

## **Knots in Thinking and the Problem of Enactment: Exploring the Classroom Thinking of Three Novice Teachers**

*Aaron Samuel Zimmerman*  
Texas Tech University

*Novice teachers begin their careers with certain instructional ideals; however, in practice, novice teachers tend to enact classroom practices that only partially align with these ideals—a phenomenon referred to as the problem of enactment. This article explores this phenomenon by investigating the classroom thinking of three novice teachers. Using stimulated-recall interviews, these teachers were asked to describe the deliberative decisions they made while teaching and to rate how well these decisions aligned with their instructional ideals. It was found that when novice teachers perceived only partial alignment between their enacted decisions and their instructional ideals, teachers tended to experience simultaneous practical intentions. I argue that, as teacher educators attempt to address the problem of enactment, they must deepen their appreciation for the cognitive challenge of balancing simultaneous practical intentions. The real-time negotiation between multiple goals and concerns can be considered to be a core practice of teaching.*

### **Introduction**

People do not always act in accordance with their espoused beliefs. Accordingly, classroom teachers sometimes enact instructional practices that belie the pedagogical commitments they profess (Börger & Tillema, 1993; Chen, 2008; Keys, 2005; Oliver, 1953; Roehrig, Turner, Grove, Schneider, & Liu, 2009; Simmons et al., 1999). In research on learning to teach, this phenomenon—sometimes referred to as the “problem of enactment” (Kennedy, 1999, p. 70)—presents itself as one of the primary obstacles that novices face (Darling-Hammond, 2006). It is common for prospective teachers to enter the profession with ambitions and optimism, only to experience profound difficulty as they attempt to actualize their ideals (Cole & Knowles, 1993; Friedman, 2000; Veenman, 1984). Indeed, it is not uncommon for novices to abandon their more ambitious instructional ideals as they attempt to cope with the challenging realities of classroom life (Grossman & Thompson, 2008; Wood, Jilk, & Paine, 2012). As novice teachers recognize the discord between their ideals and their behavior, they may become frustrated, reassess their aspirations, and potentially leave the profession of teaching (Beach & Pearson, 1998; Craig, 2014; Hammerness, 2006).

Because of its significant influence both on novice teachers’ instructional practices as well as on early-career burnout, the problem of enactment is a phenomenon within the endeavor of learning to teach that requires thorough investigation. Previous research has used questionnaires (e.g., Pillen, den Brok, & Beijaard, 2013) and written reflections (e.g., Wiggins & Clift, 1995) to assess the problem of enactment longitudinally. By applying these research methods, one can observe novice teachers, over time, adopting particular ways of being a teacher that run counter to their espoused educational philosophies and commitments (Brown, 2006). The current study will complement these existing investigations by exploring how the problem of enactment can

also be illuminated within individual moments of classroom thinking. In particular, I will argue that within instantaneous moments of classroom decision, teachers are compelled to negotiate between simultaneous practical intentions (Zimmerman, 2015). As a result of these simultaneous intentions, “knots in thinking” (Wagner, 1987) may arise, and novice teachers may find themselves making classroom decisions that only partially align with their instructional ideals.

### **Research on the Problem of Enactment**

Within educational research, there are numerous examples of novice teachers who painfully recognize the problem of enactment within their own practice. For example, Smagorinsky and colleagues (2011) present the case of a novice English teacher who quickly began enacting the same traditional, teacher-centered approaches to instruction that she had decried only a few months earlier. Although this teacher had entered the profession with the intention of teaching literature with an emphasis on her students’ interests and creativity, her classroom, relatively quickly, became focused on grammar and procedural approaches to essay writing. This teacher acknowledged, with great regret, that the teacher she saw herself becoming was “not me” (p. 279).

Similarly, Brown (2006) chronicles his interaction with a novice teacher who tearfully admitted “that she hated the person she had become” (p. 676). This sense of splitting within one’s self is also exemplified by Hoover (1994), who shares the journal of a novice teacher who consistently compared “the ideal vision of herself that she had imagined versus the tense, boring, and incompetent persona she felt she had become” (p. 91). Indeed, self-deprecating reflections from novice teachers are legion within educational research, including, “I am doing what I don’t believe” (Bullough, Knowles, & Crow, 1992, p. 83), “It seems like this person [I’m becoming] is very unlike me” (Sumara & Luce-Kapler, 1996, p. 73), and, “I am the teacher that I never wanted to be and it hurts to say that” (Cooper & He, 2012, p. 98).

These studies, however, are primarily concerned with novices’ holistic, longitudinal development—i.e., the formation of their new, potentially fragmented, teacher identity. While reflections such as “I hate the person I have become” are powerful testimonies to the problem of enactment, these reflections say little about whether or not teachers are aware of the mismatch between their instructional ideals and their concrete instructional decisions. This is problematic for the enterprise of teacher education, for if a novice teacher admits that she “hates the person she has become” but cannot pinpoint any specific classroom decisions with which she is dissatisfied, teacher educators may be unable to help her to achieve better alignment between her actions and her ideals.

There is, in fact, research that has examined how beginning teachers’ espoused beliefs sometimes differ from their concrete actions. Kennedy (1999) presented teacher candidates with hypothetical situations and asked these teacher candidates how they might respond in practice. Kennedy found that although most of the teachers had elsewhere espoused student-centered ideals (e.g., the desire to cater to student interest and autonomy), the instructional responses they proposed to the researcher tended to rely on prescriptive and teacher-centered approaches. For example, when asked how to respond to a hypothetical student who complains, “This is boring. Why do we have to learn this?” many teachers in Kennedy’s study insisted that the student

should be compelled to comply with the teacher's directives. Similarly, when presented with samples of student writing, Kennedy's participants often focused on the correction of spelling and grammar, despite their espoused beliefs that the teaching of writing should cultivate student creativity and the communication of ideas. Thus, there is evidence that the problem of enactment can manifest itself not only in longitudinal teacher development (e.g., Brown, 2006) but also within concrete moments of instructional decision-making (see also Skott, 2001; Theriot & Tice, 2008).

Researchers have offered a number of potential hypotheses for why the problem of enactment is so prevalent within the endeavor of learning to teach. Some authors conceptualize the problem of enactment as representative of the tensions that exist between different educational contexts—i.e., the tension between the images of teaching proliferated within public schools compared to the images of teaching cultivated within university-based programs of teacher education (Bickmore, Smagorinsky, & O'Donnell-Allen, 2005; Flores & Day, 2006; Valencia, Martin, Place, & Grossman, 2009). Other authors describe the problem of enactment as being symptomatic of the almost inevitable crisis of identity that novice teachers experience as they transition from the role of student and peer to the role of teacher and authority figure (Dugas, 2016; Friedman, 2006; Pillen et al., 2013). Yet another hypothesis is that novice teachers lack the disposition to enact ambitious instruction consistently; in other words, even if novices articulate particular pedagogical commitments, they may lack the inclination to actualize these commitments when opportunities to do so arise (Diez, 2007; Dottin, 2009; Schussler, Stooksberry, & Bercaw, 2010).

