Practicing Constructivist and Culturally Responsive Methods through Differentiated Instruction

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Abstract

During a semester-long course on multicultural education, teacher candidates had the opportunity to research and present a repertoire of teaching methods, one of them being differentiated instruction. They completed a group project that requires researching, presenting, and demonstrating or modeling in a diverse classroom differentiated instruction practices that are constructivist and culturally responsive. Data gathered was composed of the candidates' group presentation materials. The findings show cased how teacher candidates acquired the skills necessary to develop a culturally responsive and constructivist differentiated lesson while competently meeting the INTASC professional standards. The discussion analyzes the theoretical and philosophical arguments that explain why, in order to be effective, differentiated instruction has to be both culturally responsive and constructivist.

Introduction

Using the CRT principles, this report provides some insights into the philosophical and theoretical foundations as well as the pedagogical practices involved in implementing differentiated instruction(DI) that is both constructivist and culturally responsive. It discusses the theoretical perspectives and instructional experiences that have led to design the assignment entitled "modeling culturally responsive instructional strategy." Many researchers in the field of multicultural education have examined the reality of social change resulting in increased diversity in society and classrooms and the necessity for practicing a culturally responsive pedagogy (e.g., Cushner, McClelland, & Safford, 2009; Banks & Banks, 2001; Ladson–Billings, 1994; Irvine & Armento, 2001; Meece, 2002). Cushner, McClelland, and Safford (2009) refer to culture as "a human-made part of the environment as opposed to aspects that occur in nature. Simply defined, diversity refers to varietyor difference. Human diversity, according to Cushner, McClelland, and Safford (2009), includes attributes such as race/ethnicity, language, gender, ability, disability, health, nationality, geographic region, social class, social status, age. They define multicultural education as "a process of educational reform that assures that students from all groups (racial, ethnic, socioeconomic, ability, gender, etc.) experience educational equality, success, and social mobility" (Cushner, McClelland, and Safford, 2009, p. 22). Multiculturalists contend that this type of education is structured in such a way that it integrates several cultural perspectives.

Review of the Literature

Culturally Responsive Pedagogy

The population in the United States has continuously become more diverse over the last decades, with 20% speaking a language other than English at home in 2007 (U.S. Census Bureau, 2033). Although the European-American traditions still represent a macroculture that has deeply influenced the social and political norms in this country, numerous microcultures that differ in ethnicity, language, culture and socioeconomic characteristics have emerged. Although at some point the national expectation was for these microcultures to assimilate into a homogeneous culture, the culturally responsive metaphor suggests the creation of "…a mix in which the individual ingredients are not melted but, rather, retain their flavor and texture" (Diaz-Rico and Weed, 2010; p. 214).

Due to the increasing diversity in the classroom, teaching certification standards are requiring candidates to acquire competencies in addressing the needs of their student population. To foster students' optimal development, teachers are expected to practice culturally responsive pedagogy (CRP) (Ladson-Billings, 1995) or Culturally Responsive Teaching (CRT) (Gay, 2002). According to Irvine and Armento (2001), "the term culturally responsive pedagogy is used […] to describe a variety of effective teaching approaches in culturally diverse classroom […T]he terms all imply that teachers should be responsive to their students by incorporating elements of the students' culture in their teaching" (p. 4). This entails embracing and celebrating individual differences, providing culturally relevant learning experiences, helping all students develop positive self-concepts, and having high expectations for all regardless of cultural background. Banks (1994) emphasizes that pre-service teachers need a more thorough understanding of culture, the mechanisms through which it impacts schools, and the complex characteristics of the increasingly diverse student population. To this, Delpit (1995) adds that teachers must become aware of their own cultural biases and see cultural diversity in the classroom as an asset rather than a liability. In brief, teachers have to assume the role of cultural mediators (Cushner, McClelland & Safford, 2010) and must, therefore, look at the classroom through their students' frames of reference (Van Garderen & Wittaker, 2006).

