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Differentiating Instruction for Large Classes in Higher Education

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In response to the diverse needs of individual students—their unique abilities, interests, learning styles, and cultural backgrounds—K-12 teachers have been using differentiated instruction, supported by research, for decades. While positive results have been shown in K-12 education, the literature to support differentiated instruction in higher education to meet the diverse needs of college students remains inconclusive. To contribute to the literature in this area, this exploratory and qualitative study examined the use of differentiated instruction at a large research institution situated in the southeastern United States with a focus on courses with enrollment of 50 students or more. The participants included 20 instructors teaching large classes within 11 departments and two schools of an academic college that encompasses the arts, humanities, and social and human sciences. The findings suggest that differentiated instruction in large classes at a research university is challenging. Moreover, instructors teaching large classes need a better understanding of differentiated instructional strategies and how to implement them.

Instruction in higher education is dominated by one-size-fits-all pedagogical method, which poorly serves a diverse student body (Ernst & Ernst, 2005). Rather than learner-centered approaches, the current educational system is often supportive of keeping traditional ideals and the one-size-fits-all approach to teaching. The presence of a high percentage of college students repeating an academic course is an indication that traditional methods cause a mismatch between instruction and students' academic needs (Dosch & Zidon, 2014). Although some faculty in higher education have embraced differentiated instruction, the assumption remains that most college instructors will focus on the traditional lecture format (Chamberlin & Powers, 2010). However, contemporary students, the millennials, are not traditional students. As evidence of this, they generally do not wear watches, read newspapers, carry books, or use handwriting. Why would they? They have cell phones, laptops, and iPads. They interact with their friends through social media, blogs, and online forums.

While differentiated instruction (i.e., tailoring instruction to each student's learning style, readiness level, and interest) has been applied with success to primary and secondary classrooms for over a decade, it has limited documented application in the undergraduate classroom. In addition, few research studies exist regarding differentiation instruction at the college level. This absence can possibly be attributed to the following reasons: (a) large class sizes, (b) minimal number of contact hours with students, (c) time commitment to create multiple means of student assessment while also meeting research and service obligations, and (d) controversy over ethical issues such as fairness in grading (Ernst & Ernst, 2005).

The success of this student-centered strategy in K-12 education provides information for higher education institutions to implement this strategy in their classrooms. Students are whole people; therefore, differentiation should transpire in a holistic manner. Differentiation must consider readiness levels, interests, learning profiles, and affect regarding the teacher, course material and environment (Dosch & Zidon, 2014). Differentiated instructional strategies are not only important for primary and secondary level students, but college students can benefit too (Williams-Black, Bailey, & Lawson, 2010). To be sure, a "one size fits all" approach to teaching does not work well in elementary and secondary educational venues. So why would it work in higher education?

Thusly, the purpose of this exploratory and qualitative research was to examine college instructors' understanding of differentiated instruction and their perceptions of the challenges to implement differentiated instruction in large classes as a strategy for students to achieve a greater level of individual growth and academic success in higher education. As there is little consensus in the literature about the definition of a large class, Christopher's (2011) definition of a large classroom setting was used for this article: it varies in size from 50 to 500 students.

Differentiated Instruction Defined

Differentiated instruction can be a challenge to practice because it touches on all aspects of teaching (Tomlinson, 2004) and entails far more than the adaptation of curricula and teaching strategies. Chamberlin and Powers (2010) outlined seven core principles that guide differentiated instruction:

1. Teachers communicate to students what is essential to learn about a subject so as to link curriculum and instruction to assessment. In a

differentiated classroom, assessment is ongoing and serves to inform instruction that includes students' understanding of the material, their personal interests, and learning profiles.
2. Teachers respond to student differences. They accept students where they are but with the expectation that they will understand all that they can.
3. All students are expected to participate in respectful work. They are challenged at a level that is attainable through lessons that emphasize critical thinking intended to promote individual growth.
4. Teachers and students collaborate in the learning process.
5. Teachers are flexible with utilizing groups and whole class discussions. Students work in diverse groups based upon their readiness, interests, or learning profiles. Group work is intermixed with whole class discussions and activities.
6. The approach to differentiated instruction is proactive versus reactive. Lesson plans are structured to address the variance in learner preferences rather than adjusting instruction when the lesson does not work for some students.
7. Space, time, and materials are implemented to suit the needs of the various learners (Chamberlin & Powers, 2010).

