

7-1-2017

## Self-Reflections on Differentiation: Understanding How We Teach in Higher Education

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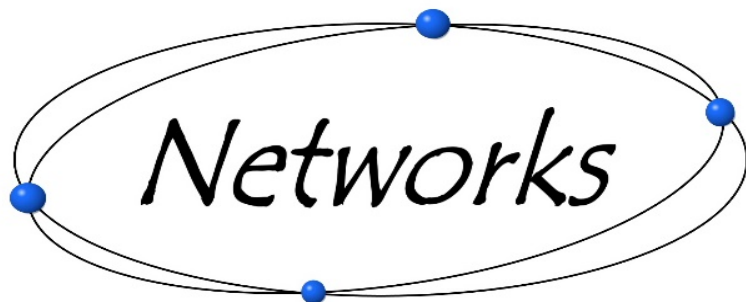
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### Recommended Citation

Jackson, Nykela and Evans, Lesley (2017) "Self-Reflections on Differentiation: Understanding How We Teach in Higher Education," *Networks: An Online Journal for Teacher Research*: Vol. 19: Iss. 1. <https://dx.doi.org/10.4148/2470-6353.1012>

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**An Online Journal for  
Teacher Research**

## **Self-Reflections on Differentiation: Understanding How We Teach in Higher Education**

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### **Abstract**

Teachers are called to accommodate the individualized learning needs of a wide range of students. To support prospective and current teachers with this challenge, it is imperative to help them not only understand the theory of differentiated instruction, but how to implement it into practice. Building upon past research in the realm of higher education, this study sought to identify the past teaching experiences and expectations of two former K-12 teachers that formed the philosophy and practices that they bring to teacher preparation courses. Framed by interview questions used in past research with faculty, the two researchers self-reflected on their own practices to consider how they related to various differentiation approaches and their individual transitions to higher education. Three themes emerged through the reflection of the two junior faculty members: differentiated instruction is student centered and student involved; assessment is intertwined with instruction; and differentiated instruction is needed in teacher preparation programs.

**Keywords:** differentiation, higher education, self-reflection, instruction

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K-12 and higher education classrooms are filled with students from discrete cultural backgrounds, who have unique interests and learning needs. The processes by which teachers strive to meet the needs of diverse students remains a challenge. Differentiated instruction is an instructional approach that enhances and improves student's learning potential by modifying curriculum and instruction to provide a variety of learning paths that accommodate the students' learning needs (Tomlinson, 1999, 2000a, 2000b). The use of differentiation in the classroom is not new to K-12 teachers (Rice, 2012); however, in the world of higher education, specifically teacher preparation programs, research is limited.

Teacher education programs require pre-service and in-service teachers to demonstrate how they differentiate instruction for learners, and most teacher evaluation rubrics contain elements related to differentiated instruction. Since research supports differentiated instruction in the classroom and most teachers are evaluated on these practices, should teacher educators provide their students an opportunity to experience these teaching practices? Should teacher educators model the methods and principles we expect teachers to implement? Multiple authors (Chamberlin, 2011; Ernst & Ernst, 2005; Griess & Keat, 2014; Huss-Keeler & Brown, 2007; Lightweis, 2013; Pham, 2012) have argued that differentiation has a natural place within higher education classrooms, suggesting that the changing landscape of classrooms and the diversity of student populations requires faculty and instructors to differentiate to meet the needs of all students in all learning environments. Considering the role of differentiation in higher education, faculty and instructors must first understand their views and expectations of learning.

This study examined the experiences of two junior faculty members at two different universities as they recalled their past K-12 teaching experiences and expectations, while reflecting on their teaching practices within their respective higher education teacher preparation programs. The authors explored questions from past research (Al-Salem, 2004) that investigated faculty perceptions of differentiation at the higher education level. This qualitative self-study was framed on questions that challenged the authors to reflect on: how their past experiences with differentiated instruction influenced how they approached this topic in teacher preparation courses; the importance of differentiated instruction being modeled and used in teacher preparation courses; and how student buy-in, assessment, and course expectations affected facilitation of content.

## **Differentiation in Higher Education Literature Review**

Differentiation as an instructional model, has been and continues to be viewed as necessary for teaching and instruction in K-12 classrooms (Rice, 2012). Reviews of individual state standards for the teaching professional across the United States indicate that there is an expectation within the profession that teachers are to differentiate to meet the needs of K-12 students (Alabama, 2014; Connecticut, 2014; Hawaii, 2014; Massachusetts, 2014; Missouri, 20123; Montana, 2013; Nebraska, 2011; New York, 2011; North Carolina, 2013; Ohio, 2005). However, lacking in the literature is the expectations that institutions of higher education model or expect that instructors differentiate instruction. A limited number of research studies have explored differentiation within teacher education programs (Chamberlin, 2011; Chamberlin & Powers, 2010; Huss-Keller & Brown, 2007; Griess & Keat, 2014; Joseph et al., 2013; Sands & Barker, 2004; Santangelo & Tomlinson, 2009).