NGO (2010) found that when culturally responsive pedagogy is reduced to "cultural celebration," problems in cross-cultural communication are ignored. Diaz-Rico and Weed (2010) stress that culturally responsive teaching goes beyond the simple recognition of superficial cultural elements such as food and celebration and that it incorporates values and beliefs, expectations of individual roles, family structures, and elements of verbal and nonverbal communication. Nonetheless, CRP is often understood in limited and simplistic ways that ultimately become dismissed or produce ineffective results (Sleeter, 2011). Learning "about" culture ends up substituting for learning to teach skills using the cultural lenses of diverse groups. Leonard, Napp & Adeleke (2009) suggest that when culture is separated from subject matter, students fail to become truly engaged with the content. This perspective is echoed by James Banks, who suggests both a knowledge typology and four levels of integration of multicultural content (Banks, 1993; Banks & Banks, 2001).Other typical mistakes that teachers make when trying to implement include assuming that because students belong to a certain ethnic group, they identify with a set of practices that are believed to characterize that culture (May and Sleeter, 2010), or that by working with culture all problems of systematic inequity are solved (Beauboeuf-LaFontant, 1999).

Constructivism

According to Villegas and Lucas (2002), "A constructivist education is also more likely to prepare children to fulfill their roles in a democratic society than an education that is rooted in conventional thinking." (p. 76). Although constructivism as a school of thought has diverse roots and is linked to multiple fields including mathematics, art, architecture, and learning theory, in this study it is interpreted as an epistemological perspective that views knowledge construction as an active, meaning-making process. From this perspective, learning is a balancing act between a state of equilibrium and that of disequilibrium (Piaget, 1962; Hofer & Pintrich, 1997). Students are in a state of equilibrium when they develop operational thoughts or "schemes of action" (Athey, 1990) that can help them to cognitively adapt to the environment. According to Piaget, human beings have the natural tendency to organize their thinking into schema, which are mental representations of objects and events in the physical world and the most basic "building blocks" of knowledge construction.

As they combine amongst themselves, they become more complex structures that allow for greater adaptation to the environment. Piaget recognized that cognitive development required more than experience with the physical environment and that interaction with the social world was a key component (Ginsburg and Opper, 1987). While cognitive constructivists have focused on the study of the individual learner, social constructivists accept that knowledge is co-constructed. Driver et al. (1994), for example, have argued that scientific and mathematical knowledge is socially constructed and that science learning is acculturation. Cobb (1994a, 1994b) and Yackel and Cobb (1996) have tried to unify cognitive constructivist and sociocultural approaches because they believe that individual knowledge construction occurs in a social context. Von Glasersfeld (1995, 1996), a radical constructivist, stressed that a teachers' role is not that of knowledge transfer, but that of a midwife who facilitates the birth of understanding through activity and discussion. This facilitation occurs through a social interaction that naturally occurs within a cultural context. From a radical constructivist perspective, no viewpoint is more accurate than another because ontological reality is not accessible to rational human knowledge (Glassersfeld, 1990), which implies that no culture is superior to others.

The main implication of radical constructivism, and of most constructivist approaches, is that students have an active role in the internal process of constructing new meanings (Bredo, 2000), which uses schema as building blocks (Derry, 1996).

Differentiated Instruction

Irvine and Armento (2001) identify DIas one of theapproaches to teaching that effectively promotes culturally responsive teaching. Even thoughDI has been systematically encouraged in recent years, it does not represent a new phenomenon in the educational arena. Since ancient times, educators have pondered on the best ways of matching instruction to the individual characteristics of their learners. In recent decades, the research from the fields of neuropsychology, multiple intelligences, special education, gifted education, and multi-age classrooms have provided a theoretical and practical platform upon which DI can stand. Given the importance that meeting the needs of a diverse student population has acquired in the context of inclusive classrooms, current educational reforms emphasize this aspect of teacher training. Yet, research has shown that, regardless of how much university preparation candidates receive in DI, they fail to implement it during their student teaching practices (Renick, 1996). Carol Tomlinson, an internationally renown expert in the field of DI found that general education programs, instead of preparing candidates to address the needs in diverse classrooms, are promoting strategies that keep all students learning the same content in the same manner (Tomlinson, 1999). They fail to concurrently meet the differentiated needs of the academic learner, the perfectionist learner, the creative learner, the struggling learner, and the invisible learner (George, 2005).

