Merino, 1999). We sought to discover how STs used these diverse contexts and demographics they had researched to guide inquiry. This was not always readily done. As reported, just under 40% of STs explicitly linked TI focus to cultural and/or linguistic diversity of their students through their RQ, focus, or framing issue. Nonetheless, those who made such links used TI productively in this regard, typically citing observations of their CLD students and their particular classroom and academic performances as justification for TI foci.

That STs used research literature to inform their work is attributable to its emphasis in the literature search workshop. This result nonetheless is notable, particularly since engaging teachers in use of research literature can be difficult due to perceptions that academic research is out of touch with K-12 realities and often vilifies and uses language inaccessible to teachers (Freedman et al., 1999; Zeichner, 2009). Also, some have learned to treat a TI literature search as sprinkling a report with references like croutons (Hubbard & Power, 1999). That just a third of STs cited research specifically addressing CLD students may be, in part, due to availability of research with such a focus or a masking of race and ethnicity that occurs often in literacy research (Cazden, 2001). Nonetheless, just under a third of STs used the literature search as an opportunity to make explicit links between reported research or practice and the applicability to their CLD students.

In designing actions to address their TI foci, the majority of STs used high challenge and high support, critical in contexts where this often is not the norm. High support is key: Reading and writing challenges intensify in upper grades, and text genres gain complexity. For many, especially ELLs and nonstandard English speakers, such advanced literacy activity requires specific scaffolds (Schleppegrell & Colombi, 2002). Also, over a third of STs used TI to design targeted instruction that made explicit links to students' cultures, community, and out-of-school lives, a cornerstone of culturally competent teaching (Ladson-Billings, 2001).

As we hypothesized, STs took actions of various kinds to learn about students: researching contexts and histories; examining student work and performance at full-class, subgroup, and individual levels; and asking and listening beneath the surface to students' reasoning, attitudes, beliefs, and concerns about school learning and other issues. Various assessment and inquiry tools supported the process, helping STs develop data literacy to attend to CLD learners. Of note was the number of STs (93.4%) whose TI work analyzed *patterns* of student performance and learning

challenges. On one hand, this high number is no surprise, given explicit instruction and workshops in pattern-finding related to student work with both quantitative and qualitative data, as well as guidance to reflect on data and data analysis through use of field memos. Nonetheless, that STs clearly took up this TI process is noteworthy because pattern-finding in review of student work is not a natural process for teachers (Korthagen, 2010). Without engaging in such analyses, teachers struggle to make sense of collected data, much less to use results of such analyses for reflection on student learning and teaching and to redirect instruction as needed.

As we reported distribution of STs' performances on use of the 17 indicators, we found STs were distributed widely from scores of 2 to 17. When we looked at three White male STs at three levels of performance, we found that linking instruction to students' lives was managed with extremely varied degrees of success. At the low end was an ST relatively unresponsive to particular students. The other two struggled to make these links but found support to do so through mentor and peer conversations. However, just the high performing ST managed to maintain a situated TI responsive to his particular CLD learners throughout. These varied performances speak to the ongoing monitoring and support needed to keep inquiry responsive to CLD students.

A pair of cases illustrated the range of TI tools STs used to learn about their CLD learners, to generate data and evidence about learning, and to act in ways responsive to what they learned about students. The cases showed two STs using TI to learn about and respond to student needs. Both STs demonstrated thoughtful data literacy, using varied data collection tools and careful analyses to prompt their reflection on action (Schön, 1983). The case of Janice illustrated ways an ST can learn to use data as formative assessment, guiding next-steps instruction. The case of Martha illustrated close examination of focal students and ongoing data collection and analysis to learn more about how to better meet CLD students' learning needs. That both Janice and Martha explored such an array of data collection tools and brought such care to analysis, reflection, and next-steps instruction indicates potential of TI to promote learning to attend to CLD learners.