The hypothesis that I will explore in this paper is founded on the assumption that teaching is inherently complex and dilemmatic (see Burbules, 1997; McDonald, 1992; Windschitl, 2002). I argue in this paper that teachers must perpetually negotiate “good enough” solutions in the classroom (Gholami & Husu, 2010; Lampert, 1985). As teachers make decisions, they must negotiate between simultaneous practical intentions (Kennedy, 2005; Zimmerman, 2015), and as a result, they may experience “knots in thinking” (Wagner, 1987) that lead to decisions that require trade-offs and that only partially align with their pedagogical ideals. I will now develop this hypothesis in more detail.

### **Knots in Thinking and the Problem of Enactment**

All teachers hold multiple—and sometimes conflicting—practical intentions. For example, a teacher may want to be compassionate towards off-task students while still enforcing rules consistently (Weinstein, 1998), or a teacher may want to give students the opportunity to explore ideas on their own while still ensuring that students arrive at predetermined learning objectives (Hammer, 1997). The tension between any two practical intentions may create a “knot” in the teacher's thinking (Wagner, 1987), leaving the teacher trapped between two equally desirable, but seemingly mutually exclusive, options. In response to these dilemmas, novices may simply choose the most expedient option (e.g., send a disruptive student out of the classroom, preemptively tell students the answer to a question).

There is copious evidence that knots in thinking are endemic to teaching. Classrooms serve a variety of purposes, not all of which are “necessarily related or even compatible” (Doyle, 1977,

p. 52), and, thus, the proper role of the classroom teacher is subject to multiple interpretations (Fenwick, 1998; Hatch, 1999). In fact, as Carr (2003) argues, the criteria of a “good” teacher consist of multiple standards, assessed simultaneously:

[I]s it not just perverse to ask whether good teachers are those who transmit worthwhile values to children... or those who care for them, or those who should assist pupils to be ... or those who need to exercise professional initiative and autonomy, or those who have to implement centrally prescribed policies... For is it not just the case that good teachers may need at different times—or even at the same time—to be all these things? (p. 230)

In this way, a teacher can be characterized as a “dilemma manager, a broker of contradictory interests” (Lampert, 1985, p. 178). These instructional dilemmas contain a “tragic” dimension, for teaching requires

not just a difficult choice between two options, not just a balancing act of alternatives...but a recognition of a deep, intractable contradiction between competing aims and values... [W]hat makes [these dilemmas] tragic is that we see conflict and contradiction reflected in our own hopes and desires—a reflection that throws into doubt some of the very values that inspire our educational endeavor in the first place. (Burbules, 1997, p. 66)

All teachers, therefore, must be prepared to craft classroom action that effectively reconciles multiple, and potentially conflicting, pedagogical goals and concerns (Elbow, 1983; Palmer, 1998).

In this way, teaching can be conceptualized as a sense-making activity (Weick, 1995) in which complex systems and phenomena are reduced to practical theories and schema. It has been found that teachers, in order to make sense of the complexity of new reforms, incorporate new instructional ideas and curricular reforms into their own teaching practice by assimilating these reforms into their preexisting cognitive schema (Drake & Sherin, 2006; Duffy & Roehler, 1986; Enyedy, Goldberg, & Welsh, 2006; Schiro, 1992). This point is especially relevant in the current educational policy climate, for even as what and how to teach is being increasingly mandated, teachers still interpret and implement these mandates through the lens of their own pedagogical understandings (Cohen, 1990; Cuban, 2007; Porter, Fusarelli, & Fusarelli, 2015; Troia & Graham, 2016). It is therefore especially important for researchers and policymakers to be aware of how teachers’ cognitive processes—especially while teaching—shape teachers’ instructional decisions.

This process of sense-making is often turbulent and problematic for novice teachers, given that they do not yet possess the cognitive schema necessary to process, appraise, and respond, in quick and productive ways, to complex classroom situations (Berliner, 2001; Leinhardt & Greeno, 1986). Without an effective and efficient means of attending to multiple practical intentions simultaneously, novice teachers may suffer cognitive overload (Feldon, 2007; Moos & Pitton, 2013) as they feel themselves being pulled in multiple directions at once. For this reason, simultaneous practical intentions and knots in thinking may be even more prominent in the pedagogical thinking of novice teachers.

For example, Wiggins and Clift (1995) examined the reflective journals of student teachers and were able to identify “oppositional pairs” of conflicting beliefs. For example, one teacher struggled with seeing herself as the nurturer of students’ ideas *and* seeing herself as the authoritative (and potentially punitive) evaluator of those ideas. This conflict caused the teacher significant frustration and stymied her professional development as, over the course of months, she remained unable to revise her practice productively. In another study, Pillen, den Brok, and Beijaard (2013) surveyed novice teachers about the tensions they were experiencing as they developed their professional identity. Across this development over multiple years, novice teachers reported struggling to find a satisfying balance between instructional approaches characterized by teacher authority, on the one hand, and instructional approaches characterized by empathy and caring, on the other hand. These two studies used reflective journals and survey methods, respectively. What has not yet been thoroughly investigated is the manner in which these oppositional pairs (or, knots in thinking) manifest themselves in real time. Therefore, it was the goal of the current study to explore how simultaneous practical intentions compel novice teachers, while teaching, to make sense of these multiple intentions and to negotiate “good enough” solutions to these instructional dilemmas.

### **The Current Study**

Although there is much evidence that novice teachers experience the problem of enactment, and although some scholars have hypothesized that knots in thinking can precipitate the problem of enactment, there is currently a lack of evidence that demonstrates how knots in thinking can influence the problem of enactment within concrete moments of classroom decisions. That is to say, while it is understood that novice teachers experience tension between their instructional ideals and their classroom realities (Gu & Day, 2013), and while it is understood that most “teachers necessarily hold multiple and conflicting ideals” (Kennedy, 1999, p. 70), it is currently unknown how multiple (and potentially conflicting) practical intentions in the classroom contribute to the disconnect between novice teachers’ espoused ideals and classroom behavior.

The current study, therefore, investigated the hypothesis that the problem of enactment is rooted, in part, in novice teachers’ knots in thinking. The research questions for the current study were as follows:

1. Within specific moments of classroom decision, do novice teachers perceive the alignment between their instructional ideals and actions to be less than perfect?
2. Regarding decisions that have been perceived by novice teachers not to align perfectly with their instructional ideals, how often do novice teachers perceive the presence of simultaneous practical intentions?