Tomlinson believes that "a differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn" (Tomlinson, 2001). Because this entails a blend of whole-class, group, and individual instruction, depending on the particular needs and strengths of each student in every lesson, using flexible grouping becomes critical (George, 2005). Flexibility means that groups cannot be always organized on the basis of the same criteria, and in particular not only on the basis of ability levels (Marzono, Pickering, and Polluck, 2001).

A differentiated curriculum is qualitatively, rather than quantitatively, different from the basic curriculum and it results from the appropriate modification of content, process, environment and product (Maker, 1982; VanGarderen & Whittaker, 2006). Without these modifications, some students will not be able to find knowledge meaningful and relevant (Gregory & Chapman, 2002). Content, which consists of ideas, concepts, descriptions and facts, can be modified through the use of strategies such as flexible pacing, reorganization, compacting and acceleration. The process can be modified by adapting the activities to the readiness or intellectual level of the student. The taxonomy of educational objectives developed by Bloom (1956) or other models that structure thinking skills (e.g., Parnes, 1966; Taba, 1962) can be used to guide the process modification. The environment can be modified by introducing materials and physical movement that best respond to the learning style and readiness of the student. And, finally, the product can be modified by allowing—and even encouraging—students to communicate their knowledge using a variety of expression outlets that respond to their learning preferences and which improve their cognitive development as well as their ability to express themselves. Some examples of product differentiation include the creation of puppet shows, writing letters, developing murals and portfolios. According to Wehrmann (2000), product differentiation takes place when students are given the opportunity to demonstrate their learning using different assessment formats.

Methodology

Situating the Study

This research study used grounded theory as a framework to explain how DI reflects both constructivism and culturally responsive teaching in its application. The study seeks to identify educational approaches that help teacher candidates develop strategies, activities, skills, and resources to teach and assess students in a culturally diverse classroom.

Data Sources

This report analyzes four semesters of course-level data of a Multicultural Education course assignment focusing on evidence-based approach to teaching through DI. The assignment is referred to as Modeling Culturally Responsive Instructional Strategies (CRIS). It is given each semester to groups of teacher candidates in an education department at a private university. The data reflects the teacher candidates' performance on an assignment that requires the use of DI in a culturally diverse setting.

Qualitative Analysis

The method of emerging design in grounded theory (Creswell, 2008), which points out that "…the procedure for coding and categorization is less structured and prescribed" (McMillan & Schumacher, 2010, p. 347), was utilized. Content analysis (Gall, Borg, & Gall, 2006) was used to summarize the data obtained from the teacher candidates' assignments using the INTASC Standards as the defining categories. Specifically, the data was categorized based on the extent to which the teacher candidates used DI strategies that were constructivist and culturally responsive—according Irvine and Armento's (2001) Principles of CRP—in a learning setting that was diverse on dimensions that included gender, race or ethnicity, nationality, rural and urban regions, religion, language, social class and social status, ability and disability.

Instrument

An instrument was developed toanalyze course-level data from the Multicultural Education course research assignment called Modeling Culturally Responsive Instructional Strategy (CRIS).The instrument is referred to as Culturally Responsive Pedagogy Data Collection (CRPDC) and measures the extent to which the DI strategies embedded in the assignment reflect constructivist and culturally responsive practices.This evidence-based approach explicitly seeks to provide students the opportunity to connect theory and practice by enabling them to apply the principles of culturally responsive pedagogy (CRP). As explained by Irvine and Armento (2001)Joseph Cadray of Emory University (1999) introduced the chart, which established compatibility between the "critical elements in culturally responsive pedagogy" and the Interstate New Teacher Assessment and Support Consortium (INTASC) standards.