Inquiry is not an inherent practice of teaching, and many would resist it as add-on, another time-consuming activity for often-burdened teachers. However, STs' engagements with TI tools and processes in our study illustrate how TI promotes reflection and knowledge and can guide and focus instruction in ways that target specific academic goals for specific individuals and subgroups of students. In this way, TI and instruction can be mutually informing and mutually supportive. Part of what allowed the process to work was that TI pressed STs to "freeze the learning" and tease it apart analytically by examining student work, performance, and attitudes as material worth turning into data to reveal patterns and trends. These are methods and processes generally assumed to be out of STs' reach, reserved for more experienced teachers. However, this study provides evidence that even in preservice, teachers can learn to look analytically at the learning needs and performances of individual CLD students, long before traditional models predict. In addition, STs' uses of data analysis to guide next-steps instructional actions illustrate STs using formative tools in what approaches assessment in a learning culture (Shepard, 2000).

This is timely evidence. Reports are widespread that teachers feel less autonomous, often called on to use standardized tests and results to guide instruction. Teachers need also to be part of a culture that supports teacher agency and decision-making in the context of their practice, especially if they develop deep knowledge of their students and their needs. TI can support this effort by enabling teachers to generate practice-based evidence, derived in the context of teachers' real classrooms (McNamara, 2002). Early entry into inquiry can equip teachers with strategies and inquiry tools to ask questions, observe and inquire, generate evidence, and build arguments about

their CLD students' learning. It is possible that teachers who learn in TE to value inquiry and use the process effectively will do so in the future in some form, since how we learn to teach informs future practice (D'all Alba & Sandberg, 2006). Early-career jobs and contexts shape and constrain teachers' ideologies, goals, agency, and practice in teaching diverse learners (Buendía, 2000; Causey, Thomas, & Armento, 2000; Stodolsky & Grossman, 2000). Efforts in preservice to promote focused examination of CLD learners with unique learning needs and resources are efforts well spent. Our study contributes to scholarship and practice in this key area. While we cannot argue a causal claim, our study suggests that the TI model in the program we studied is associated with STs' agency, knowledge, and skills for tracking their students' learning.

Our study was limited by its rather short timeframe, focused on work produced by each ST in a 10-week period. To mitigate this concern, we examined work of a fairly large number for mostly qualitative analyses, featuring TI conducted by 80 STs over a six-year period. The study nonetheless does not offer longitudinal perspectives on individual STs' trajectories with TI into the first years of teaching. We can note anecdotally that STs who continued with MA coursework found the credential-year TI (focus of the present study) scaffolded later TI and demonstrated ways TI can promote close attention to CLD learners. A follow-on study is examining such links to provide longitudinal perspectives of a group of graduates (now early-career teachers) reflecting on and critiquing their preparation to conduct TI that promotes close attention to CLD learners.

Our study also is limited by its focus in a single TE program. Therefore we situated the work to clarify its context-specific nature. With so many TI models sharing few elements (Reis-Jorge, 2007), researchers need to clarify models and features. Several institutional factors supported the work: credentials focused on CLD students, program history of infusing attention to equity and CLD students in coursework and supervision, and student teaching placements in sites highly diverse, high ELL, high poverty, and high need. While these factors supported STs' engagements with TI, we also worked to clarify elements of the model that informed and shaped STs' practice and our results: the TI series; the model featuring content, context, and professional community; and the scaffolds, tools, and social interactions that guided and supported the work. We do not argue which among programmatic and pedagogical elements are most essential in supporting STs' inquiry on learning to attend to CLD learners. We have, however, described ways STs took up opportunities to engage in this inquiry and we reported from STs' discourse and reflections on their assessments of TI processes and tools they believe supported this work.

## **Conclusion**

Recent TE research reviews call for cross-program research initiatives (Floden, 2008). We envision such partnering to expand, compare, and contrast ways TI fosters STs' attention to CLD learners. Those interested in studying multiple STs' inquiries may need to develop frames and analytic methods to examine a corpus of cases. Generating evidence in this way requires attention to the learning such inquiry affords in multiple examples. The present study was grounded in a belief that such crosscutting analyses accumulate knowledge to disseminate to larger audiences, challenging conceptions that values of TI are purely local, serving only those directly involved.