If novice teachers are able to perceive moments of less than perfect alignment between their instructional ideals and their enacted classroom decisions, and if, within these moments, novice teachers articulate a struggle to negotiate between multiple practical intentions, then these findings will help to corroborate the hypothesis that the problem of enactment is, in part, caused by the challenge of balancing simultaneous practical intentions (i.e., the challenge of resolving knots in thinking).

## Methods

### Participants

An exploratory case study approach (Yin, 2009) was adopted. Participants in this study were not intended to be representative of a larger teacher population; rather, the study utilized a convenience sample of novice teachers who had graduated from a large Midwestern university where the researcher served as a teacher educator. The researcher had previously served as the instructor for one of the participants. All data for the current study was collected after the three participants had graduated. The participants (represented by pseudonyms) were three full-time, secondary teachers all teaching in Midwestern high schools: Benny (teaching English as a Second Language; second year of teaching), Ronda (teaching Algebra 2; first year of teaching), and Lea (teaching World History; first year of teaching). All three teachers were White and were between 22 and 27 years old.

### Using Vision to Represent Ideals

In order to support the participants in articulating their ideals for their classroom practice, this study employed the construct of *vision* (Duffy, 2002; Kennedy, 2006). In contrast to the construct of “professional vision” (Goodwin, 1994), which represents a socially shared way of representing and interpreting professional work, this version of the construct of vision represents teachers’ own personal images of “ideal classroom practice” (Hammerness, 2003, p. 43), of “what teachers hope could or might be in their classrooms” (p. 45). Vision affords the novice the opportunity to “see,” with some concreteness and specificity, how their personal ideals might be folded into the practical work of classroom teaching. The construct of vision was particularly appropriate for the current study, given that participants were being asked to compare their enacted decisions with what they ideally would like to see themselves doing in the classroom.

Participants were given the following prompt and asked to compose a written vision statement:

I’d like you to begin by envisioning [your] ideal classroom for a moment... You can look around the room, and you can hear and see the activities going on... What do you see, feel, and hear when you walk around your ideal classroom? What are you doing in your ideal classroom? What is your role? Why? What are you students doing in this ideal classroom? What roles do the students play? Why? What kinds of things are the students learning in your ideal classroom? For instance, what topics or texts are they working on? Why are those important for them to learn? (Hammerness, 2006, p. 93)

It is important to consider that these participants were all former teacher candidates at the researcher’s university, which may have biased the composition of the vision statement (e.g., perhaps participants composed the vision statement to be reflective of the university’s educational philosophy rather than reflective of their own ideals). Despite this limitation, this prompt was assumed to be a valuable way of catalyzing the three participants to consider the characteristics of their ideal classroom.

**Observation Procedures**

Each teacher was video-recorded during the same class period for four consecutive days of teaching. It was assumed that a sample of four consecutive lessons would capture the natural variation between lessons (e.g., planned classroom discussion vs. planned lecture), an important consideration given that each type of lesson may elicit different instructional ideals. While video-recording these lessons, the researcher made an effort to capture as much of the classroom as possible, while always keeping the teacher in view in order to capture the teacher’s actions during the lesson. The researcher also made note of moments when the teacher seemed pressed to make an instructional decision (e.g., having to respond to an off-task student, trying to explain subject matter to a student). It would have been impractical to ask the participants to try to assess the problem of enactment as it was occurring in real-time. Thus, at the end of each school day (approximately five hours after each observation), a semi-structured video-stimulated recall interview (Clark, 1988) was conducted. The goal of this process was to stimulate teachers’ recall of in-the-moment thinking by watching the video recording of their teaching. Before each interview, teachers were given the following directions (adopted from Kennedy, 2005):

Please stop the tape when you remember an instance of your teaching that was particularly interesting or important to you. These might be times when something unexpected happened, when you suddenly had an insight into what was happening, when you were uncertain about what to do next, or when you felt feelings of worry or frustration. I will also stop the tape to ask you about moments that I found to be interesting while observing the lesson.

This procedure was used to identify salient teaching moments in which the teacher contemplated an upcoming instructional decision. In particular, moments were identified when the teacher experienced insight, uncertainty, or frustration. These were examined during semi-structured interviews to further illuminate their 1) perceptions of the given classroom situation, 2) thought processes for the enacted decision within the given situation, and 3) retrospective assessment of the alignment (or lack thereof) between their instructional ideals and their enacted decision. Examples of interview questions for the three topics are provided in Table 1.

Table 1  
*Interview Guide for Stimulated Recall Interview*

Topic	Example Interview Questions
Description the given classroom situation.	<ul style="list-style-type: none"> <li>• What did you see at this moment?</li> <li>• What were you trying to accomplish at this moment?</li> <li>• What were you thinking and feeling at this moment?</li> </ul>
Thought processes for the enacted decision within the given situation.	<ul style="list-style-type: none"> <li>• Did you perceive yourself to be making a conscious decision?</li> <li>• How did this decision resolve this situation?</li> <li>• What else were you thinking of doing?</li> </ul>
Retrospective assessment of the alignment between their ideals and the enacted decision.	<ul style="list-style-type: none"> <li>• To what degree does the decision you made align with your vision?</li> <li>• In what ways would you like your classroom to look different?</li> <li>• Why was this ideal difficult to enact in practice?</li> </ul>

In addition to the three topics described above, teachers were asked whether they perceived their actions in the given moment to be the product of a deliberate, conscious decision. This was in order to identify and isolate moments that constituted deliberate decisions as opposed to moments when teachers perceived themselves to be reflexively reacting and as opposed to moments or actions that teachers were noticing for the first time while viewing the recording.

For moments identified as conscious decisions, teachers were asked, “To what degree does the decision you made align with your vision?” They were asked to provide an alignment score using a five-point numeric scale where 1 was described as meaning “does not align,” 3 meaning “somewhat aligns,” and 5 meaning “perfectly aligns.” No labels were provided for ratings of 2 and 4. Since participants responded verbally, some chose to give a range, such as “between a 3 and a 4.” Rather than making the participant select one or the other, the average of the two ratings was recorded (e.g., 3.5).

### **Data Analysis**

In order to address the research questions, each novice teacher’s interview transcript was examined for moments of deliberative decision as well as for the practical intentions articulated within these decisions. Each audio-recorded teacher interview (12 in total) was transcribed. The transcripts were read, and each stoppage of the video recording that teachers identified as a conscious decision was highlighted.

In order to address the first research question (How often do novice teachers perceive the alignment between their ideals and their actions to be less than perfect?), the frequency of each possible alignment score was tallied. In order to answer the second research question (Pertaining to moments of decision that do not align perfectly with instructional ideals, are multiple practical intentions articulated by the teacher?), decisions (across all three teachers) with an alignment score less than or equal to 3 were combined (25 in total) to represent decisions that only partially aligned with a teacher’s vision. The corresponding transcript passages were examined using a typological analysis (Hatch, 2002) to identify decisions in which the teacher articulated a deliberation between two or more simultaneous practical intentions (i.e., a knot in thinking).

