



Research paper

Structuring teacher candidate learning about differentiated instruction through coursework



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HIGHLIGHTS

- Varied activities supported appropriation of DI's conceptual & practical tools.
- Participants' appropriation processes were markedly individualized.
- Modeling of DI's practical tools was mostly unrecognized without explicit dialog.
- All participants' prior beliefs about teaching aligned with DI's conceptual tools.
- New knowledge of DI's conceptual & practical tools expanded participants' beliefs.

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1. Introduction

Teacher education is charged with preparing teachers for the complexities of the classroom and is held responsible when candidates are insufficiently prepared to respond to its daily demands (Goodlad, 1990; Korthagen, Loughran, & Russell, 2006). In the last two decades, one aspect of the complexities of the contemporary classroom upon which teacher preparation has focused involves responding to increasing diversity among learners at all grade levels (e.g., Kober, 2012). The movement to differentiate instruction in the general education classroom in response to such diversity has gained increasing momentum both in the United States and internationally, with Tomlinson's (1999, 2014) model of differentiated instruction, or differentiation, being the most widely cited and visible approach. As a result, calls have been issued for teacher education programs to improve the quality of the preparation teacher candidates receive on instruction that responds to academic diversity effectively through Tomlinson's model and related approaches (Holloway, 2000; Tomlinson, 1999).

Although support for differentiation is widespread, this philosophical approach to teaching and learning has not been implemented with fidelity in most K-12 settings, where one-size-fits-all instruction remains common (Brighton, Hertberg, Moon, Tomlinson, & Callahan, 2005; Callahan, Moon, & Oh, 2017; Tomlinson, 2016). Sherman (2009) offers one explanation of this lack of implementation, arguing that when teachers implement differentiation as a standardized recipe rather than a theory to be applied in situationally-specific contexts and improved outcomes are not immediately observed, teachers may abandon differentiation for other approaches perceived to be less labor-intensive quick fixes. Critical distinctions exist between a superficial, formulaic understanding of differentiation and a deep, meaningful understanding that lends itself to resourceful application and persistent fine-tuning. For prospective teachers to develop the latter form of understanding – one that would support the implementation of differentiation with fidelity over time in future practice – they must participate in thoughtfully crafted experiences in teacher education coursework designed to meet this goal. Through such strategic learning experiences, candidates may develop an accurate and robust vision of a differentiated classroom in which the needs of diverse learners are respected and proactively addressed.

While several studies have examined the development of candidate knowledge of and attitudes toward Tomlinson's model of differentiation when enrolled in a teacher education course focused on the approach (Goodnough, 2010; Wan, 2016; West & West, 2016), they did not directly explore how specific learning experiences in coursework may be related to the development of candidate knowledge of and attitudes toward the model. Although this small body of research begins to suggest *what* candidates may come to know or feel about differentiation as they study it in depth,

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extant empirical work has not yet examined *how* specific, intentionally designed course learning experiences, or in-class activities, discussions, readings, and out-of-class assignments, should support teacher candidate learning about responding effectively to academic diversity. Further examination of how coursework focused on differentiation should be structured to support learning is therefore needed to clarify and illustrate how teacher educators can best instruct candidates in the model.

This paper reports findings from a larger study on how teacher candidates made meaning of Tomlinson's model of differentiation in a course taught by Tomlinson¹ focused solely on this model of teaching and learning (Dack, *under review*). The findings reported here respond to three research questions: (a) How were learning experiences in Tomlinson's course structured to support candidate appropriation of pedagogical tools related to differentiation?, (b) How did instructor modeling of differentiation support candidate appropriation of pedagogical tools related to differentiation?, and (c) How did candidates' prior beliefs about teaching and learning affect their appropriation of pedagogical tools related to differentiation? Study findings, which center upon participants' individualized responses to the course, suggest specific implications for teacher education programs that prepare candidates to respond to academic diversity and more general implications for programs that prepare candidates to enact forms of ambitious instruction.