This does not minimize the important function of inquiry to prompt action and change at the local level. Our analyses through this and related studies are shaping a new wave of action, pedagogy, and inquiry focused on addressing some of the less successful and problematic areas surfaced by our analyses. In addition, though, larger audiences need to learn of instructional practices STs test to meet CLD students' needs, the student learning teachers examine, and

methods, tools, data, and data analysis they use. Examining bodies of work such as this can prompt the field to develop conditions needed for teachers to engage in such inquiry; institutional arrangements to support the work (grants, partnerships, teacher learning groups, and release time); and evidence of how particular inquiry models in particular contexts may help equip a teaching force with inquiry practices and tools to better attend to and meet the needs of CLD learners.

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Table 1  
*Data Purposes, Sources, and Analytic Methods*

Purpose of Data	Data Sources	Tools for/Method of Analysis
Student generated data in service of learning inquiry process	Inquiry project	Table documenting ELA focal area, research questions, sub-questions, instructional strategies used, and grade level of focal class
		Table documenting assessment modes and levels used (Stiggins, 1994)
		Table documenting demographics of community, school, and focal class
		Template for constructing case study—includes project title, context, presenting problem, plans for instruction/strategies, data collected/assessment, evidence of learning about learners including how learned and what learned
Researcher generated data in service of studying learning of inquiry process	Field memos written by student teachers	Coded for emerging themes using constant comparative method (Merriam, 1998)
	Reflective memos written by student teachers	Coded for emerging themes using constant comparative method
	End-of-term reflective questionnaire completed by student teachers	Coded for emerging themes using constant comparative method
	Taped discussions between student(s) and instructor outside of class	Transcribed and coded for emerging themes using constant comparative method
	Taped work group discussions	Transcribed and coded for emerging themes using constant comparative method
	Taped inquiry classroom events	Transcribed and coded for emerging themes using constant comparative method
	Taped end-of-term debrief discussion with whole class	Transcribed and coded for emerging themes using constant comparative method
Observation field notes of inquiry class written by researchers	Coded for emerging themes using constant comparative method	
Reflective memos written by researchers	Coded for emerging themes using constant comparative method	

Table 2

*Indicators of Attention to Individual and Culturally and Linguistically Diverse (CLD) Students and Their Learning in Preservice Teachers' Inquiry Projects*

<b>Inquiry domains</b>	<b>Indicator</b>	<b>Specifications for rater</b>	<b>Illustration from data (and participant #, N = 80)</b>
Formulate questions and frame inquiry	Community demographics delineated by CLD	CLD demographic data are included for community	Population of (community): 36,468: Latino 34%, White/Caucasian 26.7%, Asian American 17.4%, African American 16.6%, Native American 1.5%, Other 3.1% (#44)
	School demographics delineated by CLD	CLD demographic data are included for school	From slide: 1018 students, 96 faculty and staff; Most students "economically disadvantaged"; Students represent wide ethnic diversity From narrative: 219 identify themselves as African American, 21 as Indian, 12 as Cambodian, 65 as Chinese, 32 as Filipino, 3 as Guamanian, 5 as Hawaiian, 293 as Hispanic, 21 as Laotian, 7 as Native American, 25 as other Pacific Islanders, 141 as other Asian, 2 as Samoan, 56 as Vietnamese, and 108 as White. (#56)
	Class demographics delineated by CLD	CLD demographic data are included for focal class	8 <sup>th</sup> grade ELD (All EL): 24 students, 12 girls, 12 boys; 1 European, 14 Southeast Asian, 9 Hispanic (#11)
	CLD in research question (RQ), focus, framing	Attention to CLD or academic literacy mentioned in purpose, RQ, or Evidence Justifying Need slide or in notes on any slide	"Will think alouds and quickwrites help English language students improve their ability to make predictions in literature?" (#11)
	CLD in literature sources	Literature sources address CLD-specific instructional practices	Carroll, Blake, Camalo, & Messer (1996). When acceptance isn't enough: Helping ESL students become successful writers. <i>The English Journal</i> . (#3)
	Linking literature sources to CLD learners	Clearly articulates the link between one or more literature sources and CLD learners	"The Kresovich article is perfect for me. His research was done on English learners in Japan. My students are all English language learners. This research proves that this type of intervention can have positive effects. Kresovich wanted to, 'encourage novice writers to overcome their writers' block and consider content over form, give [students] much-needed opportunities to write, promote thinking in English, increase confidence, and prepare students for later writing tests.' These are very similar to my goals." (#32)
Design action	High challenge instruction	Curricular content is appropriately challenging	Class discussion, journaling, and, book talk groups for <i>Their Eyes Were Watching God</i> by Zora Neale Hurston (#1)
	High support (scaffolds)	Scaffolds facilitate access to high level curriculum	Group Discussion tasks include: Summarizer, Visual Producer, Connector, Question Generator, Quote Finder, Discussion Leader, and Evaluator (#1)
	Links instruction to outside worlds	Articulates how connects learning experiences to students' outside interests and experiences with instruction	Students asked to link events from <i>House on Mango Street</i> by Sandra Cisneros to songs, movies, books, and personal experiences (#4)