A few authors in the field of differentiation in higher education (Gould, 2004; Pham 2012) have stated the need for higher education faculty to both teach and, more importantly, model differentiation. Constructivist theorists such as Kolb, Piaget, Dewey, and Wells argued that learners should be the constructors of their own knowledge. When students are actively involved in experiential learning, they learn by doing, are able to translate theory into practice, and find it easier to put abstract concepts into context. Even though teacher educators expose students to content, case scenarios, and lessons on how to differentiate, the concept of differentiation is still “vague and abstract” (Gould, 2004).

Students enter teacher education programs with many years sitting as learners in the classrooms of teachers who have never demonstrated or implemented differentiated instruction practices. Many students have never seen what a differentiated lesson in a classroom actually looks like. Research has indicated that novice teachers tend to “teach to the middle,” not providing a challenge for high achievers and sometimes leaving behind struggling learners (Tomlinson, 1999). Although teacher educators emphasize adjusting curriculum and instruction to meet learners’ needs, some pre-service students struggle to gain a meaningful understanding of how to implement these philosophical principles in the field (e.g., time, instructional strategies, classroom management, pressures of standardized tests).

In 2004, Al-Salem took a different approach and sought to identify the views of individual instructors, asking them to reflect upon their own practices under the umbrella of differentiation in higher education. Addressing two major research questions: What does differentiated instruction mean to the select professors? And, What does differentiated instruction look like in practice? Al-Salem asked seven exemplary professors these questions (2004, p. 10). The professors were selected based on their notable teaching (e.g., all had received teaching awards, positive course evaluations, etc.); taught differentiated instruction to pre-service teachers; and had been identified by students, faculty, and the researchers for modeling and implementing differentiated instruction practices in their college courses. This research study used Al-Salem’s research as a framework.

## **Methodology**

The purpose of this study was to explore how past teaching experiences and expectations of two former K-12 teachers formed their philosophy and practice of differentiation in teacher preparation courses. These self-reflections were guided by the focus of how their own practices of differentiated instruction transitioned to higher education. The study was directed by three essential questions: How do past experiences with differentiated instruction influence how you approach this topic in teacher preparation courses? How do you model differentiated instruction in teacher preparation courses? How does student buy-in, assessment, and course expectations affect facilitation of content?

The authors defined reflection as a process by which the participants engage in a “cognitive process or activity” that includes the “active engagement” of the individual (Rogers, 2001, p. 41). Self-reflection was then overlaid with the concept of a self-study community; two different individuals looking at themselves but also “committed to working together” with the intent to explore common practices (Gallagher et al., 2011, p. 881).

## **Data Collection Methods**

The process of reflection in this study began with the researchers reflecting on how they implemented differentiated instruction in their previous K-12 classroom experiences and how those experiences influenced instructional practices in the higher education environment. Rogers (2001) suggests that the ultimate goal of reflection is to “integrate the understanding gained into one’s experiences in order to enable better choices or actions in

the future as well to enhance one's overall effectiveness" (p. 41). In the first step of the process, each participant responded to twelve questions framed around Al-Salem's research (See Appendix) regarding differentiated instruction. These questions were based on best practices and professional research in differentiated instruction. Both researchers responded separately through a journal reflection on all 12 questions. The researchers then discussed the three essential questions of the study and how each researcher utilized differentiated instruction in teaching pre-service teachers. After these conversations, the researchers went back to their individual journal reflections and added more details relating to their experiences with differentiation, its implementation in the classroom, and examples. Self-journaling permits the individual to capitalize on her own awareness of self and also to evaluate herself (Riley-Doucent & Wilson, 1997).

Once each individual had reviewed and responded to the all questions, an outside, a neutral individual then coded the responses for themes and compared them for commonality. This process enabled the researchers to distance themselves, in order for the data to evolve on its own without our forcing connections. The neutral party did not have teaching experiences similar to the researchers, and, therefore, provided an unbiased perspective. After the qualitative data had been coded and themes emerged, the researchers explored more deeply how their own practices were similar. Through this partnership, the researchers discussed in depth how they modeled differentiated instruction in their teacher preparation courses. Direct participant responses that further demonstrated congruence in thinking and statement were then extrapolated.

## Participants

There were two participants in this study, junior professors at their respective universities.

