



## **Development Through Dissonance A Longitudinal Investigation of Changes in Teachers' Educational Beliefs**

**Carrie R. Giboney Wall**

### **Abstract**

Teachers' beliefs about teaching and learning are constructed over a lifetime of experiences in classrooms. This nine-year longitudinal study examines preservice teachers' initial educational beliefs and the changes in those beliefs over their teacher preparation program and into their first six years of teaching. Analysis of questionnaires, interviews, and surveys from six teachers revealed that they initially believed that students were similar to themselves, that students in the same grade have similar abilities, that teaching was simple, and that teachers function autonomously. Nine years later, they believed that students differ from one another and from themselves, that differentiating instruction is essential but difficult, that teaching is complex, and that teaching is often constrained by outside factors. The data suggested a common progression from initial idealism, to cognitive dissonance, to a search for an authentic teaching persona, to confidence in their new role as teacher, and then to diminished idealism.

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Carrie Giboney Wall is an assistant professor of teacher education and the coordinator of the Teacher Preparation Undergraduate Program at Pepperdine University, Malibu, California. Her email address is: [carrie.wall@pepperdine.edu](mailto:carrie.wall@pepperdine.edu)  
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## **Introduction**

Beliefs about teaching and learning are formed over a lifetime of experiences in classrooms and profoundly affect pedagogical decisions and actions in the classroom (Caudle & Moran, 2012; Chant, Heafner, & Bennett, 2004; Lavigne, 2014; Levin, 2003; Levin & He, 2008; Levin, He, & Allen, 2013; Pajares, 1992; Pham & Hamid, 2013). During preservice teachers' (PSTs') prolonged exposure to the work of teachers during their years of compulsory education, a period of time Lortie (1975) referred to as the "apprenticeship of observation," PSTs form preconceptions about what it means to teach. From their limited vantage points as students, PSTs internalize many of the values and practices of their teachers and develop their own beliefs about good teaching practice without the influence of formal instruction (Knowles & Holt-Reynolds, 1991).

The term *belief* has been defined as an understanding that guides, influences, and shapes an individual's intentions for action (Hancock & Gallard, 2004). Other terms utilized when referring to these powerful tacit assumptions about classrooms, students, and curricula (Kagan, 1992) are *implicit theories* (Clark, 1988; Fives & Buehl, 2008), *lay theories* (Knowles & Holt-Reynolds, 1991), *intuitive screens* (Goodman, 1988), and *personal practical theories* (Cornett, Yeotis, & Terwilliger, 1990; Levin & He, 2008; Levin et al., 2013). Regardless of the term used, most researchers agree that the beliefs of PSTs are "deeply personal" (Pajares, 1992, p. 309), do not require general consensus (Bryan, 2003), and stand at the core of becoming a teacher (Lortie, 1975; Pajares, 1992).

## **Theoretical Framework**

Two key bodies of scholarship form the theoretical framework for this study: (a) research on the influence of teachers' beliefs on learning within a teacher preparation program (TPP) and (b) research on the constructive process of learning to teach often catalyzed by cognitive dissonance. Each of these will be examined in turn.

### ***Influence of Teacher Beliefs on Teacher Learning***

Many educational researchers have agreed that beliefs serve as filters (Fives & Buehl, 2012; Kagan, 1992; Lortie, 1975; Weinstein, 1990) or screens (Goodman, 1988) through which PSTs view and interpret new knowledge (Bryan, 2003; Gill & Fives, 2015; Lavigne, 2014; Levin & He, 2008; Mohamed, 2014; Richardson, 2003; Weinstein, 1990), often causing them to weigh the potential effectiveness of a methodology based on personal preference or familiarity (Holt-Reynolds, 1992; Levin & He, 2008; Richardson, 2003) instead of researched best practices (Fives & Buehl, 2008). PSTs tend to be strongly influenced by university professors and/or course content that upholds their existing conceptions about teaching (Goodman, 1988) and do not eagerly consider alternative pedagogical methodologies (Bryan, 2003), even if they seem logical.

Because preconceptions of PSTs are formed by witnessing teachers' external behaviors (not private intentions) from student-oriented perspectives (Lortie, 1975), they have often been found to be teacher centered (Levin et al., 2013), idealistic (Furlong & Maynard, 1995), situated (Levin, 2015), and, in some cases, ineffective or outdated (Bryan, 2003; Furlong & Maynard, 1995; Holt-Reynolds, 1992; Pajares, 1992; Stuart & Thurlow, 2000) and difficult to change (Bryan, 2003; Feiman-Nemser, 2008; Kagan, 1992; Leavy, McSorley, & Bote, 2007; Pajares, 1992; Raths, 2001; Richardson, 2003; Thompson & Zeuli, 1999; Weinstein, 1990). Such beliefs can hinder PST learning (Fives & Buehl, 2008; Kagan, 1992) and inhibit the implementation of more creative, student-centered knowledge-construction pedagogies (Britzman, 1991; Bryan, 2003; Furlong & Maynard, 1995; Hollingsworth, 1989). There is consensus among researchers that teacher beliefs lie "at the very heart of teaching" (Kagan, 1992, p. 85) and that "understanding more about the content and the source of teachers candidates' beliefs is essential for teacher educators" (Levin & He, 2008, p. 56).

### ***Constructivism and Cognitive Dissonance in Teacher Education***

Constructivism as a learning theory originated with Dewey, Piaget, and Vygotsky. Challenging traditional, transmissive approaches to education, Dewey (1938) advocated for a greater focus on the social development of the learner, active engagement in relevant learning experiences, and the communal construction of knowledge. Vygotsky (1978) later posited that learning is not something passively absorbed but rather actively *constructed* in response to social interactions through social negotiation, scaffolding by "more knowledgeable others," discourse, reflection, and explanation.