Collect data on student performance and beliefs, values, attitudes	Learns about student interests, views through observations	Articulates how uses observations to learn about student beliefs, interests, and funds of knowledge	Narrative from Slide 9: "I decided to follow-up a justification for my research with an observational journal." Slide 21: Provides a chart from tallies taken during observation of student behavior during class discussion. (#15)
	Learns about student interests, views through interviews/discussion	Articulates how uses interviews or discussion to learn about student beliefs, interests, and funds of knowledge	"When class was just about over and students had moved their desks back, I talked with students about how then they could use this activity and the questions and suggestions they received to help them as they revise their essays. Many students had interesting things to say about why we did the exercise, its importance, and use." (#75 – p. 17)
	Learns about student interests, views through surveys	Articulates how uses surveys to learn about student beliefs, interests, and funds of knowledge	Student Discussion Survey (Likert Scale) Sample Questions: Books are full of issues, ideas, and beliefs that are worth talking about. I wish I had a better opportunity to express myself in English class. (#1).
	Includes CLD focal students	Reports CLD focal case throughout the study	Student 1: Male, Mexican-American; Student 2: Female, Hmong; Student 3: Male, Hmong; Student 4: Female, Mien; Student 5: Male, Vietnamese (#11)
Analyze	Notes patterns, trends among learners grounded in data	Identifies patterns/trends that emerge from close analysis of student data	From Slide 23: Data Source 3: Data Collection tool: Discussion Survey Open-ended survey question: How has this class guided or prepared you for academic discussion? Emerging themes from student survey: Elaborating on ideas, questioning, rephrasing, sharing; Confidence speaking in group; Supporting student learning by clarifying ideas/concepts; Has not guided discussion skills (#47)
	Provides examples to illustrate patterns, trends	Articulates specific examples to help illustrate patterns/trends noted	From Slide 25 Narrative: "In addition, there were three separate students that cited specific activities such as the fishbowl, 'job cards' and literature circles as guiding and preparing them for discussion." (#47)
	Unpacks examples of patterns, trends	Uses patterns to reflect on learners' needs and pedagogy used and/or future instruction	From Slide 25 Narrative: "The fact that students are able to connect the specific activities to the overall goal tells me that students understand the purpose, objectives and goals of the activities and tasks . . . If I had more time, an interview with one of these students [who responded "I don't know"] would be interesting to see if I could learn more about what specifically they don't know, don't care about or are confused with." (#47)
	CLD dimensions of students specified, addressed in data analysis	Articulates understanding of how patterns/trends play out in terms of CLD, including culture, language, and other demographic indicators	"These interviews lead me to believe that this research project pivots on the fact that they are ELLs and the language barrier gets in the way of many students' ability to comprehend the reading, interact with the text, and therefore decreases their motivation to read." (#35)