## **Findings**

### **Content of Vision Statements**

The three participants authored vision statements prior to their classroom observations and interviews. By examining the text of these vision statements, it is clear that these three teachers aspired to cultivate classrooms in which they were able to facilitate meaningful student learning in a welcoming environment:

#### **What do you see, feel, and hear when you walk around your ideal classroom?**

- I see carpeted floors...and walls covered in authentic materials in the target language.  
(Benny)
- I want to see an organized classroom that is inviting and conducive to student learning.  
(Ronda)



- My classroom has the feeling of community and safety, as if all students have a belonging. (Lea)

**What are you doing in your ideal classroom? What is your role?**

- My role is to facilitate learning, not police behavior...This role is ideal because it lets me utilize my own talents, while minimizing stress for students and teacher. (Benny)
- In my ideal classroom I am not lecturing—I am more of a facilitator... I am not in the front of the room nor am I the largest contributor to the conversation. (Ronda)
- In my ideal classroom, I am a facilitator to what my students are doing. I am an aide to their exploration and learning. (Lea)

**What are your students doing in this ideal classroom? What roles do the students play?**

- Students are spending at least 75-80% of their time on-task...Students are self- or peer-correcting distracting behavior. (Benny)
- My students are advocates for their own learning...Students are sharing, collaborating, discovering, and helping each other. (Ronda)
- In the ideal classroom, my students are working as investigators. (Lea)

**What kinds of things are the students learning in your ideal classroom?**

- Students are working with current topics, which are meaningful to their own lives. (Benny)
- I want students to gain critical thinking skills and be able to apply them to their life outside of my classroom...I want my students to be able to use the thinking processes used in my class to help them in other areas of their life. (Ronda)
- The topics of study are broad, with areas for student choice within. (Lea)

These themes remained prominent throughout the stimulated-recall interviews. Specifically, these three teachers consistently articulated the desire to have their students engaged in meaningful work relevant to students' lives; to cultivate a classroom environment in which students are on-task; and to serve as a facilitator rather than as an authoritative source of knowledge. These three teachers, however, frequently encountered difficulty enacting these ideals, as demonstrated through their own ratings of their in-the-moment instructional decisions.

Table 2 shows the total number of deliberate decisions made by each teacher during their four lessons, followed by a frequency distribution of the decisions along the alignment score scale. In regards to how often novice teachers perceive less than perfect alignment between their ideals and their actions, Table 2 show that the three novice teachers assessed a perfect alignment between their instructional ideals and their decisions relatively infrequently. For example, Benny rated approximately 51% of his deliberative decisions as perfectly aligning with his ideal, Ronda rated approximately 10% of her deliberative decisions as perfectly aligning with her ideal, and Lea rated none of her deliberative decisions as perfectly aligning with her ideal. This is not surprising given the uncertain nature of teaching. We would not expect a teacher's decisions within a given lesson to all align perfectly with his or her ideal instructional vision (see Romano, 2006).

Table 2  
*Frequency of Deliberate Decisions and Distribution of Alignment Scores by Teacher*

	Teacher			Total	%
	Benny	Ronda	Lea		
	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	
Deliberate Decisions	41	21	16	78	
Alignment Scores					
1 – Does not align	1	0	1	2	3%
1.5	0	0	0	0	0%
2	2	2	0	4	5%
2.5	0	0	0	0	0%
3 – Somewhat aligns	8	5	6	19	24%
3.5	1	1	1	3	4%
4	8	8	5	21	27%
4.5	0	3	3	6	8%
5 – Perfectly aligns	21	2	0	23	29%

In summary, Table 2 suggests that these three novice teachers were able to identify particular moments of decision that deviated from their instructional ideals. This is, furthermore, demonstrated by the fact that Benny rated approximately 27% of his decisions as having an alignment score of 3 (“Somewhat aligns”) or below, Ronda rated approximately 33% of her decisions as having an alignment score of 3 or below, and Lea rated approximately 44% of her decisions as having an alignment score of 3 or below. This suggests that partial alignment (i.e., assessing a deliberative decision as only somewhat aligning with one’s instructional ideal) occurred with some degree of regularity for these three novice teachers.

**Negotiation between Multiple Intentions**

In order to address whether the incidence of multiple practical intentions are present when a teacher’s decision deviates from his or her instructional ideal, the interview transcripts from the stimulated recall interviews were examined for those moments which teachers rated as a 3 or below. Specifically, these moments were examined to interpret whether the teacher was trying to accomplish multiple goals simultaneously.

Across the three teachers, of the 25 decisions that were given a rating of 3 or below, 19 of these decisions (76%) contained deliberation between multiple instructional concerns. For example, Ronda described one decision as being particularly painstaking:

I’m looking at the clock... I don’t have enough time to have them build this thinking and understanding [for themselves], [for the students] to discover...[I was thinking] I’m going to make it somehow to the end of this [math] problem before they leave here today... We have to push this in today... so [I made] the decision to rush that along in the interest of time... I have to just go through, we have to get to the end of this... Right here, I think what’s literally going on in my head is like, “let them search” or “give the answer,” “let them search” or “give the answer,” and I’m like looking back and forth and

looking at the time, and looking back and forth and looking at the time, and I think that was like an “Ugghhhh!”

The outcome of Ronda’s deliberation was that she eventually decided to “push in” this extra problem by modeling the mathematical procedure for the students, and she later rated the alignment of this decision with a score of 2. Ronda emphasized here and in other stimulated-recall interviews that an important part of her vision is to be a “facilitator” who helps students to search and discover mathematical meanings for themselves; yet, within this moment of decision she felt torn between fostering her students’ independent thinking and covering the prescribed academic content as efficiently as possible. This was a moment in which Ronda could not “win by choosing” (Lampert, 1985, p. 182) one practical intention over the other.

Lea, likewise, reported a moment in which she felt torn between being a facilitator and being an authority that conveys information:

The decision there that I made [was] to say [to the class], “Write this down word for word as this comes out of my mouth”...I feel what I want to be is a facilitator, somebody helping them learn. And so part of me says, that [decision] isn’t what I want to do at all, because I told them to do something and to do it exactly as I said to do it. But another part of me is like, would they have picked up on it being as important if I didn’t point it out to them? So I don’t know where [the decision] fits actually. Maybe it fits in the middle because I don’t know where it fits. I guess there are two different parts to thinking about it.

In this passage, Lea expresses the difficulty of choosing between multiple (or, in this case, opposite) practical intentions, confused about how her ultimate decision might align with what she wants to accomplish in her classroom. Concerned with two simultaneous goals (i.e., to be a facilitator but also to make sure that students pick up on all of the important information being presented), Lea feels pulled in two directions.