The CRPDC examines the presence of various aspects of constructivist and CRP-based classroom pedagogy in the context of DI, which encompass instructional, assessment, motivation, and classroom management strategies as well as teacher dispositions that are aligned with the INTASC Standards. The categories of the CRPDC depict the elements that the assignments had to include, namely(a) a theoretical/research based definition of DI; (b) a rationale for its effectiveness in a diverse classroom; (c) examples or variations of the method; (d) its benefits for both the teacher and the student (including social, academic, and developmental/behavioral benefits and skills acquired); (e) significant roles teachers play; (f) its motivational impact on diverse learners; (g) development of cross-cultural competence; (h) learning activities and strategies involved; (i); compatibility with constructivism; (j) possible limitations of DI in a diverse classroom and practical solutions; (k) tips for successful implementation of the method; and (l) approaches to both formal and informal assessment. INTASC Standard #1 was met when teacher candidates (a) provided examples of the methods and stated their social, academic, and developmental/behavioral benefits; (b) explained how the teaching method motivated/engaged diverse learners and modeled cultural competence; (c) shared learning activities and strategies that enhance cross-cultural skills that are compatible with constructivism; and (d) highlighted tips for successful classroom implementation. Standards #2 and #5 were assessed by asking teacher candidates to explain how their teaching methods motivated/engaged diverse learners and modeled cultural competences. Standard #3 was assessed through teacher candidates' examples of method variation.Standards #4, 6 and #10 were exhibited in the cross-cultural skills and constructivist practices that were reflected in the learning activities and strategies developed by the teacher candidates. Standards #4 and #7 were met when teacher candidates demonstrated or modeled CRP in action in the context of their lesson plans. Standard #8 was reflected in the discussion of formal and informal assessment strategies.

Findings

This section analyzes the extent to which the Principles of Culturally Responsive Practice (Irvine & Armento, 2001), which are aligned with the INTASC Standards,were reflected in the teacher candidates' assignments.

INTASC Standard/CRT Principle #1: Teacher candidates showed that they integrate professional, content, and pedagogical knowledge to create learning experiences that make the content area meaningful for their diverse learners. They presented activities that indicate that they are familiar with their students' readiness levels (based on the classroom scenario) and use that knowledge to plan lessons. They believe that DI benefits learners and teachers alike and agree with Cushner, McClelland & Safford (2010), who view the teacher as a cultural mediator, and assert that the learners benefit because they develop their social and academic skills as they work collaboratively and because the teacher has to work from the students' frame of reference. They added that teachers benefit because they have more time available to work with individual groups of students.

INTASC Standard/CRT Principle #2: Teacher candidates found that DI motivates students in different ways, being interest a key factor. They support Lawrence-Brown's (2004) contention that a successful lesson implies that active learning is based on student interests, addresses different intelligences and learning styles, and encourages hands-on activities that are relevant to students. Candidates also proposed activities that empower students' locus of control, as suggested by Huebner (2010) and that encourage the use of open-ended activities that promote creativity, which is supported by Walker-Dalhouse & Risko (2009).   Overall, they presented activities that create more engaging lessons and, therefore, reduce the likelihood of misbehavior.

INTASC Standard/CRT Principle #3: Teachercandidatesknowand aresensitive to diverse cultural group. For instance they value the idea of having more time available to work with individual groups of students. Teacher candidates achieved this by creating small groups for their culminating activities. Because students are assigned work at the appropriate difficulty level boredom is reduced thus reducing the likelihood of difficult behaviors. They support Van Garderen & Whittaker's (2006) belief that multicultural education challenges teachers to look at the classroom through their students' frames of reference, by using the classroom scenario to create appropriate seating arrangement.   Since the nature of learner one encounters ranges from the academic learner to the perfectionist learner, the creative learner, the struggling learner and the invisible learner, flexible student groupings as hallmark of DI as argued by George (2005) is very beneficial to students just as peer teaching and reading buddies are. Teacher candidates took the students' characteristics in the classroom scenario into account to ensure individual appropriateness.