Table 3  
*Themes from Coded Questionnaire Data: Examples of Coding Process*

<b>Theme</b>	<b>Language from student teacher questionnaire data</b>
Developing heightened awareness of individual students' strengths and needs and group level needs	Teacher inquiry can support teachers' knowledge in EL instruction in that it forces a teacher to look deeper into students' individual needs, causing the needs of ELLs in the classroom to come to the surface
Changing instructional practices to meet student needs	I wasn't helping them (my EL students) reach those expectations merely because there wasn't enough scaffolding, modeling, and time to practice the skills I wanted them to master. I became much more aware of their needs.
New understandings of student learning challenges	I definitely became more aware of my EL students' struggles with language
The value of analyzing individual student work	(Inquiry) forces us, as teachers, to take a more detailed look at our students and to become more informed about students' backgrounds and communities

Table 4 *Number of ST Inquiries Demonstrating Each CLD Indicator*

<b>Inquiry Domains</b>	<b>Indicator</b>	<b>Specifications for rater</b>	<b>Number (and percentage) of projects demonstrating (n=80) Bold = 50% +</b>
<b>Formulate questions and frame inquiry</b>	Community demographics delineated by CLD	CLD demographic data are included for community	<b>43 (53.8%)</b>
	School demographics delineated by CLD	CLD demographic data are included for school	<b>70 (87.5%)</b>
	Class demographics delineated by CLD	CLD demographic data are included for focal class	<b>65 (81.3%)</b>
	CLD in RQ/Focus/Framing	Attention to CLD or AL mentioned in Purpose, RQ, or Evidence Justifying Need or in notes on any slide	31 (38.8%)
	CLD in literature sources	Literature sources address CLD specific instructional practices	27 (33.4%)
	Linking literature sources to CLD learners	Clearly articulates the link between one or more literature sources and CLD learners	25 (31.3%)
<b>Design action</b>	High challenge instruction	Curricular content is appropriately challenging	<b>68 (85%)</b>
	High support (Scaffolds)	Scaffolds facilitate access to high level curriculum	<b>76 (95%)</b>
	Links instruction to outside worlds	Articulates how connects learning experiences to students' outside interests and experiences with instruction	29 (36.3%)
<b>Collect data on student performance and beliefs, values, attitudes</b>	Learns about student interests, views through observations	Articulates how uses observations to learn about student beliefs, interests, and funds of knowledge	36 (45%)
	Learns about student interests, views through surveys	Articulates how uses surveys to learn about student beliefs, interests, and funds of knowledge	36 (45%)
	Learns about student interests, views through interviews/discussion	Articulates how uses interviews or discussion to learn about student beliefs, interests, and funds of knowledge	10 (12.5%)
	Includes CLD focal students	Reports CLD focal case throughout the study	18 (22.5%)
<b>Analyze</b>	Notes patterns/trends among learners grounded in data	Identifies patterns/trends that emerge from close analysis of student data	<b>75 (93.4%)</b>
	Provides Examples to Illustrate Patterns/Trends	Articulates specific examples to help illustrate patterns/trends noted	<b>67 (83.8%)</b>
	Unpacks examples of patterns/trends	Uses patterns to reflect on learners' needs and pedagogy used and/or future instruction	<b>57 (71.3%)</b>
	CLD characteristics specified/addressed	Articulates understanding of how patterns/trends play out in terms of CLD, including culture, language, and other demographic indicators	24 (30%)