In addition to the examples from Ronda and Lea presented above, some other examples include the following:

- My thought was if I send him to the office [for being tardy] then he’s going to waste 10 minutes...so I said okay, I think I made my point, you’re tardy, don’t be tardy...[But] there’s no consistency, and that makes it easy for students to break the rules. (Benny)
- I made the decision... to let [the student] sleep... I didn’t want to hear any more of his [disruptive] remarks... or [to see him] not doing the work anyway... I just made the decision to let him sleep... Part of me says I can only help you, I can only facilitate your learning as much as you want to put forth an effort... but, then again, I just let him sleep in my class and didn’t wake him up. (Lea)
- [This student is] getting out of control, and I don’t want him to be out of control... [but] I don’t want [him] to feel bad about it... [because] I don’t like the tone that it sets, the negative crummy policing tone. (Benny)
- For the sake of moving things along... [I decided against] continuing [with pursuing] his thoughts... I would have liked to have walked over there and sat down with him and

unpacked his thinking one-on-one but I don't think it would have been the right decision for the whole class to keep unpacking whatever thought process he was going through... [for] the sake of time and what we need to do today. (Ronda)

- I made a decision to let [the student] turn it in half done... I would say [the alignment is] a 3... I want [students] to learn as much as they want to learn... but at the same time, I am not accepting the best work from kids just because they don't want to do it. (Lea)

These passages reflect moments in which, indeed, the novice teachers felt pulled in opposite directions, motivated by simultaneous practical intentions (see also Zimmerman, 2015).

### Discussion

Given the research methods employed within this study, one cannot assess whether or not these three teachers' concrete instructional decisions actually (by some objective measure) aligned with their own ideal vision of instruction; rather, the purpose of the current study was to explore the extent to which novice teachers self-assessed the alignment of their deliberative decisions with their instructional ideals. The results of the current study show that the three novice teachers often perceived partial (though not perfect) alignment of their instructional decisions with their instructional ideals. This finding is consistent with research on teachers' practical reasoning, which suggests that teachers, while teaching, craft "good enough"—rather than ideal—solutions (Fischler, 1994; Gholami & Husu, 2010; Kennedy, 2005; Lampert, 1985). Furthermore, the fact that only six out of the 78 aggregate decisions articulated by the three teachers were rated with a 2 or lower (towards the direction of "Does not align") is consistent with the theory that teachers continually assimilate their classroom practice into their existing cognitive schema (Coburn, 2001; Cohen, 1990; Duffy & Roehler, 1986; Weick, 1995). That is to say, even when particular moments did not perfectly align with the given teacher's instructional vision, the teacher was still able to make sense of these moments and to see how they partially fit within the larger picture of what they were trying to accomplish in the classroom (Kennedy, 2006).

The passages from the interview transcripts within which teachers articulate their simultaneous practical intentions support the notion that one of teaching's foremost challenges involves the balancing of multiple goals and concerns (Kennedy, 2004) and that these simultaneous practical intentions can create knots in thinking (Wagner, 1987) that potentially contribute to a sense of partial alignment between one's espoused ideals and one's enacted decisions. In this study, the decisions in which teachers assessed only partial alignment with their ideals were overwhelmingly characterized by the need to negotiate between multiple goals and concerns. Within these moments, the novice teacher became a "dilemma manager... [a] broker of contradictory interests" (Lampert, 1985, p. 178).

Many novices enter the profession with great optimism and idealism (Weinstein, 1988) only to experience "reality shock" (Veenman, 1984) once they recognize that their instructional ambitions are not easily enacted in practice. If novice teachers' visions are neither realistic nor practical, then it may be unsurprising that they would find their ideals difficult to enact. In the current study, the three teachers, in their authored vision statements, articulated a clear desire to serve as a facilitator, to keep students on task, to cultivate a safe and welcoming classroom environment, and to engage students in a meaningful curriculum. While these ambitious

curricular and instructional goals are laudable, they may be difficult for novice teachers to enact in practice. For example, although Ronda, in her authored vision statement, wrote, “In my ideal classroom I am not lecturing—I am more of a facilitator,” she encounters, while teaching, the knot in thinking between wanting her students to explore mathematical ideas on their own and wanting to tell her students the answer. Likewise, although Lea states in her authored vision statement that she aspires for her students to work as “investigators,” she notices a moment in her teaching in which she asked her students to “Write this down word for word as this comes out of my mouth.” These disconnections between espoused belief and enacted behavior are representative of the problem of enactment (Kennedy, 1999).

### **Implications for Teacher Education**

There is copious evidence from existing research that the enacted practices of novice teachers often only partially align with their espoused beliefs (Bullough et al., 1992; Darling-Hammond, 2006; Kennedy, 1999). The current study not only corroborates this phenomenon but also supports the hypothesis that the problem of enactment is, in part, precipitated by knots in thinking (Beach & Pearson, 1998; Wagner, 1987; Wiggins & Clift, 1995). In this way, teacher educators might conceptualize the problem of enactment (i.e., the less than perfect alignment of a novice teacher’s classroom behaviors with their espoused beliefs) as a function of knots in thinking, and this conceptualization has at least three implications.

**Flexibility rather than consistency.** First, some scholars of teacher education (e.g., Carroll, 2005; Schussler, 2006) argue that teacher education should scaffold novices towards achieving more consistent classroom behavior; however, perhaps this is neither a realistic nor an appropriate goal. If classroom teaching perpetually requires resolving trade-offs and dilemmas between multiple, simultaneous goals, then perhaps what novice teachers require, rather than an inclination to respond consistently, is a sensitive and flexible tact (van Manen, 1991) that enables them to make trade-offs. This approach to teacher development is distinct from other approaches that aim to cultivate consistent, observable teacher behavior (Brophy & Good, 1986; Connor et al., 2014) or from approaches that aim to cultivate consistent manifestations of particular teacher virtues in the classroom (Fenstermacher, 2001; Sockett, 2009). Both of these latter approaches suggest that through extended, deliberate practice, novice teachers can master particular skills and dispositions (Bronkhorst, Meijer, Koster, & Vermunt, 2014; Ghouseini & Sleep, 2011).

If, however, the problem of enactment is a function of simultaneous practical intentions, then novice teachers must have a metacognitive strategy for determining which skill or disposition to enact at any given moment (cf. Carr, 2003). If we assume that the work of classroom teaching always involves complexity, dilemmas, and trade-offs (Elbow, 1983; Palmer, 1998), then the challenge issued to teacher education is not only to help novices to behave more consistently, but also to help novices to cope with the inevitability of experiencing knots within their own thinking: knots that require dilemmatic—if not “tragic” (Burbules, 1997)—trade-offs.