From a cognitive constructivist perspective, Piaget (1952) posited that learning occurs through three interrelated processes: organization, adaptation, and equilibration. He theorized that individuals construct personal meaning and understanding when they experience cognitive disequilibrium by encountering information that does not align with their existing schemas, adapting their cognitive structures to fit the new information and restoring equilibrium or balance among cognitive elements. Expanding on Piaget's concept of cognitive disequilibrium in the field of science, Strike and Posner (1992) examined the process of conceptual change, defining it as a transformative restructuring of an existing conception or belief. For conceptual change to take place, Strike and Posner posited that learners must experience cognitive dissonance within their current understandings to be "forced" to consider other explanations that are plausible, intelligible, and fruitful. Without cognitive dissonance, they contended, people maintain the status quo in their conceptual structures. Though initially taking an overly cognitive approach, Strike and Posner later embraced a more holistic view, suggesting that emotion and social elements also impact conceptual change.

In their call for transformative learning experiences, Thompson and Zeuli

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(1999) posited that learning to teach is both cognitively and socially constructed and that PSTs should experience cognitive dissonance, examine personal beliefs and assumptions, view situations from multiple perspectives, ask questions in a learning community, and try out new approaches. As such, Thompson and Zeuli identified five components present in teacher education programs that facilitate *transformative learning* (a deep structural shift in thinking) as opposed to mere *additive learning* (cognitive “tinkering” in which most conceptions remain intact): (a) create a high level of cognitive dissonance between existing beliefs and classroom experiences; (b) provide sufficient time, structure, contexts, and support for teachers to think through the dissonance; (c) embed dissonance-creating and dissonance-resolving activities in teachers’ situations and practices, and not in isolation from the classroom; (d) enable teachers to develop a new repertoire of practice that fits with their new understanding and allow them to mobilize their new understandings in classrooms; and (e) engage and support teachers in a continuous cycle of improvement. Thompson and Zeuli (1999) argued that if transformative learning is to occur, teachers “will have to unlearn much of what they believe, know, and know how to do while also forming new beliefs, developing new knowledge, and mastering new skills” (p. 341).

Numerous articles have documented the importance of PST encounters with dilemma-ridden educational situations as a way of promoting cognitive disequilibrium or dissonance and forcing PSTs to confront and modify their personal beliefs about teaching and learning (Hill, 2000; Hollingsworth, 1989; Kagan, 1992; Levin, 2003; McFalls & Cobb-Roberts, 2001; Raths, 2001; Thompson & Zeuli, 1999; Weinstein, 1990). Hollingsworth (1989) and Weinstein (1990) found success in placing PSTs with cooperating teachers who did not share their educational views as a way of promoting disequilibrium and eventual intellectual growth. Hill (2000) and McFalls and Cobb-Roberts (2001) found cognitive disequilibrium and the tolerance for ambiguities to be central to intellectual growth in their education courses. Galman (2009) found that dissonance was the catalyst to the identity development of PSTs, enabling them to reconcile two discordant realities: their *individual* idealistic conceptions of becoming a teacher and *institutional* realities concerning the bureaucratic and politicized terrain of schools. Galman claimed that dissonance enables teachers to “take the cognitive leaps and risks necessary for reflective and transformative learning” (p. 471). Rosenberg (1977) termed the incompatibility between a teacher’s educational beliefs and the prevailing norms of his or her school *contextual dissonance*, and harmony between the two was termed *contextual consonance*. In her 15-year longitudinal study, Levin (2003) concluded that cognitive dissonance is resolved internally (through thinking, reflection, and metacognition) and externally (through reading, attending workshops, and conversations with others) simultaneously.

An integration of the literature on the impact of teacher beliefs on the learning-to-teach process, constructivism in teacher education, and the power

of cognitive dissonance to promote conceptual change provides an investigative theoretical lens through which this longitudinal study on changes in teachers' education beliefs was examined.

### **Significance of the Study**

Although the literature documents the powerful influence that educational histories have on constructing initial beliefs (Bryan, 2003; Bullough & Stokes, 1994; Chant et al., 2004; Feiman-Nemser, 2008; Furlong & Maynard, 1995; Holt-Reynolds, 1992; Kagan, 1992; Lavigne, 2014; Leavy et al., 2007; Levin & He, 2008; Lortie, 1975; Sexton, 2004; Wall, 2016), little empirical attention has been given to investigating the robustness of beliefs throughout the TPP, and even fewer studies have followed participants into their in-service teaching years (Caudle & Moran, 2012) and across the span of their teaching careers (Ammon & Levin, 1993; Levin, 2003; Levin et al., 2013). The present study reports on the continuing analysis of data collected from teachers over a 9-year period. The first segment of the study generated rich descriptions of the beliefs of the PSTs at the onset of a TPP and investigated how and to what extent those beliefs changed throughout a 2-year TPP (Wall, 2016). The second segment of the investigation was conducted 6 years after program completion by following up with the same participants in an effort to understand the ways in which their beliefs continued to change over their years of in-service teaching and how teachers navigated dissonance in teacher education contexts. Professional and personal commitments prevented the researcher from collecting data more frequently during those 6 years. A third segment of the study is being considered. Because dissonance played an important role in PST belief construction and identity formation in the first segment of the study, careful investigative attention was given to the role of dissonance on teachers' beliefs in the second segment, after 6 years of in-service teaching.

In response to the gap in the literature of research on teachers' beliefs across time, this article summarizes and builds on the initial findings of Wall (2016), providing a longitudinal approach chronicling changes in teachers' beliefs as they move out from under the umbrella of their TPPs and into their in-service teaching. By investigating teachers' beliefs, teacher educators are better positioned to foster the development of knowledge, skills, and dispositions essential for teachers to persevere in today's standards-focused, high-stakes environment (Levin, 2015; Levin et al., 2013). Teachers themselves can also benefit from this research by developing a meta-awareness of the role beliefs play in teaching practice, the common areas of teacher dissonance, and prevalent changes in pedagogical beliefs over the teaching journey. It is hoped that research findings will inform the understandings, sensitivities, and pedagogical practices of teacher educators, school administrators, and induction personnel as they seek to prepare and support teachers to effectively meet the needs of all students in a variety of educational contexts.