**Professor A.** Professor A is an assistant professor in the Department of Teaching and Learning at the University of Central Arkansas. For the past three years, she has taught courses in the Master of Arts in Teaching (MAT) and Gifted Education programs. Her course content focus includes classroom management, curriculum and instruction for middle level students, and curriculum for gifted education. Before moving to this university, she had previously taught in the MAT and Gifted Education programs at the university level for four years and in the K-12 environment (elementary and middle levels) for seven years.

**Professor B.** Professor B is the Teacher-in-Residence at the University of Dayton. She teaches courses at the undergraduate level in Early Childhood Education and at the graduate level her instruction focus is in research. Prior to her transition to higher education, Professor A was a gifted intervention specialist and elementary classroom teacher.

## Data Analysis

Data analysis followed the methods approach to narrative qualitative research design suggested in Creswell's book (2013), *Qualitative Inquiry & Research: Choosing Among Five Approaches*. The researchers took a qualitative inquiry approach moving from

an identified philosophical questions to a more interpretative lens of the problem. The data analysis included the following elements:

1. Both inductive and deductive reasoning to create themes
2. Reflective and interpretive aspects focused on participants' perspectives
3. Presented a holistic view of the topic under investigation based on research and analysis of narratives
4. Discussed findings in a complex way, moving from particular responses to a more thematic analysis (Creswell, 2013).

The participant responses were first coded for major ideas that could be grouped into specific themes. The second phase was a review of these themes, scrutinized by the researchers; and a third-part reviewed for major themes that encompassed the main ideas of the themes.

## Reflection on Practice

The context of the study began with a discussion about the researchers' viewpoints of differentiated instruction in teacher preparation courses. This conversation was initially broached when one researcher (Professor A) attended the other researcher's (Professor B) presentation on *DI (Differentiated Instruction) in HE (Higher Education): Are We Modeling What We Teach?* at a national conference. After initial discussion of our perceptions of how differentiated instruction might look in a teacher preparation course, we began the process of self-reflection to discover how we arrived at our individual conclusions, approaches, and implementation models, based on previous K-12 classroom experiences, and how those earlier experiences influenced our current instructional approach in our college courses. This led to more extensive investigation of the limited research on how differentiated instruction is approached and/or utilized in teacher preparation programs. The descriptions below provide a background of both researchers' reflection on practice and their paths to differentiated instruction.

## K-12 Experiences and Expectations

### Professor A

I began my K-12 career as an elementary teacher, transitioned to gifted education, finally serving as an instructional technologist before transitioning to the university. As an elementary teacher in a self-contained classroom, I found it challenging to implement all components of differentiation instruction to meet the specific learning needs of all my students. With state-mandated standards and the school's scope and sequence for curricula, I struggled to differentiate content, while at the same time ensuring that my students mastered the required objectives. I conducted informal pre-assessments and tried to accelerate the pace of learning especially for my high ability students, but my lack of knowledge of ways to truly differentiate content for all levels, while still maintaining a well-orchestrated classroom, limited my practice. I had never experienced, or even seen demonstrated, what differentiation look like, but I knew from my personal experience as a K-12 student that I had to do something different for students who grasped the objectives

faster, while at the same time working with those students who needed extra help with the basics.

Differentiated instruction was an intellectual concept I had learned about while working on my Master's degree in gifted education, during my first year of teaching. However, with no concrete examples or experiences with this idea, I wrestled with how to practice differentiation effectively in my classroom. For the content areas in which I felt most confident (reading, social studies, science, and language arts), I provided more authentic learning opportunities for each unit of study, differentiating for process and product. Although not every lesson I taught included differentiation, I attempted to include varied learning opportunities, incorporate flexible grouping, and account for student interest, etc., a few times each week. Since I was unsure of multiple pathways to reach my goals in math, I was not as dauntless. Unfortunately, in math, I stuck to the prescribed lesson and allowed the students who showed mastery to be enriched through a variety of methods, while I worked to remediate students who needed extra practice.

As the gifted education teacher, it was my role to provide students an opportunity to learn content that was in addition to and different from what they learned in the regular education classroom. With smaller class sizes, more flexibility with standards, and a full day to devote each group of students, differentiated instruction seemed easier to employ. Although I was the only gifted teacher in the entire building with no one to collaborate with, the freedom to teach curriculum units based on my students' interests made the process of differentiated instruction manageable and engaging for both them and me. The student-directed learning and student buy-in allowed for enriched, hands-on learning experiences for students to investigate real-world problems, explore advanced content, connect to potential career fields, explore other interests, and develop authentic products. Even though it required more work on my part to plan and facilitate curriculum content units in which I had very little knowledge, the passion for the learning process ignited in the students was monumental and professionally gratifying.