INTASC Standard/CRT Principle #4: The teacher candidates implemented a variety of instructional and assessment strategies as required by the assignment, they executed the lesson using a PowerPoint presentation, cooperative learning and role-playing as they applied the Universal Design for Learning (UDL). They understood that such an approach assists teachers in practicing flexibility with their method and optimizes students' learning. Three strategies involved with UDL consist of Recognition Learning, Strategic Learning and Affective learning. These strategies constitute an opportunity for the teacher to find out the best suited approach for the classroom. Other strategies teacher candidates applied in modeling DI include reading buddies, learning centers, and literature circles. Gregory & Chapman (2002) argue that good activities require students to develop and apply knowledge in ways that make sense to them and that they find meaningful and relevant. In a differentiated classroom, activities for each group are often differentiated by complexity (Van Garderen & Whittaker, 2006). Teacher candidates were able to differentiate by complexity using role-playing and cooperative learning so peers get into character of the students in the classroom scenario, as ELL students, average, talented and gifted, LD at a selected grade level.

INTASC Standard/CRT Principle #5: The teacher candidates diagnosed and built upon the personal, cultural and historical experiences of learners from a variety of backgrounds because that was the goal of using the classroom scenario which represented a highly diverse classroom. They understood that key factors in motivation include interest; therefore, they designed a lesson plan with the scenario in mind. To ensure active participation they determined students' interests through a questionnaire, provided varying degrees of scaffolding to motivates students in different ways.They support Lawrence-Brown's (2004) perspective that a successful lesson implies active learning encouraged by hands-on activities and relevant to students, connecting to their interests and appealing to different intelligences and learning styles.

INTASC Standard/CRT Principle #6: Teacher candidates showed that they understood the importance of communicating in ways that demonstrate sensitivity to the diversity in their classroom by asking students to what extent the incorporation of strategies such as Universal Design for Learning (UDL) helped them to optimize their learning. In particular, they dialogued with their students on the usefulness ofstrategies such as reading buddies, learning centers, buddies students, literature circles, as well as*Recognition Learning*, *Strategic Learning*, and *Affective Learning*, which constitute an opportunity for the teacher to find out the best teaching approach for a particular classroom.

INTASC Standard/CRT Principle #7: Student candidates showed that they can plan learning opportunities that meet the developmental needs of their diverse learners. Based on an analysis of the characteristics of the academic, perfectionist, creative, struggling learners, and invisible learners in a diverse classroom, teacher candidates suggested the use of activities that required working in pairs, small groups, or independently while all students work toward proficiency of the same performance standards.

One of the teams even incorporated a YouTube video that facilitated the utilization of practices that are attuned to the learner's unique needs, abilities, interests, and learning styles. Because the activities suggested take into consideration the students' readiness levels, boredom is reduced and the likelihood of difficult behaviors is consequently also diminished.

INTASC Standard/CRT Principle #8: Teacher candidates showed that they use a variety of assessment techniques that reflect their students' diverse expression styles. They included well-executed pre-assessments, formative and summative assessments in planning, adjusting and measuring DI in order to meet all students' needs. The summative assessments included teacher made tests, quizzes, projects, performance assessments, and standardized tests. Informal assessments included the creation of 3-2-1 charts, graphic organizers, and answering questions in class or for homework.

INTASC Standard/CRT Principle #9: To better understand students' diverse idiosyncrasies and thus be able to develop culturally responsive curricula and instructional practices, teacher candidates first reflected upon their personal backgrounds and life experiences. To show this understanding, they provided a reflection on how their background shaped their interpretation of the subject matter and of their students' diverse cultures. They explored ways of getting to know their students' previous experiences and how these experiences influence theway they make sense of knowledge, in what contexts they apply it, and what helps make knowledge meaningful and relevant. Teacher candidates also provided examples on how to support their diverse students based on their unique academic needs. For example, they indicated how to provide additional scaffolding for struggling literacy learners by offering a menu of tiered work products, expert tutoring and additional second language support. They also proposed using shared reading and writing to allow diverse students to share their thoughts in order to promote students collaboration and social interaction. Finally, they provided examples of differentiation by complexity in which students' levels of readiness shaped the expectations for various tasks.