2. Literature review

2.1. Differentiated instruction

Differentiation presents an instructional approach in which a teacher proactively anticipates and responds to diverse learner needs (Tomlinson, 2014). It reflects a philosophy of teaching and learning grounded in the beliefs that academic diversity is both inevitable and positive, every learner should have equitable access to excellence in teaching, and the central purpose of teaching is to maximize each learner's capacity (Tomlinson & Imbeau, 2010). Academic diversity (Tomlinson, 2017) is defined as differences among students that may affect learning, including their (a) readiness, or current level of proficiency with knowledge or skill; (b) interests in particular topics; and (c) learning profile composed of preferences for approaching learning in ways that are most efficient, which may be influenced by traits related to culture (Gay, 2013; Ladson-Billings, 1995), intelligence preference (e.g., Sternberg, 1985), or other factors. A teacher in a differentiated classroom recognizes that students enter learning experiences at different starting points and with different backgrounds; thus, they will benefit from multiple options to access information, an array of ways to process information, a variety of outlets to demonstrate learning, and a range of supports. While a number of specific strategies for modifying instruction are common in differentiated classrooms, Tomlinson's model presents a way of thinking about teaching and learning rather than a set formula or recipe (Tomlinson, 2001).

Researchers have documented positive effects on achievement and higher-order thinking skills among diverse K-12 student populations in classrooms where multiple elements of Tomlinson's model have been implemented with fidelity (Geisler, Hessler, Gardner, & Lovelace, 2009; Marulanda, Giraldo, & Lopez, 2006; Rasmussen, 2006). Likewise, increases in achievement across

content areas, grade levels, and diverse demographic groups have been reported in instances where Tomlinson's model has been adopted schoolwide (Beecher & Sweeny, 2008; Burris & Garrity, 2008; Tomlinson, Brimijoin, & Narvaez, 2008).

2.2. Teacher educator modeling

In the context of teacher education, modeling effective pedagogy, including responsive instruction, assumes a unique role because teacher educators are in the business of teaching how to teach. The likelihood that candidates will effectively translate course content into their future practice increases when teacher educators model practices and beliefs (Grossman et al., 2000). However, modeling must be implemented effectively for future transfer to occur.

"Congruent teaching" refers to the instructional approach in teacher education of both intentionally modeling a key strategy for candidates and offering "meta-commentary" on instructional decision-making and related theory (Swennen, Lunenberg, & Korthagen, 2008). This approach goes a step beyond "implicit modeling," in which the instructor demonstrates a practice for candidates as they participate in the learning experience, but there is no discussion of instructor reasoning underlying instructional choices (Bullock, 2009). Although implicit modeling gives candidates opportunities to view a strategy in action, intended learning may not occur if candidates do not recognize or fully appreciate what was modeled (Lunenberg, Korthagen, & Swennen, 2007). In contrast, congruent teaching involves the second component of meta-commentary, which Lunenberg et al. (2007) suggested is necessary for candidates to ultimately translate modeled strategies in their own practice. Effective meta-commentary involves explicitly explaining why the instructor made particular decisions surrounding the modeled behavior (Lunenberg et al., 2007) and then connecting those decisions to relevant theory (Swennen, Korthagen, & Lunenberg, 2004).

Ruys, Defruyt, Rots, and Aelterman (2013) proposed congruent teaching as a way to better prepare candidates to differentiate instruction, citing difficulties early career teachers often experience when attempting implementation (Humphrey et al., 2006; Wertheim, 2002). In their study of an instructor in a Flemish teacher training institute, researchers noted that, although the instructor modeled differentiation, she rarely explained her instructional decision-making, and only once connected it to theory. In turn, candidates appeared not to recognize the instructor's implementation of differentiation (Ruys et al., 2013). The researchers concluded "modeling is not enough" (Ruys et al., 2013, p. 104) when teaching candidates how to differentiate instruction by demonstrating its practices. The use of meta-commentary surrounding the modeling of differentiation can be especially important because, when accomplished with fidelity, seamless integration of the approach into teaching practice often passes unnoticed by students who experience it.

Modeling differentiation not only offers opportunities for candidates to see Tomlinson's model in action and deconstruct its use by the instructor. It also allows instructors to better meet the needs of diverse candidates enrolled in teacher education programs. A growing body of research indicates that differentiating instruction in education coursework may yield improved academic outcomes for diverse adult learners (An, Tillman, Zhang, Robertson, & Tinajero, 2016; Chamberlin & Powers, 2010; Dosch & Zidon, 2014; Tulbure, 2011).

2.3. Candidates' prior beliefs

Teacher candidates often enter teacher education programs

¹ IRB approval and participant permission to identify course instructor and research site were obtained. Because teacher educators' presentations of Tomlinson's model often reflect misconceptions about differentiation's principles and practices (Sands & Barker, 2004; Santangelo & Tomlinson, 2012), establishing that participants in this study learned about it with accuracy and fidelity was critical.

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