As my school district implemented more technology resources, I transitioned to a leadership role in demonstrating how to integrate technology in meaningful ways in the classroom. Although I did not work with students directly in this position, I emphasized and presented ways to other educators on ways to use technology to implement differentiated instruction and, enhance learning, in their classrooms. My unique experiences in K-12 helped me grow not only professionally, but also in terms of my quest to implement differentiated instruction.

Throughout my K-12 teaching career, I often agonized ways to successfully challenge my students to reach their potential, while at the same time teaching the required standards to ensure they were prepared for the state-required standardized tests. It was similar to walking on an extremely long gymnastics balance beam without falling off; this requires practice, starting off with small steps, sometimes even using a beam lower to the ground, and then having a teammate as a spotter for support. When I reflect over my K-12 teaching experience, I realize how this analogy holds true with differentiated instruction in the classroom. It may take several attempts to figure out how to differentiate effectively but with practice, the teacher gets better at it. I became a better teacher and facilitator with my years of practice. Despite not having a team (spotter) to collaborate with during my

latter years of teaching, I took short strides in my efforts to individualize instruction by integrating some elements throughout various units of study. As I became more comfortable in my efforts, I learned some coordination to move and balance differentiation along with the other demands of the classroom.

### **Professor B**

Prior to teaching at the university, I was an elementary classroom teacher and gifted intervention specialist. In both roles, I struggled to find ways to meet the needs of my students, specifically those who demonstrated a strong understanding of the content as identified by pre-assessments. As a general classroom teacher, I had a curriculum to follow for math and reading. In both curricula, there were additional suggestions and resources to support students who struggled or needed more help in understanding the content. As for those who needed more advanced work, limited options were presented. As the Gifted Intervention Specialist (GIS), I was responsible for developing curriculum to support that used by the classroom teacher. I found that pre-assessments enabled me to understand the entry point for learning with my students, as well determine their interest and levels of learning in order to extend their learning and expand or increase their knowledge. I found, during my tenure as a grade school teacher, that my weekends were spent planning lessons and developing various projects and activities, designed to meet the needs of students. Guided by data and pre-assessments, along with my content standards, I focused my attention on developing assignments, that were simply not additional work for the students, but activities that were better geared and more appropriate to the needs of the students.

As many of my students were identified gifted at the highest level, it became necessary to understand their knowledge at the content level. That is, they had higher test scores but limited information on the specific areas in which they needed support. The use of pre-assessments afforded me the opportunity to identify specific content or skills in which the students were not as strong. These became areas for deeper learning and improvement. Without the pre-assessment data, planning for effective instruction was not possible, as there was the potential that some students that already knew the material, meaning that many of my lessons would be unproductive since the students already had achieved mastery.

The expectations in K-12 education required me to know the standards for my grade level and the pacing guide for my school district. Using those as the framework, I worked backwards from what the students must model or demonstrate on assessments. My priorities were torn between making sure my students were successful with the standards and making sure the learning was challenging. For those students who were already demonstrating mastery on the content as evident by pre-assessments, it was necessary for me to tap into their interests and areas in which I knew they had potential for growth and learning. In those rare instances when I knew, from evidence, that my students already knew and had mastery of the content, then I was challenged to find additional content that would allow for continuous learning and deepening of knowledge.



## Higher Education Experiences and Expectations

### Professor A

When I entered higher education as faculty, teacher education programs were shifting to hybrid and online formats. Although I had graduated from traditional, face-to-face undergraduate and graduate education programs, it became necessary to adjust my view of classroom teaching at the higher education level to accommodate limited face-to-face contact hours with my students and incorporate more online instruction. Since all of my courses have been at the graduate level and concentrated mostly within the alternate-route-to-teaching program, my interpretation of differentiation has shifted. Meeting students only a few times in person and communicating mainly online has made it more challenging to get to know them on a personal level in order to provide appropriate learning experiences that support their specific learning preferences. I interpret differentiated instruction as a constructivist, student-centered teaching approach that provides a variety of avenues to access and apply content while allowing choices and creativity to show evidence of what was learned. This teaching style adheres to the principle that people learn and respond to instruction differently; therefore, the teacher must present and endorse engaging and innovative methods for students to acquire and process information. To do this successfully requires a lot of planning and reflection, and good deal of flexibility.