**Skill with dilemmas.** Second, some scholars of teacher education (e.g., Beauchamp & Thomas, 2010; Duffy, 2002) encourage novice teachers to articulate their ideal vision of teaching. Korthagen (2004), for example, argues that teaching excellence is achieved when a teacher is able to align his or her behavior with his or her “mission” for teaching (see also Korthagen, Kim,

& Green, 2013). Indeed, research has shown that when a teacher feels that his or her teacher self is fractured (Brown, 2006) or that his or her deeply desired ambitions for teaching have been thwarted (Pines, 2002), burnout occurs. If, however, the problem of enactment is a function of knots in thinking (i.e., if teaching requires trying to satisfy simultaneous—and sometimes conflicting—practical intentions), then striving to actualize a teaching ideal may be futile. Perhaps the aim of teacher education should be less a matter of helping teachers to stay true to one ideal and more a matter of helping teachers to cultivate the cognitive flexibility to negotiate curricular and instructional dilemmas.

**Real-time reflection.** Third, if we assume that knots in thinking can precipitate the problem of enactment, and, if we assume that knots in thinking are endemic to the practice of teaching, then perhaps teacher education should cultivate instructional methods that assist novice teachers in reflecting on these knots in thinking. Specifically, novices should be encouraged not only to think about teaching in terms of principles, virtues, and theories but also to be able to articulate the specific in-the-moment cognitive processes that occur as they attempt to make decisions while teaching. Video has become a prevalent tool in teacher reflection (Osmanoglu, 2016; Sherin, 2004), and perhaps a critical application of this technology is to encourage novice teachers to engage in stimulated-recall interviews in which they are prompted to reflect upon not only their teaching behavior and their students' engagement but also their interactive classroom thinking and decision-making (see Mason, 2002). Reflection at this grain size may help novice teachers to become aware of the cognitive processes they are using to cope with the knots in thinking that they encounter in practice.

### Directions for Future Research

A limitation in this study's methodology is the fact that this study did not attempt to assess or control for the multiple factors that may have influenced a given teacher's instructional vision or the given teacher's enactment of that vision. Specifically, the school culture within which a given teacher is situated may impact his or her instructional aims as well as his or her instructional decision making (Gu & Day, 2013). Likewise, a given teacher's educational background (including his or her teacher education) may influence his or her instructional intentions, as well as his or her ability to enact these intentions (Darling-Hammond, 2006). Future research, therefore, should gather more information about a given teacher's instructional context and educational background. This methodological approach may require the supplementation of stimulated-recall interviews with longitudinal data (e.g., following pre-service teachers into their first years in the profession) as well as the in-depth ethnographic study of school culture.

Additionally, this study was limited by its small sample size and by the fact that each teacher taught a different subject in a different context. Future research might investigate whether teachers in the same school engage in similar cognitive processes while teaching. For example, teachers within a given social network, through collaborative planning practices and the sharing of instructional resources, may analyze and address the tasks of teaching in similar ways (Grossman & Thompson, 2008; Lampert, 2010; Spillane, Kim, & Frank, 2012). Future research might investigate whether or not teachers of particular content (e.g., mathematics) encounter particular sets of practical intentions and particular sets of knots in thinking (see Herbst & Chazan, 2012). Perhaps certain instructional goals and concerns are more problematic to enact

than others, and perhaps certain combinations of instructional goals and concerns are particularly difficult to align with one another.

### **Conclusion**

The problem of enactment can be conceptualized not only as a longitudinal process of identity formation (e.g., “I am not the teacher I want to be,” “I hate who I have become”) but also as a process of in-the-moment thinking. Knots in thinking—and being satisfied with only partial alignment of one’s ideals with one’s actions—may be an inescapable feature of teaching. Therefore, I argue that the cognitive skill of achieving a satisfactory balance between simultaneous practical intentions should be considered to be a core practice of teaching. Appreciating the presence of these knots in thinking and cultivating the metacognitive ability to negotiate these knots may not only help novice teachers to form more robust visions of teaching but may also help them to become more skillful and flexible in regards to their ability to make difficult instructional trade-offs in real time.

The problem of enactment is a persistent problem within the endeavor of learning to teach. It is also worth noting that the problem of enactment may be an unavoidable feature of classroom teaching. That is to say, teachers must perpetually make compromises in the classroom, and teachers may perceive these compromises as representing a less than perfect alignment between their enacted decisions and their instructional ideals. Therefore, perhaps one of the most important tasks of teacher education is to prepare novice teachers for these compromises. Novice teachers should anticipate having to grapple with knots in thinking, and teacher educators should appreciate the fact that this is a challenge that novice teachers will face.

### **Author Notes**

*Aaron Samuel Zimmerman* is an Assistant Professor of Curriculum Studies and Teacher Education at Texas Tech University.

Correspondence concerning this article should be addressed to Aaron Zimmerman at [Aaron.Zimmerman@ttu.edu](mailto:Aaron.Zimmerman@ttu.edu)

**References**

- Beach, R., & Pearson, D. (1998). Changes in preservice teachers' perceptions of conflicts and tensions. *Teaching and Teacher Education, 14*(3), 337-351.
- Beauchamp, C., & Thomas, L. (2010). Reflecting on an ideal: Student teachers envision a future identity. *Reflective Practice, 11*(5), 631-643.
- Berliner, D. C. (2001). Learning about and learning from expert teachers. *International Journal of Educational Research, 35*, 463-482.
- Bickmore, S. T., Smagorinsky, P., & O'Donnell-Allen, C. (2005). Tensions between traditions: The role of contexts in learning to teach. *English Education, 38*(1), 23-52.
- Börger, H., & Tillema, H. (1993). Transferring knowledge to classroom teaching: Putting knowledge into action. In C. Day, J. Calderhead, & P. Denicolo (Eds.), *Research on teacher thinking: Understanding professional development*. London: Falmer Press.
- Bronkhorst, L. H., Meijer, P. C., Koster, B., & Vermunt, J. D. (2014). Deliberate practice in teacher education. *European Journal of Teacher Education, 37*(1), 18-34.
- Brophy, J., & Good, T. (1986). Teacher behavior and student achievement. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.). New York: Macmillan.
- Brown, T. (2006). Negotiating psychological disturbance in pre-service teacher education. *Teaching and Teacher Education, 22*, 675-689.
- Bullough, R. V., Knowles, G. J., & Crow, N. A. (1992). *Emerging as a teacher*. London: Routledge.
- Burbules, N. C. (1997). Teaching and the tragic sense of education. In N. C. Burbules & D. T. Hansen (Eds.), *Teaching and its predicaments* (pp. 65-77). Boulder, CO: Westview Press.
- Carr, D. (2003). Moral educational implications of rival conceptions of education and the role of the teacher. *Journal of Moral Education, 32*(3), 219-232.
- Carroll, D. (2005). Developing dispositions for teaching: Teacher education programs as moral communities of practice. *The New Educator, 1*(2), 81-100.
- Chen, C. H. (2008). Why do teachers not practice what they believe regarding technology integration? *The Journal of Educational Research, 102*(1), 65-75.
- Clark, C. M. (1988). Asking the right questions about teacher preparation: Contributions of research on teacher thinking. *Educational Researcher, 17*(2), 5-12.