To better understand differentiated instruction, one needs to understand how students learn. The ways in which a student learns most effectively can be described through a learning profile. A learning profile includes a student's learning preference(s), family structure, favorite hobbies, interests, state assessment scores, reading scores, and fluency in reading recordings. Leading elements also include group orientation, cognitive styles, intelligence preferences, and learning environment preferences. Differentiation guided by learning profiles allows students to learn by means that are natural and efficient (Anderson, 2007; Santangelo & Tomlinson, 2009). Previously, instructional researchers have focused primarily on learning styles (e.g., Pham, 2012). For example, visual learners have good visualization skills, auditory learners make contact through verbal communications, and kinesthetic learners benefit most from hands-on activities. Pham cautioned that, although there is copious literature to support the learning styles theory and the need to differentiate instruction centered on learning styles, there is also research against the learning styles theory. In view of the mixed findings on learning styles, teachers may find success with differentiating instruction in a more holistic manner based on students' backgrounds, prior knowledge, and abilities (i.e., learning profiles) rather than learning styles.

Responding to students' learning profiles can effectively achieve content differentiation when utilizing the following suggested strategies: (a) using visual, auditory, and kinesthetic ways to present material; (b) using examples and illustrations representative of a variety of ways of thinking; and (c) using both deductive and inductive formats to present information (Santangelo & Tomlinson, 2009). In addition, content can be successfully differentiated by responding to students' interests in the following manner: (a) giving students the opportunity to focus on their preferred interests, (b) utilizing examples that relate to students' experiences, and (c) focusing content on student-driven topics and inquiry. To ensure successful outcomes, teachers need to be fully aware of students' cognitive development and readiness levels, as well as their learning styles, in order to use appropriate instructional strategies that focus on learning principles and applications. These strategies help instructors connect what students learn in class to real-world applications (Pham, 2012). These strategies mirror the seven core principles outlined by Chamberlin and Powers (2010).

In summary, differentiated instruction is "a collection of best practices strategically employed to maximize students' learning at every turn, including giving them the tools to handle anything that is undifferentiated" (Wormeli, 2005, p. 28). Although differentiated classes are challenging, students are held accountable and tend to achieve more. An undifferentiated my-approach-or-nothing style of teaching either allows students to coast or forces them to drop out (Wormeli, 2005), thus resulting in the aforementioned need to retake courses. Instructors who differentiate take into consideration that every student is unique with divergent learning styles and preferences (Anderson, 2007).

Benefits of Differentiated Instruction

Differentiating instruction has many benefits both to the learner and to the instructor. When used by instructors, this teaching strategy promotes engagement, facilitates motivation, and helps students make the connection with what is being taught in the classroom to the things they value outside of class. When such connections are made, students tend to improve in their retention of the information. In addition, differentiation can encourage students to discover new interests (Santangelo & Tomlinson, 2009). Tulbure (2011) posited the following additional advantages: it places students as the focal point of the instructional process, it allows flexibility in learning tasks, it revaluates and respects the differences between individual student needs and preferred learning modalities, and it levels the field for student success. Further, differentiated instruction empowers instructors to be responsive rather than reactive to

students' unique and individual personalities, backgrounds, and abilities (Anderson, 2007).

According to Tomlinson (2004), teachers can differentiate their instruction via four methods: 1) content, 2) process, 3) product, and 4) learning environment. Activities based on various Bloom's Taxonomy levels fall within the content category. Process refers to how a student makes sense of the information and learns. Delivering material according to students' preferred learning style is process. Product is the medium through which the students show what they know and are capable of doing based on their investigation of a particular topic. Assessment based on students' preferred learning style is product. Meeting the physical and psychological needs of students refers to the learning environment. Tomlinson's model suggests that teachers promote equity and excellence by differentiating high quality content, process, and product when instruction is centered on students' readiness levels, interests, and learning profiles (Santangelo & Tomlinson, 2009). This position is supported further by Dosch and Zidon (2014), who also added affect to the list for instructional differentiation. Furthermore, affect addresses students' emotions concerning school-related issues that are influential to their learning. Other researchers view that affect is embedded within the content, process, and product (Dosch & Zidon, 2014); therefore, many studies of differentiated instruction do not include affect with the other three diagnostic elements.

In summary, Wormeli (2005) addressed both the most common downsides about differentiated instruction while offering the following benefits: (a) students' success on standardized assessments can be attributed to differentiated approaches so long as they are taught to be savvy in test-taking; (b) successful teachers offer students varied opportunities to encounter content (whole-class instruction, small groups, or individually); (c) pairing what is fair and developmentally appropriate for each student increases the challenge, not the workload; (d) differentiation will prepare students for a differentiated real world; and (e) differentiation is diverse within itself and what works well in one classroom may not work in another. Although differentiated instruction has both benefits and drawbacks, differentiated instruction embraces an all-inclusive range of teaching strategies and approaches.