The type of course I teach articulates this approach to differentiated instruction. As it is one of the first courses students take in this alternate route to teacher preparation, the majority of my students arrive with a variety of career experiences and backgrounds, very little knowledge of teaching methodology, and an absence of teaching and/or practicum experience, other than having been taught in school themselves or, perhaps, through their experiences as a volunteer. Instead of administering a summative pre-assessment to determine the level of readiness for content to be discussed and explored in my courses, I elect to do more formative pre-assessments through discussions of essential questions and entrance slips for course agenda topics at the beginning of each face-to-face class meeting. Based on student responses and interest levels, I compact pre-planned instructional activities to meet their needs, accommodating what they already know. Recently, I began administering a learning styles inventory at the beginning of the course to plan appropriate in-class, interactive activities to encourage student discussion and also to guide grouping strategies. For exclusively online courses, I do not administer a learning styles inventory but do encourage students to self-evaluate their readiness by reflecting on the essential questions for each learning module. For online instruction components, I provide a variety of content resources and learning experiences (visual, auditory, and tactile) that students can select. Students have the flexibility to listen, view, or read any of the supplemental resources in the learning modules to obtain and learn information based on their readiness and interests. However, I do highly encourage them to take advantage of all the resources provided. Regardless of the nature of the course, I offer a variety of application-based assessments and keep rubrics more general so students can select their own methods of providing evidence of meeting the objectives. To ensure consistency across courses, student portfolio requirements, and accreditation demands, some assessments are

universal. For others, I offer several options and examples of products to show evidence, although the ultimate decision rests on the students.

### **Professor B**

My transition to higher education brought more questions regarding differentiation and my role as a teacher. In my first class, I was given a math syllabus with objectives. As I designed my first few lessons, I found myself reflecting on my K-12 teaching experiences, focusing on the end goal first. The standards became my point of reference: the skill or objective that my students had to master by the time they exited my class. At first, I encouraged students to take on the role of leader in differentiation, by giving open-ended assignments that allowed them to pick projects based on their knowledge of elementary math. As I moved toward my second year, I became aware that students were choosing projects based on interest, not their need or skill level. Consequently, for my second year, I showed students how to interpret their own pre-assessment data to determine areas in which they required growth. This was unsuccessful, because some students were reluctant to openly admit their weaknesses. In the third year, I took back the role of teacher as the leader of differentiated instruction in the classroom, doing much more hands-on: collecting data and restructuring the assignments so that those students who wanted varied assignments, based on their interests, would have the opportunity. For students who needed additional “different” practice based on their level or need, I restructured my sessions to meet those needs by changing or selecting topics that were evident from pre-assessment data.

## **Findings and Discussion**

Three themes emerged that were consistent in our journal reflections. The three evident themes were: Differentiated instruction is student centered and student involved; assessment is intertwined with instruction; and differentiated instruction is needed in teacher preparation programs. Our ideas were similar in how we approached differentiated instruction in our teacher preparation courses and our feelings toward teacher educators including elements of differentiation in their courses. A summary of our interpretative lens, research based suggestions, and direct quotes from the data are included after each theme.

### **Differentiated Instruction as Student-Centered and Student-Involved**

Differentiated instruction focuses on creating a variety of pathways for student success. The spotlight is on providing students with opportunities to incorporate their interests, exercise decision-making in what and how they learn, and actively participate in their own learning (DeJesus, 2012; Santangelo & Tomlinson, 2009). Throughout our reflection, the concept of student-centered instruction was abundantly present in our responses. Although the idea of a student-directed approach is foundational and obvious, it is important to highlight that through their teacher educator lenses the researchers have advocated for providing opportunities for students to explore their interests and strengths at the higher education level, just as they had done in the elementary school classroom.

The researchers directly described differentiated instruction as a, “student-centered teaching approach that provides a variety of venues to access and apply content while

allowing choices and creativity to show evidence of what was learned...”, “...this is the approach of changing the classroom to student centered...” As teacher educators we emphasize active collaboration, application and/or project-based assignments, and occasional choice when selecting topics, products, and processes. However, in our college courses, do we step away from our role as content area experts to one that is more a facilitator and/or designer of educational experiences? Although many of us teach courses that provide students with creative opportunities to approach, express, and document their learning, do we rely on a “one size fits all” method? Evidence in our responses suggests that both of us are implementing experiences in our courses in order to be able to confirm “yes” to the previous questions, but that we struggle in this journey due to the demands of ensuring that all students exit the course with the required content and application of knowledge in a classroom setting. We both model some aspects of a student-centered approach for selected content and assignments and acknowledge that we are still at the infancy stage of fully embracing a truly student-directed course method.