## **Research Methodology**

This longitudinal, comparative case study builds on Wall's (2016) investigation of preprogram beliefs about teaching and learning and the ways in which those beliefs changed throughout the TPP. Two research questions were addressed in that foundational research:

1. What did entry-level PSTs believe about teaching and learning upon entering a TPP?
2. How did these beliefs change throughout their TPPs?

The present study reports on a continued analysis of those beliefs into participants' in-service teaching, culminating in an investigation of the progression and extent of changes in beliefs over the 9-year period. As such, one additional research question helped focus the data collection and analysis efforts: (c) How and to what extent did these beliefs change after 6 years of teaching?

## **Participants and Context**

This 9-year longitudinal mixed-methods study was conducted with female elementary teachers at a small, private university in California. The undergraduate integrated TPP allows students to work toward their bachelor's degree (typically in liberal arts) and their teaching credential simultaneously over a 4-year period. The participants were originally invited to participate in the first segment of the research (Wall, 2016) through their enrollment in a one-semester entry-level education foundations course. Of the 17 students enrolled in that course, 6 multiple-subject (elementary) teacher candidates agreed to participate in the research over their TPP, focusing the inquiry solely on the experiences and conceptual growth of elementary PSTs. Chloe

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**Table 1**  
**Teaching Experiences of Four Participants**

<i>Participant</i>	<i>Teaching experience</i>
Chloe	Taught fourth grade for 3 years at an international school in Rwanda and fifth grade for 2 years at a charter school in Los Angeles, California
Leigh	Taught elementary school for 6 years in a Southern California public school
Lyn	Taught fifth grade for 3 years and third grade for 3 years at a private Christian school in Southern California
Tina	Taught fifth grade for 1 year and kindergarten for 1 year at a public school in Southern California; served as a Reading and Math Specialist for 4 years in Montana

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classified herself as African American, and the other five self-classified as European American. All were 20–21 years of age at the onset of the study.

Qualitative and quantitative data were gathered throughout the 2-year TPP and were analyzed to address Research Questions 1 and 2 (Wall, 2016). Six years later, two teachers (Barb and Sue) left teaching and discontinued their participation in the research, decreasing the number of participants to four to address Research Question 3. The work experiences of the four remaining participants are provided in Table 1.

### **Data Sources and Collection**

Data collection was triangulated from numerous sources to “search for convergence among multiple and different sources of information to form themes or categories” (Creswell & Miller, 2000, p. 126) and to increase the trustworthiness and reliability of the study. Quantitative and qualitative data in the form of surveys, questionnaires, and interviews were collected in four phases and were subsequently analyzed.

The Witcher–Travers Survey of Educational Beliefs (WTSEB), administered three times throughout the study, is a 40-item, 5-point Likert scale instrument designed to identify beliefs about teaching and learning. The instrument’s possible scores range from 0–40, with higher scores indicating a proclivity toward progressive educational beliefs and lower scores toward transmissive beliefs. The instrument evolved through several stages of validity testing and was reviewed by content experts as well as students in several history and philosophy of education classes. Test–retest reliability was established by surveying a random sample of 70 Arkansas public school superintendents and then having them complete the instrument again 4 months later (Witcher & Travers, 1999). The Pearson product moment correlation coefficient was computed to be .63, which is statistically significant at the .01 level. Additionally, a questionnaire asking the same two open-response questions was also administered five times throughout the study to investigate changes in beliefs in a

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**Table 2**  
**Data Collection Timeline**

<i>Collection phase</i>	<i>Data collected</i>
Phase 1, during Educational Foundations course	Questionnaire 1 (precourse), WTSEB 1, Interview 1 (postcourse), Questionnaire 2 (postcourse)
Phase 2, midway through the program	Questionnaire 3, Interview 2
Phase 3, during the final semester of student teaching	Questionnaire 4 (postsemester), Interview 3 (mid-semester), Interview 4 (postsemester), WTSEB 2
Phase 4, 6 years after program completion	Questionnaire 5, Interview 5, WTSEB 3

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systematic way. The questions were as follows: (a) What do you think is the role of the teacher? and (b) What teaching methods does an “effective” teacher use?

Five 1-hour interviews conducted at specific junctures over the 9-year investigative period proved to be the richest data source. An interview guide (Patton, 1990) comprising “grand tour” questions (Spradley, 1979) kept the conversations focused, effectively capturing teacher insights into teachers’ roles, “effective” teaching methods, cognitive dissonance, and areas of self-reported change in thinking and beliefs. All interviews were audio-recorded and subsequently transcribed. Quotations from the five interviews are denoted throughout this article by I1 (Interview 1), I2 (Interview 2), I3 (Interview 3), I4 (Interview 4), and I5 (Interview 5). The four phases of the data collection process are delineated in Table 2. Phases 1–3 were conducted and reported in the first segment of the research (Wall, 2016), and Phase 4 was conducted 6 years later as part of the second segment of the longitudinal investigation.

By using “multiple methods to study a single problem” (Patton, 1990, p. 187), the methodological triangulation of this study provided numerous lenses through which to examine teacher beliefs and construct rich descriptions of the ways in which they changed throughout teachers’ developmental journeys.

#### **Data Analysis**

Quantitative survey data were analyzed by examining shifts in participants’ individual survey scores and by comparing participant means and standard deviations at the beginning of the program with the end of the program and then 6 years after program completion. The qualitative data were analyzed as individual case studies and then using a cross-case analysis. To investigate individual changes in beliefs over each participant’s teaching journey, the data were read and sorted by participant in response to each of the three main research questions. A matrix for each participant was created with the two belief categories (role of the teacher and teaching methodologies of “effective” teachers) listed horizontally and data from the four phases of data collection listed vertically. As data were read multiple times, quotations from questionnaires and interviews were entered in the appropriate box on the chart to capture each participant’s thinking and beliefs in one document for comparison. Consistent beliefs in each stage of the learning-to-teach journey were noted, as were changes in beliefs over the 9-year period.