Differentiated Instruction in Higher Education

Differentiating instruction in higher education may differ from differentiating in grades K-12 because of the inherent differences in the two environments. These differences have the potential to impact how differentiation of instruction occurs in higher education. In an obvious difference, K-12 teachers usually have more contact time with students when compared to instructors in higher education. In higher education, the common expectation is that a topic will only be covered once in a class. This reality poses a challenge for instructors in higher education to revisit or re-teach a topic when students need further explanations or some other form of differentiation. Therefore, these instructors would need to be purposeful when utilizing class time. A second complication of the environment is that instructors in higher education seldom have their own classroom and, as such, may be limited in how much they can modify the classroom environment (Chamberlin & Powers, 2010), whereas K-12 instructors usually have their own classroom.

Among the few studies within higher education, findings show how differentiation in higher education has challenges and benefits that are both similar and different from the findings in K-12. For example, Santangelo and Tomlinson (2009) conducted a qualitative self-study in an introductory graduate education course using differentiated instructional strategies such as supplemental readings, tiered assignments, interest-based centers, independent study projects, flexible groupings, flexible timelines, and reading comprehension support. They found that effective differentiation requires a considerable amount of time, effort, and dedication from the instructor. Although preparing for any college course can be deemed as considerable, preparing for a course that engages differentiated content, processes, and products is more intensive. They also found that differentiated instruction gave each student the opportunity to acquire knowledge and understanding of course content and activities based upon their individual readiness, interests, and learning profiles.

Ernst and Ernst (2005) explored the characteristics of differentiated instruction in an undergraduate political science classroom by evaluating student and instructor responses to this teaching method. Implementing a case study methodology, the principles of differentiated instruction were applied to a public policy course taught to 35 undergraduates during a spring semester. Their findings revealed that students generally responded favorably to the differentiated approach, reporting higher levels of intellectual growth, interest in the subject, and satisfaction with the course when compared to students in the non-treatment group. Likewise, the instructor's evaluation of the approach was generally positive, though the considerable time commitment in teaching a differentiated class and concerns connected to the fairness of the approach were perceived as limiting factors. Student responses further revealed that they have a need to know, as opposed to elementary school students who are less likely to question the intentions of the instructor or the fairness of the course. College-level students have a tendency to want to know the instructor's motivations, particularly

when their definition of equality is tested. Moreover, college students can be philosophically opposed to the differentiated instructional method while at the same time report that they enjoyed the class and found assignments to be rewarding and aptly challenging.

Chamberlin and Powers (2010) conducted a quasi-experimental pre-test and post-test control group study using differentiated instruction in an undergraduate first-year math course at two universities. For the course, three instructors taught a section for preservice teachers using similar differentiated instructional methods while four instructors utilized traditional methods that formed the control group. A variety of quantitative and qualitative methods were used to measure the outcomes of the instructional methods. The results indicated the experimental group made higher gains on math scores from pre-test to post-test when compared to the control group. The results also revealed that the undergraduate students successfully met the course objectives and that the participants in the experimental sections perceived the course more positively due to the differentiated instructional methods. The researchers found that for differential instruction, explicitly identifying the course learning objectives early was important, and organizing the course by units or chapters was also helpful. They determined that differentiating every class or every assignment was not necessary. They likewise recommended to begin small, incorporating just one or two ideas at a time and maintaining a log of learning objectives and student progress while also permitting different products for class projects. Responding to student interest and learning profiles, along with incorporating a variety of instructional formats, provides students opportunities to learn in their preferred style.

Diversity in higher education is on the rise; thus, the traditional one-size-fits all, teacher-centered model of lecture-style teaching sets students up for failure (Dosch & Zidon, 2014). Some instructors assume their job is done after they tell students the information. Telling or presenting is not effective pedagogy. Accomplished instructors teach in such a manner that students find both the information and skills meaningful (Wormeli, 2005).

Purpose and Research Questions

Increasingly, research and development in learning theories within elementary and secondary education reveal the significance of differentiated instructional methods, yet very little attention to this approach has been given in higher education, perhaps because of the differences in environment between K-12 and higher education or other challenges for higher education faculty. Therefore, the purpose of this exploratory and qualitative study was to examine instructors' understanding of differentiated instruction and their perceptions of the challenges to implement differentiated instruction in large classes as a strategy for students to achieve a greater level of individual growth and academic success in higher education.