We know that students learn best through active engagement and ideally should be participants and partners in this process. To fully embrace this shareholder teaching method, it would require us as instructors to shift from being administrators of learning (supplying content through transmission style of teaching) to consultants (using constructivist approach to teaching to make students the center of their own learning). We agreed that students should be held to the same expectations, so what they learn is consistent, as long as the evidence or product chosen is within the course requirements. Yes, it can be challenging and overwhelming when not everyone is kept together, doing the same thing, reading the same thing, submitting the same assignments, etc. With proactive planning and a more relaxed yet manageable approach, students can take the reins to collaborate and cooperate in acquiring to and applying knowledge in relevant, self-directed ways. As teacher educators, we must assume the facilitator role to design and plan lesson objectives, activities, and educational experiences, while inviting students to engage in active discussions, pose questions, work in flexible groups, solve problems, etc. This strategic coordination requires purposeful, ongoing, formative assessments that guide and drive instruction on the teacher’s end with simultaneous support for learner-centered instruction.

In teacher preparation programs this can be a difficult task as the standards or objectives of the course may be predetermined, and opportunities to adjust differentiated instruction appear challenging. Nonetheless, if the instructor approaches the course with a Backwards Design (Wiggins & McTighe, 2001) mentality, the preset standards/objectives make reaching the target closer, since the first step is to determine your goals. Therefore, redesigning a course to be taught in a more constructivist manner would reflect the Backwards Design process and coordinate with differentiated instruction practices. The remaining, critical elements would be decisions on what evidence is needed to show that the objectives have been fulfilled and the instructional paths (access, process) students would pursue. Teacher educators should not attempt to tackle this colossal task by themselves; they should involve student stakeholders in analyzing components of the last two steps (product and process). Using learning profiles, ongoing formative assessments, flexibility, and choice will tap into students’ interests to help shape the structure and instructional approach to the class, while at the same time allowing for a more learner

centered environment. As Gould (2004) stated, “Education professors must ‘talk the talk’ and ‘walk the walk’” (para. 8) to convey this constructivist approach that we endorse.

### **Assessment as Intertwined with Instruction**

The researchers agree that planning, instruction, and assessment must be considered as a continuous cycle. The use of assessments to determine the plan for instruction is crucial in teaching: What do the students know? What don't the students know? Where is the opportunity for growth? The use of assessments is for the sake of understanding the student needs and ways to impact learning in order to show growth. In describing the picture of differentiation, Santangelo and Tomlinson (2013) state, “A model of differentiation should reflect the interdependence between environment, curriculum, assessment and instruction” (p. 324).

In considering our responses, the theme evolved with comments that spoke of the cycle; “...I see assessment as an important part of the learning segment that is not one thing or does not just occur at one point, rather as being intertwined in the lesson...” When we consider best practices in teaching, including teaching in a differentiated classroom, we hear the echoes of authors suggesting assessment as an important component to differentiation (Hall, Strangman, & Meyer, n.d.; Parson, Dodman, & Burrowbridge, 2013; Santangelo & Tomlinson, 2013). Assessments, both formal and informal, offer teachers the opportunity to address each student's learning and needs (Hall et al., n.d.). This can take the form of formal assessments at the end of a lesson, learning cycle, or unit. Informally assessment is often in the style of quick questions or reviews. Within higher education, the use of informal assessment takes on another role, such as exit slips or small activities that allow for the professor to understand the current level of learning, the need for adjustment, and the direction for the future learning.

In regards to addressing differentiation in higher education, assessment is stated in the literature as part of a process for students to articulate their needs in regards to learning (Sikka, Beebe, & Bedard, 2011, p.6). This often is seen in the form of pre-assessment data that includes student needs as well as interests (Joseph, 2013). Within teacher preparation courses this may include pre-assessment of essential questions, learning outcomes, or objectives at the beginning of the course. This may involve the instructor offering an electronic pre-assessment before the course starts or at the first class. Data from the pre-assessments, as well as ongoing assessments (informal) given in the course, are then used to adjust instruction. This may mean that topics are removed or extended in the course calendar. Assignments are also adjusted to meet the needs of the students, based on student need for support or extension of learning. Although this does require the professor to be flexible with assignments and topics, and requires more flexibility in planning, the end result is that course time allotted to topics for further depth or more coverage based on student needs.

Advantages to this approach in higher education are similar to those in K-12: Lessons based on pre-assessment data have greater potential to meet the needs of students and using exit slips helps to gauge student learning at the end of a lesson guides instructors to begin the next lesson at the appropriate learning point, based on current student understanding. The disadvantage to this approach is that it requires ongoing short-term

planning and continual readjustment based on each lesson or class taught. This can be difficult in courses that require a syllabus to be posted with exact topics, assignments, and due dates prior to the start of the course. However, the use of assessments creates an environment for “optimal learning” (Hall et. al., n.d., p. 5) as instruction is directed to and designed specifically for students currently enrolled in a course rather than generically designed for the course. The difficulty arises in influencing change in the culture of higher education courses that are locked into syllabi and calendars developed prior to the start of the term. The mindset of the students and faculty must adapt to understand that adjustments and flexibility are the expectation and model for student learning at all levels.