After case studies were examined to analyze individual learning-to-teach journeys, a cross-case analysis (Patton, 1990) was performed in which the data were read multiple times, looking for reoccurring articulations or explanations among all of the participants corresponding to each of the research questions. Relevant participant quotations related to each research question were copied into a new file, the research question was reread, and the newly combined data were grouped according to similar comments, looking for themes among the responses. Codes—

“repetitions in explanations and meanings ascribed to events” (Holt-Reynolds, 1992, p. 328)—were used to sort and synthesize the data. Once codes were identified, the data were examined again, and the codes were refined by dropping, adding, or modifying them as needed. Once the codes were established, data addressing or illustrating a given theme were listed underneath. Care was given to ensure that each participant’s pseudonym and data source accompanied the data. It was during this process of content analysis that patterns began to emerge, both within each individual research question and across the span of teacher development.

## **Findings**

The qualitative data were analyzed within and across cases (Patton, 1990), revealing common beliefs held by participants at each of the three junctures of the learning-to-teach journey under investigation: (a) initial beliefs, (b) beliefs at program completion, and (c) beliefs 6 years into in-service teaching. To hear the teachers’ voices and allow the reader to “enter into the situation and thoughts of the people represented in the report” (Patton, 1990, p. 430), direct quotations from all participants have been intentionally included to provide rich descriptions of the changes in beliefs over the learning-to-teach journey.

### ***Common Beliefs Initially Held by Teachers and How They Changed Over 9 Years***

The findings of this longitudinal research are organized in terms of each of four initial beliefs commonly held by all participants identified in the first segment of the investigation (Wall, 2016). Within each section, an explanation of the initial belief is followed by the way in which that belief changed over the TPP (Wall, 2016) and then how it shifted after 6 years of in-service teaching.

**Belief 1: Students’ backgrounds, home lives, academic motivation, and instructional preferences are similar to mine.** All six participants exhibited egocentrism at the onset of the TPP, assuming that students have similar home lives, learning preferences, and academic motivation as they did as students. Barb described her initial egocentric assumptions and her shift in thinking in her second interview:

Before I would have probably catered my teaching to an all-White, middle-class girl because that is what I know . . . I guess I believed that life didn’t exist outside of the classroom. Every single kid is bringing in so much more than I’ll ever know. There’s so much interconnectedness between the classroom and the outside world.

Not only did the PSTs assume that students were like them but many of the PSTs also deemed certain teaching strategies effective based on the “sample of only one” (Holt-Reynolds, 1992, p. 339) rather than researched best practices. As such, if their student-selves responded favorably to a methodology (Anderson & Holt-Reynolds,

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1995), then their teacher-selves would value it. For example, this “sample of only one” rationale was utilized by Tina in her first interview to justify the effectiveness of hands-on learning: “I’m more of a hands-on-type learner so I really want people to learn through experiences and that’s how I learn best.”

As PSTs progressed through their TPP and encountered a wide variety of learners different from themselves, they expanded their thinking and began to consider new methodologies that allowed the construction of knowledge, not just ones that they personally preferred. This shift from employing egocentric rationales to utilizing a more student-centered approach is illustrated by Tina’s fourth interview:

I remember thinking everything should be hands-on and interactive. But not every child learns that way. I’ve learned to adapt and make content accessible to all students. I address more individual needs than I ever thought that I could. Even though I enjoyed learning hands-on, the students I work with need a combination. I try to make sure when I do use that, that it’s the most effective way to teach that material.

Six years later, the participants not only realized that students’ home lives, backgrounds, learning styles, and instructional preferences are different from their own but all commented on how profoundly (and sometimes detrimentally) factors *outside* the classroom impact life and learning *inside* the classroom. Tina reflected, “Those day-in day-out things that happen at home largely impact the kids. I know you’re told that, but until you see it with your own eyes, you just don’t know” (15). Chloe explained,

You often have to spend a lot of time in the classroom making up for what happened outside the classroom. So many factors affect students’ lives . . . prior teachers, home-life, availability of resources, parental help (or lack thereof), etc. These factors all are critical in determining how a student might perform in an academic setting, and as a teacher, it’s incredibly challenging to navigate those immense extenuating circumstances. You do what you can to compensate for those hours spent outside the class, and try not to let it get you down. (15)

Furthermore, unlike novice teachers, who often draw upon their prior schooling experience as a student to make pedagogical decisions as a teacher, seasoned educators 9 years later actually sought to disassociate their own schooling experiences from their instructional decisions to better serve their students. Because “learning was a piece of cake” and something she always loved, Chloe now tries not to draw on her own experiences, because “the joy of learning is not in many kids,” and given their challenging home lives, “why should it be?” (15). Throughout their fifth interviews, in-service teachers told stories of specific students who “wormed their way into nearly every thought and moment” of their lives. They spoke passionately about students’ difficult home lives and personal hardships that were “unfair” and “heartbreaking” and of situations that caused them to “cry all the way home.”

Over the 9 years, not only did teacher egocentrism diminish and awareness of student diversity intensify but throughout in-service teaching, participants were

often overwhelmed by the heavy weight of students' personal challenges *beyond* the walls of the classroom that profoundly affected classroom life and learning *within* the classroom. Discouragement was prevalent as the teachers realized they could not move students beyond the reach of difficult external factors to the extent they initially thought possible.