INTASC Standard/CRT Principle #10: Teacher candidates demonstrated that they identified and used community resources in the classroom. A major solution to the challenge of prep time, the logistics and paperwork involved in DI is collegiality (Benjamin, 2006). Teacher candidates found that "teachers and administration should work together and have shared planning time where they can share ideas, tips, sources, and where they can encourage each other and reflect". Teacher candidates demonstrated that they identified and used community resources in the classroom. They provided examples that showed how they looked at the classroom through their students' frames of reference. Though there was no specific guideline in the assignment to provide insights that address this CRT principle, one group thoughtfully designed an activity for the demonstration component of the assignment using a "cross-curricular country project" which involves five learning centers integrating various subjects. They based grouping on exceptionalities using the classroom scenario provided by the instructor and placed students in five groups each representing a specific country. The group described the project where students would have studied the 5 countries and biomes the previous week. A newsletter will be sent home to the parents notifying them of the project, things they may need to help their child research/gather at home for the culminating festival, etc. Creation of flags, food, clothing, and language are also integrated in the project. This assignment addresses the standard as it evidences a thoughtful approach to fostering family participation in student's learning.

Discussion

This assignment suggests that in light of the accommodations and modifications made for students with special needs (often reflected in a student's IEP or Section 504 plan), DI is an expansion of that concept for all students. Indeed, teachers do not pick and choose their students; they just teach them. Although all eight assignments discussed the limitations of DI the disturbing data include the limitation of teacher training generally due tothe (a) lack of required training, (b) teacher unwillingness to undertake the efforts to plan and implement multiple levels of instruction (Winebrenner, 2000); (c) teacher lack of adaptability, and (c) cultural dissonance. This seems to confirm the myththat monocultural teachers are not prepared to work in a multicultural classroom.

This report has achieved its major goal of presenting an approach to teaching which connects theory with practice,hence demonstrating that culturally responsive pedagogy goes beyond an add-on strategy; it is the practice itself. The analysis carefully shows how DI is both constructivist and culturally responsive.

Furthermore, this report has shownhow the implementation of DI can be guided by the essential elements of CRT, which are compatible with the INTASC standard, thus helping to further dispel the myth that multicultural education is a watered down approach.

Conclusion

Teaching in the 21st century in a pluralistic society has its set of challenges that could serve as stepping stones for transforming one's pedagogy. The theoretical and philosophical perspectives used to produce this work seek to demonstrate that a teacher's educational philosophy and professional dispositions are foundational elements in classroom pedagogy. Furthermore, the urgency for an evidence-based practice should be compelling in a teacher's journey towards effectiveness. Understanding both human development and human diversity in education is essential to a successful pedagogy, which is suggested by both multiculturalists and constructivists. In facilitating the child's co-construction of knowledge it is critical to see the learner as an individual with unique strengths and weaknesses, interests and needs which are connected to their upbringing in a specific culture. Therefore, the effective differentiation of instruction has to be, constructive and culturally responsive.

The authors of this report believe that it is crucial for teachers to align their beliefs with their practice in discovering their cross-cultural competence as they decide to model a pedagogy that produces action and change. It is not enough to know that one's classroom is diverse or even acknowledge the reality of diversity. One should effectively engage with it. How should one's pedagogy fail to reflect one's philosophy? Should one believe in social justice or human right approach to education, or inclusion and fail to provide equal learning opportunities for all, or include all students in the classroom? Should one preach respect as part of the classroom rules while one's disposition does not model it toward some learners? Can one just practice what one preaches? In the end, it is not just being an effective teacher; it is about equity pedagogy as Banks calls it. It is about being able to reach out to one's humanity.

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