- Coburn, C. E. (2001). Collective sensemaking about reading: How teachers mediate reading policy in their professional communities. *Educational Evaluation and Policy Analysis*, 23(2), 145-170.
- Cohen, D. K. (1990). A revolution in one classroom: The case of Mrs. Oublier. *Educational Evaluation and Policy Analysis*, 12(3), 311-329.
- Cole, A. L., & Knowles, G. J. (1993). Shattered images: Understanding expectations and realities of field experiences. *Teaching and Teacher Education*, 9(5-6), 457-471.
- Connor, C. M., Spencer, M., Day, S. L., Giuliani, S., Ingebrand, S. W., McLean, L., & Morrison, F. J. (2014). Capturing the complexity: Content, type, and amount of instruction and quality of the classroom learning environment synergistically predict third graders' vocabulary and reading comprehension outcomes. *Journal of Educational Psychology*, 106(3), 762-778.
- Cooper, J. E., & He, Y. (2012). Journey of "becoming": Secondary teacher candidates' concerns and struggles. *Issues in Teacher Education*, 21(1), 89-108.
- Craig, C. J. (2014). From stories of staying to stories of leaving: A US beginning teachers' experience. *Journal of Curriculum Studies*, 46(1), 81-115.
- Cuban, L. (2007). Hugging the middle: Teaching in an era of testing and accountability, 1980-2005. *Education Policy Analysis Archives*, 15(1), 1-29.
- Darling-Hammond, L. (2006). *Powerful teacher education: Lessons from exemplary programs*. San Francisco, CA: Jossey-Bass.
- Diez, M. E. (2007). The role of coaching in working with dispositions. In M. E. Diez & J. Rath (Eds.), *Dispositions in teacher education* (pp. 203-218). Charlotte, NC: Information Age.
- Dottin, E. S. (2009). Professional judgment and dispositions in teacher education. *Teaching and Teacher Education*, 25, 83-88.
- Doyle, W. (1977). Learning the classroom environment: An ecological analysis. *Journal of Teacher Education*, 28(6), 51-55.
- Drake, C., & Sherin, M. G. (2006). Practicing change: Curriculum adaptation and teacher narrative in the context of mathematics education reform. *Curriculum Inquiry*, 36(2), 153-187.
- Duffy, G. G. (2002). Visioning and the development of outstanding teachers. *Reading Research and Instruction*, 41(4), 331-343.
- Duffy, G. G., & Roehler, L. (1986). Constraints on teacher change. *Journal of Teacher Education*, 37(1), 55-58.

- Dugas, D. (2016). The ineffectiveness of "effective" management strategies: First-year teachers, behavior management, and identity. *Action in Teacher Education*, 38(1), 18-33.
- Elbow, P. (1983). Embracing contraries in the teaching process. *College English*, 45(4), 327-339.
- Enyedy, N., Goldberg, L., & Welsh, K. M. (2006). Complex dilemmas of identity and practice. *Science Education*, 90(1), 68-93.
- Feldon, D. F. (2007). Cognitive load and classroom teaching: The double-edged sword of automaticity. *Educational Psychologist*, 42(3), 123-137.
- Fenstermacher, G. (2001). On the concept of manner and its visibility in teaching practice. *Journal of Curriculum Studies*, 33(6), 639-653.
- Fenwick, D. T. (1998). Managing space, energy, and self: Junior high teachers' experiences of classroom management. *Teaching and Teacher Education*, 14(6), 619-631.
- Fischler, H. (1994). Concerning the difference between intention and action: Teachers' conceptions and actions in Physics teaching. In I. Carlgren, G. Handal, & S. Vaage (Eds.), *Teachers' minds and actions: Research on teachers' thinking and practice* (pp. 165-180). London: The Falmer Press.
- Flores, M. A., & Day, C. (2006). Contexts which shape and reshape new teachers' identities: A multi-perspective study. *Teaching and Teacher Education*, 22(2), 219-232.
- Friedman, I. A. (2000). Burnout in teachers: Shattered dreams of impeccable professional performance. *Journal of Clinical Psychology*, 56(5), 595-606.
- Friedman, I. A. (2006). The bi-polar professional self of aspiring teachers: Mission and power. *Teaching and Teacher Education*, 22, 722-739.
- Gholami, K., & Husu, J. (2010). How do teachers reason about their practice? Representing the epistemic nature of teachers' practical knowledge. *Teaching and Teacher Education*, 26, 1520-1529.
- Ghousseini, H., & Sleep, L. (2011). Making practice studyable. *ZDM*, 43(1), 147-160.
- Goodwin, C. (1994). Professional vision. *American Anthropologist*, 96(3), 606-633.
- Grossman, P., & Thompson, C. (2008). Learning from curriculum materials: Scaffolds for new teachers? *Teaching and Teacher Education*, 24, 2014-2026.
- Gu, Q., & Day, C. (2013). Challenges to teacher resilience: Conditions count. *British Educational Research Journal*, 39(1), 22-44.

- Hammer, D. (1997). Discovery learning and discovery teaching. *Cognition and Instruction*, 15(4), 485-529.
- Hammerness, K. (2003). Learning to hope, or hoping to learn? The role of vision in the early professional lives of teachers. *Journal of Teacher Education*, 54(1), 43-56.
- Hammerness, K. (2006). *Seeing through teachers' eyes: Professional ideals and classroom practices*. New York: Teachers College Press.
- Hatch, J. A. (1999). What preservice teachers can learn from studies of teachers' work. *Teaching and Teacher Education*, 15(3), 229-242.
- Hatch, J. A. (2002). *Doing qualitative research in education settings*. Albany: State University of New York Press.
- Herbst, P., & Chazan, D. (2012). On the instructional triangle and sources of justification for actions in mathematics teaching. *ZDM*, 44, 601-612.
- Hoover, L. A. (1994). Reflective writing as a window on preservice teachers' thought processes. *Teaching and Teacher Education*, 10(1), 83-93.
- Kennedy, M. M. (1999). The role of preservice education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of teaching and policy* (pp. 54-86). San Francisco: Jossey Bass.
- Kennedy, M. M. (2004). Reform ideals and teachers' practical intentions. *Education Policy Analysis Archives*, 12(13), Retrieved from <http://epaa.asu.edu/epaa/v12n13/>
- Kennedy, M. M. (2005). *Inside teaching: How classroom life undermines reform*. Cambridge, MA: Harvard University Press.
- Kennedy, M. M. (2006). Knowledge and vision in teaching. *Journal of Teacher Education*, 57(3), 205-211.
- Keys, P. M. (2005). Are teachers walking the walk or just talking the talk in science education? *Teachers and Teaching*, 11(5), 499-516.
- Korthagen, F. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, 20(1), 77-97.
- Korthagen, F., Kim, Y. M., & Green, W. L. (Eds.). (2013). *Teaching and learning from within: A core reflection approach to quality and inspiration in education*. New York: Routledge.
- Lampert, M. (1985). How do teachers manage to teach? Perspectives on problems in practice. *Harvard Educational Review*, 55(2), 178-194.