**Belief 2: Students in the same grade are at the same instructional level.**

Initially, the PSTs believed that instruction would be similar for students in the same grade. However, as PSTs taught culturally, linguistically, and cognitively diverse students throughout their TPP, their belief in the uniformity of all students in the same grade was replaced by an understanding that students are differently abled and that differentiation is essential in helping all students meet learning objectives and advance understanding. This growing understanding was illustrated by Sue:

Prior to this semester, I thought it was possible to set a curriculum and develop lessons and stick directly to them. However, I have learned it must be adjusted to accommodate the diversity in classes because no two classes are alike. . . . Just because they all are in fifth grade doesn't mean they're anywhere within the same level. (13)

Though convinced that teachers should differentiate instruction, the PSTs often found meeting the varied learning needs of students to be overwhelming. Chloe expressed her struggle to meet each student's needs by articulating,

I'm having a hard time making sure everything is applicable and meaningful for every student. I feel like for the most part I can reach the majority, but what about the kids on the fringes who can't keep up with the class? I go home and think about individual kids . . . like what do you do? There's a lot of stuff . . . I just don't know what to do. (13)

Six years later, the cognitive dissonance regarding how to successfully differentiate instruction did not wane. Just as Levin (2003) observed that cognitive dissonance is simultaneously resolved both *externally* (through reading, attending workshops, and conversations with others) and *internally* (through thinking, reflection, and metacognition), so too the teachers researched, read, and sought out mentors (external supports) while internally wrestling with the lingering question, How do I meet every child's needs? Every one of the four participants articulated this question and openly wrestled with the lack of clear answers. Tina succinctly articulated the dilemma: "One of the biggest challenges is the varying backgrounds of kids all lumped into the same classroom because they are the same age" (15). Lyn inquired, "How do I individualize instruction for each child, challenging those who need challenging while giving the support and aid to those who are struggling?" (15). Leigh confessed, "I've had a couple of really tough kids the last couple of years and I just keep wondering how I can best serve them. It's really hard" (15). Chloe asked, "Obviously they [English learners] need extra help, but where do we

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fit it in? How do we make this better? How do we make this work?” (I5). Throughout their TPP, the participants came to understand that differentiating learning is critical in meeting the wide range of student needs. However, even 6 years later, the in-service teachers’ dissonance concerning strategies to successfully meet the varied needs of all students remained, and their discouragement deepened.

**Belief 3: Teaching is simple and easily accomplished.** Just as the PSTs had naive conceptions about students, so they also had idealistic conceptions about the simplicity of teaching. However, as the teachers assumed more classroom responsibilities within their clinical placements, they were surprised by how complex, multifaceted, and time-intensive teaching was. Their initial conceptions that teachers’ work consisted of “loving on children” all day were challenged when faced with tasks once invisible to them, such as assessment, lesson planning, communicating with parents, and attending meetings. Barb explained her initial beliefs based on her limited perspective as a student:

My view of a teacher was what I saw as a student—their job ended when I left. . . . I had no idea how much there was outside of showing up in the morning, delivering your lesson, and loving on those kids and when the bell rings, you can pick up your coffee mug and go home and maybe grade some papers in the evening while you’re watching *American Idol*. I had no idea that it was so much more! (I3)

Lyn described the moment when the private work of a teacher was demystified as “the lights turning on in Space Mountain [at Disneyland]” (I4). Other researchers have observed similar PST entering conceptions that teaching is simple and effortless (Furlong & Maynard, 1995; Munby, Russell, & Martin, 2001), because the beliefs are constructed from their obscured student-oriented perspectives (Lortie, 1975).

Six years later, teachers not only realized that teaching is complex and demanding but that it is often impossible to make the difference they were hoping to make. The realities of life in and out of classrooms forced the participants to face their own human limitations as teachers, resulting in discouragement and diminished idealism. All four participants expressed this harsh realization in various ways. Tina reminisced about when she was “young and gung-ho” and thought she could “teach and prevent things” (I5). Lyn explained,

You initially have this conception that I am going to have an impact on every single child in the classroom. . . . It’s hard to wrestle with the fact that not every kid is going to grow by leaps and bounds. (I5)

Chloe’s explanation of her shift in beliefs reflects the experience of others:

Before I thought the success of my students is going to be directly related to how hard I work. However, I’ve learned if I stay at school until 9:00 at night my students aren’t going to have that much more success. It’s just a hard profession because you don’t feel like you’re making a difference most of the time. You come

in with this feeling that I was going to save the world. Like, if I just work hard, we can make a difference. You have this very idealistic idea of what you'll do. (I5)

Each one of the four participants talked at length about how hard she works and how she often feels like she falls short of the idealistic conceptions she once held concerning what teachers can and should accomplish. Leigh summarized the shift from assuming teaching was simple to the realization that it is demanding by stating, "While I'm certainly still passionate about my job, it [teaching] can sometimes be flat-out hard!" (I5)

**Belief 4: Teachers have endless freedom and autonomy.** Initially, PSTs believed teachers' work was self-directed and autonomous. They assumed they could "be in your own classroom and do whatever you want" (Sue, I3). Throughout the TPP, however, scripted curriculum, state standards, high-stakes testing, cooperating teachers, administration, grade-level teams, parents, and school schedules constrained PST autonomy and creativity in the classroom. Barb expressed her dissatisfaction by explaining, "I really thought teachers were more autonomous. . . . I had no idea how many people's breath would be on your neck the whole time!" (I3). Sue was surprised at "how controlled it [teaching] could be by outside forces" (I3).

The PSTs not only wrestled with their constrained autonomy but were also concerned about whether they would be able to teach creatively and authentically given the restrictions. Tina articulated her surprise by questioning, "What? I can't do whatever I want to? When you become the teacher, you're the boss, right?" (I2). Barb explained, "I just thought I could do things I wanted to do. I would leave a lot of times wondering, 'Is this what I really want to do?'" (I3). Sue reflected, "Is it really possible to teach the way *I* want to teach?" (I2).