Table 5

*Two Cases of Preservice English Language Arts Teachers Learning about Learners*

	<b>Janice</b>	<b>Martha</b>
<b>Project title</b>	Developing synthesis writing skills	Improving male students' attitudes towards reading through Silent Sustained Reading
<b>School</b>	suburban	urban (Title I)
<b>School demographics</b>	Latina/o 52%; White 41%; Asian 4%; African American 2%; Other 1%	Latina/o 47%; Asian 25%; African American 18%; White 6%; Other 4%
<b>Free/reduced lunch</b>	46%	89%
<b>Grade level</b>	12 <sup>th</sup> grade	8 <sup>th</sup> grade
<b>Course title</b>	Literature and Composition	ELL Language arts and reading
<b># of students</b>	29	26
<b>Class ethnicities</b>	Latina/o, Indian, Russian, Finnish, Caucasian	Latina/o, Hmong, Mien, Vietnamese
<b>ELL L1</b>	Spanish, Hindi, Russian, and Finnish	Spanish, Vietnamese, Hmong, Mien
<b>Research question</b>	How does providing multiple scaffolding techniques help students improve their synthesis writing skills?	How do changes in time and reading choice impact male students' attitudes towards silent sustained reading?
<b>Targeted instructional activities</b>	Student pair think-aloud of synthesis process; graphic organizer to organize and synthesize information; revision of pre-constructed synthesis using check-off list	Twice-weekly SSR; reading logs; whole-class book talks; incentive program; regular trips to library
<b>Data collected</b>	Synthesis paragraph before and after project; surveys before and after project; written reports of think aloud; completed graphic organizers; revised synthesis paragraph	Reading surveys before, during, and after project; reading logs; observational notes; notes on individual conferences with six focal students
<b>Evidence of learning about learners</b>	Detailed description of class profile including own observations; use of surveys to guide instructional decisions; reporting on patterns in student behavior; using patterns to guide close analysis of individual students' work	Documentation of use of first survey to guide focal student selection; reporting patterns in student behavior; connections between individual responses and observation notes; conclusion that access to books and time increase motivation in reading
<b>CLD indicators present within project</b>	<p><b>9/17 present</b></p> <p><b>Formulate Questions:</b> Class demographics delineated by CLD; CLD in RQ/Focus/Framing &amp; Literature Sources; Linking lit sources to CLD learners</p> <p><b>Design Action:</b> High challenge instruction; High support (scaffolds)</p> <p><b>Collect Data on Student Performance and Beliefs:</b> Learns about student interests, views through Observations &amp; Surveys</p> <p><b>Analyze:</b> Notes Patterns/Trends Among Learners Grounded in Data; Provides &amp; Unpacks Examples to Illustrate Patterns/Trends</p>	<p><b>13/17 present</b></p> <p><b>Formulate Questions:</b> Community, School, &amp; Class demographics delineated by CLD; CLD in RQ/Focus/Framing &amp; Literature Sources; Linking lit sources to CLD learners</p> <p><b>Design Action:</b> High challenge instruction; High support (scaffolds)</p> <p><b>Collect Data on Student Performance and Beliefs:</b> Learns about student interests, views through Observations &amp; Interviews/Discussion; Includes CLD focal students</p> <p><b>Analyze:</b> Notes Patterns/Trends Among Learners Grounded in Data; Provides &amp; Unpacks Examples to Illustrate Patterns/Trends; CLD characteristics specified/addressed</p>

Figure 1  
*Student Demographics in Classrooms where Secondary ELA  
Preservice Teacher Inquiries were Conducted, 2004-2009*