## **Differentiated Instruction Is Needed in Teacher Preparation Programs**

Should teacher educators employ differentiated instruction in their classrooms to model what this practice looks like? This question can be seen as controversial (Tulbure, 2011). Some would argue that since teacher candidates have already met required standards (e.g., college admission requirements, program expectations, praxis tests) why do they need differentiation? This brings up the debate of whether differentiated instruction should be based on content knowledge and/or learning styles versus interests. Research, although limited, provides data that implementation of differentiation practices at the college level impact achievement or satisfaction with the course (Butler & Lowe, 2010; Chamberlin, 2011; Ernst & Ernst, 2005; Griess & Keat, 2014; Huss-Keeler, & Brown, 2007; Lightweis, 2013; Livingston, 2006; Pham, 2012). Does differentiation have a place in teacher education programs?

Although the topic of differentiated instruction can be argued, both researchers agree that its aspects should be implemented in teacher preparation programs. “By modeling differentiated instruction, it allows candidates to gain a clear picture of what is expected of them in the field. Teacher candidates need to be taught and shown how to practice differentiation in the classroom, thus teachers of academic should model for their students.” The aim of teacher educators is to effectively cultivate teachers for success in the classroom by ensuring that they know and understand content areas, best practices, and classroom management. However, we acknowledge that it can be difficult to integrate differentiation in higher education. With the demands of accreditation, research, and service, as well as limited contact with students (Dosch & Zidon, 2014; Ernst & Ernst, 2005), how can teacher educators allot time do this? Teacher educators currently emphasize using best practices to positively impact students, discuss differentiated instruction, and require students to explain in lesson plans how they would meet the needs of diverse students. Then student teachers evaluate practicum and internship experiences using rubrics that include this concept; the college classroom does not provide firsthand experiences of what this ambiguous term looks like in practice. Faculty proclaim how differentiation helps students meet and master learning objectives, increases motivation (because it taps into their interests and strengths), and promotes learner-centered instruction. However, in college classrooms, teacher educators do not routine apply the idiom, “Practice what you preach.” Early practicum experiences with teachers who practice differentiation is another method of modeling this broad concept. Again, both researchers

agree that modeling this instructional approach in teacher preparation courses is needed so candidates have opportunities to experience what this theory looks like in practice.

Planning for differentiated instruction at the post-secondary level can be arduous and time-consuming (Dosch & Zidon, 2014; Ernst & Ernst, 2005; Huss-Keeler & Brown, 2007, Livingston, 2006). However, candidates will reap the rewards by gaining a realistic example of what differentiation entails. Although instructors may do an excellent job at explaining this process, or even requiring students to engage in assignments that highlight the importance of differentiated instruction, research confirms that teachers still have a difficult time implementing this theory into practice (Gould, 2004; Joseph, Thomas, Simonette, & Ramsook, 2013). As instructors as well as researchers, we encourage candidates to find a variety of ways to reach their students; though we tend to teach and assess every student the same way, we are failing to expose candidates to practical ways to address the varying learning needs in the classroom (Joseph, Thomas, Simonette, & Ramsook, 2013). Modeling differentiated instruction practices can help candidates enhance their teaching approaches based on observations of best practice; and their first-hand experience with it also brings attention to how these strategies impact student learning (Gould, 2004).

Teacher educators can implement aspects of differentiation in varying degrees. Much depends on the nature of the course (content preparation or methods). On simple level, instructors could introduce a simulation lesson or role-play of a differentiated lesson. For example, if students are being introduced to lesson planning, instructors could provide a differentiated lesson plan by engaging students in the actual lesson. From a more integrated approach, instructors could differentiate for content, process, and/or product within the course. For example, in a methods course perspective, instructors could provide a variety of resources for content for each learning module (e.g., articles, videos, books, supplemental information) and allow students to select and view the content that appeals to them gain the knowledge they need about the topic. There could be an established tic-tac-toe or choice board, created by the instructor (or as a collaborative class activity) for students to select a product to show evidence of their learning. To fully implement differentiated instruction, college faculty would use pre-assessment data to adjust instruction and compact the curriculum. For example, in a math content preparation course, students could be given the final comprehensive exam in the beginning. The professor would then use the results to determine how much time to spend on certain topics and identify those who need more resources and additional instruction. All of these examples provide opportunities for pre-service teachers to experience ways to implement differentiated instruction at different levels. However, candidates may be hesitant to participate initially because it is different from the normal college classroom (e.g., sit and get the information). With explanation, guidance, and facilitation this purposeful experience with differentiated instruction will help candidates translate the theoretical concept of differentiated instruction into actual practice.