Six years later, the participants' frustrations with the constraints on their instructional autonomy grew. However, the rationale behind the frustration shifted from a focus on the ways in which their *teaching* was constrained (seen at program's end) to the ways in which their *students' learning* was constrained (seen 6 years later). For example, comments shifted from "If I'm doing well with my class, don't hover. If my game is fine, leave me alone!" (Barb, I3) to "It's amazing how stuck on curriculum administration is, but I feel like I need to do other things with my struggling kids and that they are missing out on the wonderful parts of literacy" (Tina, I5). Impassioned responses changed from more self-centered rationales concerning inhibitors to participants' ability to "be the boss" to more student-centered frustrations that students are being denied certain learning opportunities. At her charter school, Chloe yearned for freedom to make her own instructional decisions, not just because she resented curricular mandates, but because she felt her students were being denied access to the material. Rosenberg (1977) termed this incompatibility between a teacher's educational beliefs and the prevailing norms of the school as *contextual dissonance*. Chloe articulated her contextual dissonance

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when she explained her frustration with the formulaic curriculum she was required to follow at the charter school where she worked:

Without the autonomy and flexibility needed to understand my students as whole individuals, I have felt defeated and less effective as a teacher. Students are diverse and unique, as are their teachers, so it only makes sense that the way those students learn and the way those teachers teach are unique and diverse, as well. (15)

An analysis of both preservice and in-service data revealed a significant shift in the dissonance experienced by teachers due to constrained teacher autonomy. At program's end, the focus of dissonance was on constraints on *teaching* and personal freedom ("I can't teach in the manner that I want"), whereas 6 years later, the focus shifted to contextual dissonance related to constrained *student learning* ("My students can't learn in the manner they need to learn"). Levin et al. (2013) noted a similar shift in their 15-year longitudinal study of teachers' personal practical theories, observing that pedagogical beliefs became less self-centered and more student-centered over time.

#### **Common Progression in Teacher Growth**

An analysis of participants' conceptual journeys throughout the learning-to-teach process revealed a common progression: (a) PSTs entered the TPP with idealistic, egocentric conceptions about what it meant to teach; (b) they experienced cognitive dissonance as they faced classroom realities; (c) they struggled to find an authentic teaching persona; (d) their confidence in their new role grew; and (e) their idealism concerning their ability to meet all student needs diminished. This developmental progression is best illustrated by Chloe, who most articulately expressed her thoughts and emotions throughout her learning-to-teach journey. Chronicling her conceptual development may help explicate the progression found common in varying degrees among the other participants.

Chloe entered the program after high school graduation, as did the other five participants, with naive conceptions about teaching rooted in her prior schooling experiences. She attended a small, private, religious school from kindergarten through her senior year and was the only African American student in her class. Chloe loved going to school and chose teaching because she wanted to "change the world." She reflected,

At the beginning, I watched all the teacher movies, read all the books, and I was like, aaah, I'm going to be that *Chicken Soup for the Soul* teacher and do awesome. . . . My grand illusion of being a teacher is that they [the students] all would be perfect, I would help them learn, and they would all grow up to be astronauts, doctors, or lawyers and I would, you know, go home by 5:00. (12)

Through her student teaching experiences, Chloe was confronted and challenged by the realities of classroom life and frustrated by factors that were out of her

control. In almost every interview, Chloe reflected on her struggle to successfully differentiate instruction and make “teaching applicable and meaningful for every student.” She explained, “For the most part I can reach the majority, but what about the kids on the fringes who can’t keep up with the class? They need help and I want to give it to them” (I3). She deeply desired to make a significant impact specifically on students who might not otherwise receive a quality education. She reflected,

I was placed in [a school in an affluent area] last semester and I loved it, but like I was thinking, these kids are wealthy. They’re going to be fine. I’d rather go somewhere where I can really make a difference. (I2)

Not only did Chloe experience cognitive dissonance over providing personalized, quality education for all students in her classroom but she also wrestled with having to “teach to the test.” In her second interview, she articulated her growing cognitive dissonance around standards-based instructional approaches:

They say we don’t have to teach to the test, but it’s like, can we really not teach to the test if we want them to pass, if we want them to succeed as far as the state standards? At least as how the state defines success, not how I would. Of course my standards would be completely different. . . . I don’t like the state to define where my students need to be. I don’t think that’s accurate. (I2)

Chloe struggled to find her authentic teaching persona in a system constrained by cooperating teacher expectations, standards, classroom management issues, and time. She felt stifled by her perceived lack of teacher agency and inability to have a voice in her own pedagogical decisions. She wondered whether she could (or would want to) function as a teacher within her newly understood teaching context. She reflected, “I feel like every issue in regard to teaching gives way to new issues and I haven’t resolved any of them. I can’t imagine doing anything else, but there are days when I just don’t want to do it” (I2).

Chloe’s discouragement and dissatisfaction began to dissipate during her student teaching experience when her cooperating teacher began to actively involve her in the curriculum-planning process. For the first time as a guest in her cooperating teachers’ classrooms, Chloe’s opinions were valued, her voice was heard, and she was empowered to teach in ways that more closely aligned with her preferred methods of teaching—what Rosenberg (1977) termed *contextual consonance*. As a result, Chloe’s satisfaction with and confidence in her new role as educator improved. She explained the energizing collaborative process with her cooperating teacher:

We would take elements of the book, the curriculum, and the standard, but ultimately we would create our own thing and find books that were applicable. We never read out of the anthologies . . . just stuff where we would take everything and then make it our own. It made such a difference in the way I was teaching. (I3)

Chloe’s quest for greater autonomy and academic freedom did not wane during her in-service teaching years. Her most fulfilling years were teaching in Rwanda,

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where she enjoyed contextual consonance in being free to incorporate project-based learning and child-centered pedagogies aligned with her beliefs. Her least satisfying years were spent at a charter school incongruent with her beliefs, resulting in *contextual dissonance* (Rosenberg, 1977). Chloe bristled against school demands requiring her to utilize a formulaic curriculum, give daily quizzes, and omit science labs from her science curriculum. Though she began her teaching journey with heightened idealism regarding her ability to make a difference in the lives of students, it waned not only as she wrestled with the demands of the profession but also as she saw the power of administrative pressure and “bureaucracy” diminish her efforts. She explained,

Before I started teaching, I was fairly unaware of the bureaucracy, red tape, and amount of influence outside administration, agencies, and governing bodies have over what happens inside my classroom. I thought, for some reason, that teaching was a bit above all that, and that those industrial problems wouldn't be as big a factor in my classroom and personal pedagogy. But they are. They really are. This has been a huge revelation, and one I still have a hard time dealing with when conceptualizing teaching overall. (15)

Chloe's developmental progression from student to PST to in-service teacher illustrates the journey found common in varying degrees among the other five participants. The participants' conceptions of teaching were initially idealistic, egocentric, and simplistic. They initially believed that students shared their background and learning preferences, that students in the same grade are at the same instructional level, that teaching was simple, and that teachers have endless autonomy.