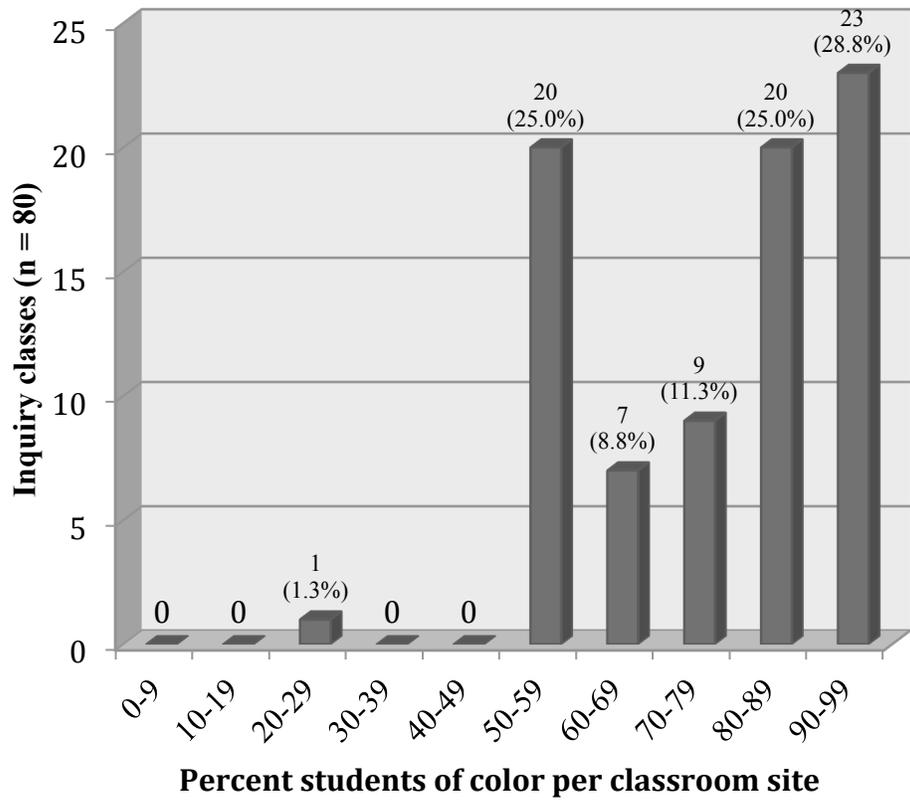


Figure 2  
*School Site Placements for ELA Preservice Teacher Inquiries (2004-2009) by Percent of Students Certified for Free or Reduced Lunch per School*

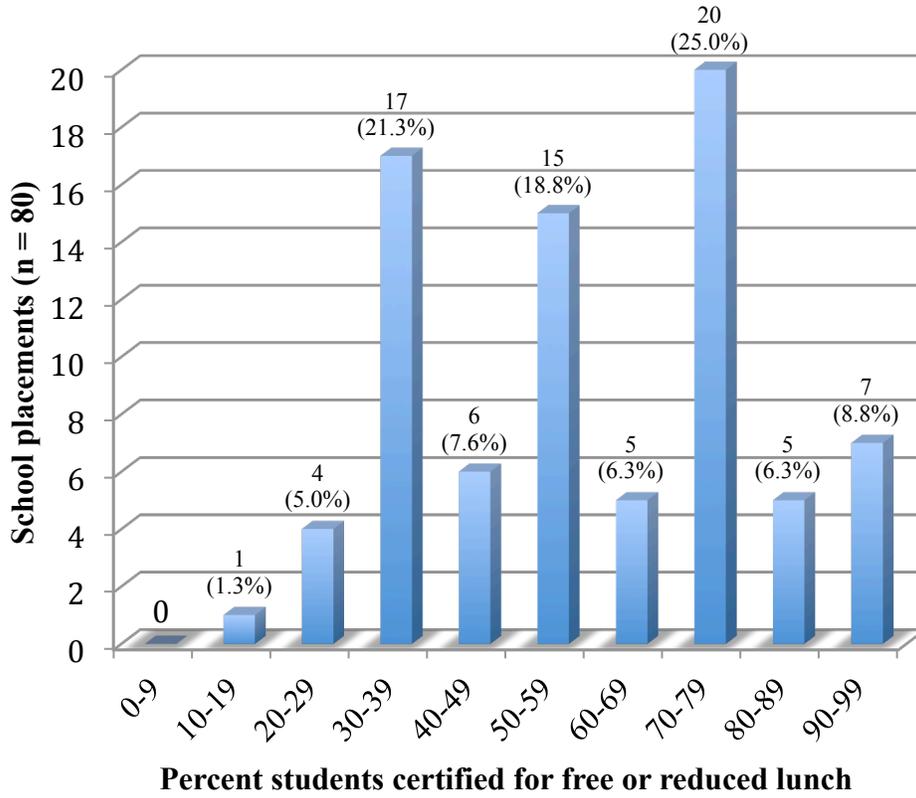


Figure 3

*Distribution of Number of CLD Indicators Present in Student Teacher Inquiries*