## Conclusion

### **In All Learning (K-12 and Higher Education)**

Considering the continuity between higher education and K-12, one might be quick to assume there is a smooth transition from one level of classroom teaching to another. However, as has been pointed out by Berry and Loughran (2005), looking through the lens of self-reflection “rarely results in tidy answers” (p. 177). The themes we have identified appear seamless but can be complicated when applied in higher education. Employing differentiation in teacher preparation courses can raise some contentious questions and challenges (Dosch & Zidon, 2014). How do you handle the ethical issues, such as fairness, that may arise? For instance, is it fair to provide students opportunities to do varying assignments since they are paying for the same education? It is a given that students are in college to learn new skills to apply to the profession. With differentiated instruction, the professor takes on the role as of facilitator instead of the bearer of knowledge (Livingston, 2006), an important new skill for professional application. Since differentiated instruction is learner-centered and learner-involved, what role does the professor play? Some courses have limited contact hours, and students may not come with prior knowledge of teaching (Dosch & Zidon, 2014; Ernst & Ernst, 2005). How can instructors have time to model this process when they only meet a few times with students? How can they provide differentiated instruction when students have very little knowledge of the profession? How can differentiation be modeled in your online courses? There is limited research to address these lingering questions.

The review of the literature on differentiated instruction, directed toward K-12 teachers, encompasses ideas that are reflective of the three themes identified in this study: differentiated instruction as student-centered and student-involved, assessment as interwoven in instruction: and differentiation as needed in teacher preparation programs. The call has come for differentiated instruction to find its place in higher education (Griess & Keat, 2014). As we ourselves have made the transition from K-12 teachers to junior faculty in higher education, our classroom differentiated instruction practices have transitioned with us. In each of our cases, the need for differentiated instruction became apparent in our previous teaching experiences and is now apparent in our collegiate experience, as well. As educators of future teachers, we both feel the need to both teach and model differentiation in higher education.

### **Implications for Future Practices**

As Rogers (2001) centers the focus of reflection on the outcome of the participants’ personal and professional growth, the findings of this study suggest we have a starting point for understanding the role of transitioning differentiation practices from K-12 to higher education. We have identified struggles in the process and must continue to evolve practices in ways that support our students. Teaching in a hybrid/online environment means fewer contact hours due to course structure or schedules, time management issues; other work obligations (e.g., research, service, tenure and/or promotion requirements); and the reality that some students are uncomfortable with this nontraditional higher education approach. All these factors have influenced the degree of and approach to the implementation of differentiated instruction in our courses. For each of us, the personal

goal of helping our students as individuals exists alongside the professional goal to make our own instruction effective. Differentiated instruction in higher education has meant disregarding professional convenience in favor of what is most effective for student learning.

In future practice, we must continue to reflect on the literature that calls our attention to the need for differentiated instruction in higher education (Chamberlin, 2011; Ernst & Ernst, 2005; Griess & Keat, 2014; Huss-Keeler & Brown, 2007; Lightweis, 2013; Pham, 2012) as well as strengthens our own personal beliefs. We acknowledge from personal experience that differentiated instruction requires more planning, and that it is an essential component in the classroom in K-12 through higher education. The first theme emphasized our personal beliefs that differentiation is both student-centered and student-involved. In higher education, that requires a redirection of responsibility from the professor to the learner. That aligns with the second theme that assessment is intertwined with instruction. It is good practice for instructors to use assessments or data to start the learning process in a place that is appropriate for each learner. Although there are no clear-cut answers or approaches and only limited research with instructors who implement these practices in teacher preparation programs, the authors agreed with the third theme, that differentiated instruction is needed. Teacher educators who advocate for this must do so at both levels; K-12 and higher education.

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## Appendix A

### Reflection Questions

These questions were framed from Al-Salem's (2004) interview questions of exemplary professors.

1. Based on your teaching experience and background, what does differentiated instruction (DI) mean to you?
2. Why is practicing differentiated instruction important to teaching students?
3. What are your thoughts on differentiation instruction being modeled in higher education classrooms for students to experience translating theory into practice (practice what we preach)?
4. How do you distinguish between planning for differentiated instruction and the use of differentiated instruction in your actual pedagogy?
5. How do you clearly state what is essential for your students to learn in a differentiated classroom environment?
6. How do you help your students to become active learners?
7. What are your views of assessment? Do you see assessment and instruction as inseparable or is assessment something that comes at the end of a unit of instruction?
8. How do you formatively evaluate your students?
9. How do you motivate your students to collaborate in learning, share experiences, and help each other?
10. How do you create a flexible environment in the classroom? What does a flexible classroom look like?
11. How do you differentiate instruction in the following areas: content, process, and product?
12. How can teachers become facilitators and directors of their students' learning?