Over the TPP, the six PSTs experienced cognitive dissonance as they grappled with the tension between their former idealistic conceptions of teaching based on their years of “studenting” and their emerging realistic conceptions based on their experiences teaching. They were forced to confront their overly simplistic, one-size-fits-all initial conceptions of teaching. They wrestled with how to attend to students' individual needs and preferences and to quiet the voice of their own personal preferences and experiences. They grappled with the complexities of teaching and often resented the limits placed on their autonomy and academic freedom. By program's end, cognitive dissonance (though not fully resolved) did promote some amount of conceptual change (Strike & Posner, 1992) or transformative learning (Thompson & Zeuli, 1999) in that doubt, uncertainty, and questioning were precursors to the formation of more realistic and accurate conceptions of the work of a teacher and an increase in confidence in their ability to effectively engage in that work (Wall, 2016).

Though the teachers concluded their TPP with greater satisfaction in their ability to find their own voice in teaching, 6 years later, cognitive and contextual dissonance surged as they were forced to face their human limitations in effecting the change they once thought possible. Six years after program completion, four of the six participants were still teaching. Though all of the remaining participants were seasoned teachers who felt well equipped to teach, the realities of life in and out of

classrooms continued to ignite dissonance, surfacing new questions and resurfacing old ones. The participants' satisfaction with and confidence in their new role as educator seen at the TPP's end diminished 6 years later as they wrestled with the multifaceted complexities of teaching. Discouragement and disillusionment were present in varying degrees among the participants as they faced the harsh reality that numerous contextual factors beyond their control impact student learning and that they cannot make a marked difference for every student.

Though the study had a small sample size ( $N=4$ ), it is interesting to note that this surge in participants' self-efficacy regarding their ability to effectively address students' needs at program's end as well as the subsequent decrease in confidence and idealism 6 years later were observed in the quantitative data. Participants' scores on the WTSEB and changes in those scores throughout the investigation are delineated in Table 3.

An analysis of these data reveal a consistent pattern among the final four participants. Out of 40 points, with higher scores indicating a proclivity toward progressive educational beliefs and lower scores toward transmissive beliefs, the participants' mean scores on the WTSEB at program's end ( $x = 29$ ,  $SD = 1.63$ ) surpassed their scores on the first survey administration ( $x = 24.5$ ,  $SD = 1.91$ ), suggesting an increase in progressive beliefs over the TPP. However, after 6 years of teaching, all participants' scores decreased ( $x = 24.3$ ,  $SD = 2.75$ ), perhaps indicating their disillusionment concerning their ability to actually teach in the progressive manner they had initially envisioned, given the constraints of standards, testing, administrative demands, and challenging student home lives. Though participants' child-centered pedagogical orientation proliferated over the TPP, educational beliefs tended to move in more teacher-centered, transmissive directions throughout their in-service teaching years.

## Discussion

The present study supports and contributes to an existing body of theory and research (cited previously) that teachers' beliefs impact teacher learning and that

**Table 3**  
**Participant Scores on the WTSEB and Changes in Those Scores Over the Study**

Participant	Score				
	Phase 1	Phase 3	Phase 4	Change Between Phases 1 and 3	Change Between Phases 3 and 4
Chloe	22	31	26	+9	-5
Lyn	24	27	21	+3	-6
Tina	26	29	23	+3	-6
Leigh	26	29	27	+3	-2

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the learning-to-teach journey is an ongoing constructive process often catalyzed by dissonance. The data examining how and to what extent educational beliefs change after teaching for 6 years reveal shifts in four common initial beliefs, all prompted by various forms of dissonance experienced when a new reality conflicted with an existing belief. The shift in Belief 1 (my students' backgrounds are similar to mine) was prompted by *emotional dissonance* as teachers witnessed the impact of factors outside the classroom (such as poverty, parental neglect, or familial hardships) on life inside the classroom. Responses and descriptors utilized in articulating this change in belief were particularly emotionally laden, and discouragement was prevalent as the teachers expressed genuine care and concern for their students while simultaneously confronting their human limitations and inability to move students beyond the reach of difficult external factors to the extent they initially thought possible.

The shift in Belief 2 (students in the same grade are at the same instructional level) was catalyzed by *cognitive dissonance* in that new knowledge about student cognitive diversity gained in clinical placements was incongruent with initial beliefs that in teaching, "one size fits all." Such cognitive dissonance prompted a more realistic understanding that students are differently abled and kindled a commitment to helping all students meet learning objectives through differentiated instruction. The shift in Belief 3 (teaching is simple) was triggered by *identity dissonance* as their idealistic belief about the impact their teacher-selves would have on *all* students conflicted with the limited success of their present realistic teacher-selves. Initial deep-seated visions of personal effectiveness and an ability to "save the world" were crushed by the reality of human limitations to make a difference for all. Participants' teacher identity was reconstructed under the dissonant fires of reality as they wrestled with the burning question, "Can I really do this?" The shift in Belief 4 (teachers are autonomous) was prompted by *contextual dissonance* in that the initial belief that teachers enjoy academic freedom was incongruent with the institutional, bureaucratic, and political realities of standards, curricular mandates, and high-stakes testing faced in classrooms. Dissonance resulted when pedagogical strategies teachers deemed best for student learning clashed with an institutional context that often limited or prohibited them.