- Lampert, M. (2010). Learning teaching in, from, and for practice: What do we mean? *Journal of Teacher Education*, 61(1-2), 21-34.
- Leinhardt, G., & Greeno, J. G. (1986). The cognitive skill of teaching. *Journal of Educational Psychology*, 78(2), 75-95.
- Mason, J. (2002). *Researching your own practice: The discipline of noticing*. New York: Routledge.
- McDonald, J. P. (1992). *Teaching: Making sense of an uncertain craft*. New York: Teachers College Press.
- Moos, D. C., & Pitton, D. (2013). Student teacher challenges: Using the cognitive load theory as an explanatory lens. *Teaching Education*. doi:10.1080/10476210.2012.754869
- Oliver, W. A. (1953). Teachers' educational beliefs versus their classroom practices. *Journal of Educational Research*, 47(1), 47-55.
- Osmanoglu, A. (2016). Prospective teachers' teaching experience: Teacher learning through the use of video. *Educational Research*, 58(1), 39-55.
- Palmer, P. J. (1998). *The courage to teach: Exploring the inner landscape of a teacher's life*. San Francisco, CA: Jossey-Bass.
- Pillen, M., den Brok, P., & Beijaard, D. (2013). Profiles and change in beginning teachers' professional identity tensions. *Teaching and Teacher Education*, 34, 86-97.
- Pines, A. M. (2002). Teacher burnout: A psychodynamic existential perspective. *Teachers and Teaching*, 8(2), 121-140.
- Porter, R. E., Fusarelli, L. D., & Fusarelli, B. C. (2015). Implementing the Common Core: How educators interpret curriculum reform. *Educational Policy*, 29(1), 111-139.
- Roehrig, A. D., Turner, J. E., Grove, C. M., Schneider, N., & Liu, Z. (2009). Degree of alignment between beginning teachers' practices and beliefs about effective classroom practices. *The Teacher Educator*, 44(3), 164-187.
- Romano, M. E. (2006). "Bumpy moments" in teaching: Reflections from practicing teachers. *Teaching and Teacher Education*, 22, 973-985.
- Schiro, M. (1992). Educators' perceptions of the changes in their curriculum belief systems over time. *Journal of Curriculum and Supervision*, 7(3), 250-286.
- Schussler, D. L. (2006). Defining dispositions: Wading through murky waters. *The Teacher Educator*, 41(4), 251-268.

- Schussler, D. L., Stooksberry, L. M., & Bercaw, L. A. (2010). Understanding teacher candidate dispositions: Reflecting to build self-awareness. *Journal of Teacher Education, 61*(4), 350-363.
- Sherin, M. G. (2004). New perspectives on the role of video in teacher education. In J. Brophy (Ed.), *Advances in research on teaching: Vol. 10: Using video in teacher education* (pp. 1-27). Oxford, UK: Elsevier.
- Simmons, P. E., Emory, A., Carter, T., Coker, T., Finnegan, B., & Crockett, D., et al. (1999). Beginning teachers: Beliefs and classroom actions. *Journal of Research in Science Teaching, 36*(8), 930-954.
- Skott, J. (2001). The emerging practices of a novice teacher: The roles of his school mathematics images. *Journal of Mathematics Teacher Education, 4*, 3-28.
- Smagorinsky, P., Wilson, A. A., & Moore, C. (2011). Teaching grammar and writing: A beginning teacher's dilemma. *English Education, 43*(3), 262-292.
- Sockett, H. (2009). Dispositions as virtues: The complexity of the construct. *Journal of Teacher Education, 60*(3), 291-303.
- Spillane, J. P., Kim, C. M., & Frank, K. A. (2012). Instructional advice and information providing and receiving behavior in elementary schools: Exploring tie formation as a building block in social capital development. *American Educational Research Journal, 49*(6), 1112-1145.
- Sumara, D. J., & Luce-Kapler, R. (1996). (Un)Becoming a teacher: Negotiating identities while learning to teach. *Canadian Journal of Education, 21*(1), 65-83.
- Theriot, S., & Tice, K. C. (2008). Teachers' knowledge development and change: Untangling beliefs and practices. *Literacy Research and Instruction, 48*(1), 65-75.
- Troia, G. A., & Graham, S. (2016). Common Core writing and language standards and aligned state assessments: A national survey of teacher beliefs and attitudes. *Reading and Writing, 29*(9), 1719-1743.
- Valencia, S. W., Martin, S. D., Place, N. A., & Grossman, P. (2009). Complex interactions in student teaching: Lost opportunities for learning. *Journal of Teacher Education, 60*(3), 304-322.
- van Manen, M. (1991). *The tact of teaching: The meaning of pedagogical thoughtfulness*. New York: SUNY Press.
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54*(2), 143-178.

- Wagner, A. C. (1987). "Knots" in teachers' thinking. In J. Calderhead (Ed.), *Exploring Teacher Thinking* (pp. 161-178). London: Cassell.
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.
- Weinstein, C. S. (1988). Preservice teachers' expectations about the first year of teaching. *Teaching and Teacher Education*, 4(1), 31-40.
- Weinstein, C. S. (1998). "I want to be nice, but I have to be mean": Exploring prospective teachers' conceptions of caring and order. *Teaching and Teacher Education*, 14(2), 153-163.
- Wiggins, R. A., & Clift, R. T. (1995). Oppositional pairs: Unresolved conflicts in student teaching. *Action in Teacher Education*, 17(1), 9-19.
- Windschitl, M. (2002). Framing constructivism in practice as the negotiation of dilemmas: An analysis of the conceptual, pedagogical, cultural, and political challenges facing teachers. *Review of Educational Research*, 72(2), 131-175.
- Wood, M. B., Jilk, L. M., & Paine, L. W. (2012). Moving beyond sinking or swimming: Reconceptualizing the needs of beginning mathematics teachers. *Teachers College Record*, 114, 1-44.
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, CA: Sage Publications.
- Zimmerman, A. (2015). The simultaneity of beginning teachers' practical intentions. *Mid-Western Educational Researcher*, 2(2), 100-116.