The existence of emotional, cognitive, identity, and contextual dissonance prompting changes in teachers' beliefs over the 9-year period aligns with the body of scholarship on the critical role of dissonance in the construction and adaptation of teachers' beliefs throughout the teacher development process. The data indicate that dissonance is not confined to teachers' cognition but rather seeps into all aspects of the teacher-self igniting emotions, fanning or snuffing self-efficacy, and honing identity and sense of self. Though uncomfortable and sometimes anxiety provoking, the data reveal that disequilibrium is an important catalyst for transformational change and teacher learning (Galman, 2009).

Methodologically, the strength of this study is its in-depth focus on the longitudinal

journey of four teachers. However, the accompanying limitations of this approach must be acknowledged as well. First, this small convenience sample comprised middle-class women, 75% of whom were White. Therefore, while the findings may not be fully generalizable to all teachers, the study can serve as a pilot for a larger longitudinal study. Second, the author served a dual role as both educator and researcher in the same university context. To address this, the data were not collected as part of a course assignment, and participation or nonparticipation did not affect the grade of any student who was enrolled in the researcher's course. Moreover, investigative attention in this study focused more on teachers' changing conceptions than on program elements that participants might feel obligated to commend. Promising avenues of future research would be to continue the investigation of changes in beliefs by following these participating teachers throughout their teaching careers, as well as following up with teachers, like those in this study, who choose to leave the teaching profession. Furthermore, it would be beneficial to replicate this small-scale study using a larger sample size and collecting data more incrementally during the initial in-service years. Comparing articulated beliefs with actual classroom decision making and practice would be another fascinating area of inquiry.

### **Implications for Teacher Preparation Programs**

As the research indicates, learning to teach is a multifaceted, dilemma-ridden, holistic journey prompting cognitive, emotional, identity, and contextual dissonance that leads to changes in educational beliefs and changes in teaching practice. The task for teacher educators is not to eliminate the source of dissonance, nor to overextend PSTs' capacity for conflict, but rather to harness the various forms of naturally occurring dissonance to promote transformative learning and healthy educator development. Implications of this research follow.

First, this study underscores the importance of having PSTs articulate and reflect on their entering educational beliefs to promote the construction of innovative, student-centered pedagogical frameworks. By being aware of common tacit misconceptions, teacher educators can carefully scaffold (Vygotsky, 1978) dissonant learning experiences, design assignments, ignite classroom discourse, select dilemma-ridden readings, and pose questions that incrementally challenge misconceptions and trigger cognitive dissonance in a supportive context. Such pedagogical strategies would enable PSTs to experience cognitive dissatisfaction with their current conceptions (Strike & Posner, 1992) and allow teacher educators to supportively introduce new research-based pedagogical methodologies that are plausible, intelligible, and fruitful in creating deep learning (Strike & Posner, 1992).

Second, these findings underscore the importance of helping a PST navigate the *contextual dissonance* that occurs when his or her individual vision of self-as-teacher clashes with the political and bureaucratic institutional realities of the work of a teacher. On one hand, this research indicates that a certain level of *contextual*

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*consonance* or compatibility must exist for teachers to thrive and persevere in their school context and that consideration of philosophical congruence in teachers' job selection process would be wise. On the other hand, this research also can be a warning to teacher educators not to valorize the teaching profession but rather be appropriately forthcoming about the challenges of the profession (Levin et al., 2013) and the political and bureaucratic nature of teachers' work. By promoting awareness of the pedagogical and institutional complexities teachers may face, teachers can wrestle through (not around) contextual dissonance and emerge with a carefully crafted authentic teacher identity that they can realistically embody within the current political and bureaucratic climate, while developing personal agency to be effective advocates for change.

Third, these findings suggest that teacher educators should invite PSTs to articulate not only the *content* of their new knowledge and pedagogical skills but also their *emotional response* along the learning-to-teach journey. "Emotions shape beliefs and are shaped by beliefs. . . . To ignore affective constructs such as emotions is to present an incomplete and even faulty understand of teachers' beliefs" (Gill & Hardin, 2015, p. 232). By situating teachers' dissonance in their broader learning-to-teach journey and encouraging them to reflect back on their growing competence as educators and how they successfully wrestled through dissonant moments in the past, teachers may be more likely to choose perseverance over despair when facing new times of emotional turmoil. Participants in this study noted that a beneficial by-product of their involvement was the regular opportunity to discuss their questions, self-doubts, disillusionment, and hopes with the researcher along their teaching journeys. TPPs should consider intentionally creating such opportunities for discourse with knowledgeable others even after program completion, perhaps through mentor programs or structured office visits, as a critical support in teachers' healthy professional development.

These data demonstrate that "teachers' beliefs do not exist in isolation—beliefs are integrated into a teachers' sense of themselves" (Lavigne, 2014, p. 32). Teaching is deeply personal work, engaging teachers' emotions as well as their intellect to form a professional identity that adapts "personal understandings and ideals to institutional realities" (Rodgers & Scott, 2008, p. 732). Dissonance in the learning-to-teach journey is inevitable and can serve as "a catalyst not only for identity development but also to the understanding of the complexity of teachers' work and identity" (Galman, 2009, p. 477).

This study was a 9-year longitudinal investigation of changes in teachers' beliefs over their TPP and into their in-service teaching. The learning-to-teach journey profoundly affects every component of the teacher-self, eliciting an array of conflicting emotions from satisfaction to disillusionment, consonance to dissonance, clarity to confusion, hope to despair. Teacher educators must not only facilitate the acquisition of knowledge and skills but also attend to teachers' holistic needs, concerns, and dissonance to equip them to be reflective and resilient educators.

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