Four research questions guided this study:

1. How do instructors teaching large classes in higher education define differentiated instruction?
2. To what level do instructors teaching large classes in higher education use differentiated instructional strategies?
3. What perceptions do instructors in higher education have of using differentiated instructional strategies in large classes?
4. How do instructors in higher education describe the benefits and challenges of using differentiated instruction in large classes?

Materials and Methods

Instructor Perceptions of Differentiated Instruction (IPDI) Survey

The questions used in the IPDI Survey were developed based upon an extensive review of the literature and the work of Santangelo and Tomlinson (2009). In addition, the following self-reported demographic information was captured from survey participants: gender; race; age; rank; number of years teaching in higher education; number of large classes taught, including online, hybrid, and face-to-face; and department or school teaching within the academic college. The survey included seven multiple choice questions and two open-ended questions aligned with the purpose of the study and the research questions (see Appendix). The survey questions were designed to elicit information for exploring the research questions (see Table 1.) The final survey question (Q11), "Please share any other comments you have about differentiated instruction in higher education," captured information to answer all four research questions.

Data Collection and Analysis

Qualitative and quantitative data were collected by means of the online IPDI survey created through the web-based research tool Qualtrics. Participants for the survey included instructors teaching large classes within an academic college at a research institution in the southeastern United States with an enrollment of 33,000-plus students. The College is comprised of 11 departments and two schools and has 560 faculty members and 3,237 undergraduate majors. A large class was defined as 50 to 550 students being taught by one

Table 1
Research Questions (RQ) and IPDI Survey Questions (Q)

Research Questions	Topical Concept	Survey Questions
RQ1	Definition of differentiated instruction	Q3
RQ2	Use of differentiated instructional strategies	Q4, Q6
RQ3	Perceptions of using differentiated instructional strategies in large classes	Q7
RQ4	Benefits and challenges of using differentiated instruction in large classes	Q5, Q8, Q9, Q10

Table 2
Participants' Definition of Differentiated Instruction

Theme (description)	Number of Endorsements	Percentage of Endorsements
Content: (activities based on various Bloom's Taxonomy levels)	2	11.7%
Process: (delivering material to students' preferred learning style)	10	58.9%
Product: (assessment based on students' style)	3	17.7%
Learning Environment: (physical and psychological needs)	2	11.7%

Note: The number of endorsements is higher than the number of participants because participants included more than one answer representing multiple themes

faculty member or instructor. Instructors teaching 50 or more students were identified using the Time Table of Classes available through the university student, faculty, and employee information gateway at the time of the survey. The researchers identified 108 instructors who taught sections within the college that met the criteria; the sections represented the exposure of potentially 9,898 students to large-classroom settings. In compliance with the university's research protocol, approval was secured from the Institutional Review Board prior to data collection.

To encourage participation in the study and to maintain diversity and breadth in the purposeful sample pool, the researchers sent a recruitment e-mail to each of the identified instructors. The introductory e-mail explained the purpose of the study and the criteria for participation, which included that participants were (a) currently teaching in the College and (b) were identified as teaching large classes in the fall semester. One week prior to the spring semester, the e-mail was sent by the researchers to instructors requesting that they complete the IPDI online survey. Willing and qualified participants were instructed to complete the survey during an open period of seven days.

Utilizing an open coding strategy (Rossman & Rallis, 2011), the researchers independently coded the open-ended questions of each completed survey to identify common descriptors instructors used to describe their perceptions of differentiated instruction and the challenges of implementing differentiation in large classes. In a second session of coding, the researchers jointly agreed on categories through ongoing dialogue. Unique words or phrases were listed during the coding sessions to form conceptual categories and overarching themes. Quotes were also identified for inclusion in the second level of analysis.

Demographic Profile of Participants

Of the 20 instructors (19%) that responded to the survey, 13 (65%) were female, and six were male. They ranged in age from 30 to 79 years old. Eighteen of the participants (90%) were white, and two identified as other. Participants reported their rank as follows: five instructors, five assistant professors, six associate professors, and four full professors. The number of years teaching in higher education ranged from one to more than 10 years. Of the 20 participants, faculty had some to extensive experience in teaching large classes. For example, 50% had taught two or more large classes. Five had taught between three and five classes. Meanwhile, four had taught seven or more large classes. The range of

subject matter represented in the participants was also diverse. Enrollment in the large classes varied according to academic discipline: two participants taught in Consumer Sciences; two taught in Communication, English, and Religion and Culture. History, Philosophy, and Sociology had one participant each. Four were from Human Development, and three were in the School of Performing Arts. The participant profile represents an exposure of instructors to 3,494 (35.3%) out of the 9,898 potential undergraduate students.

Discussion of Findings

Research Question One: Definition of Differentiated Instruction

The frequency of participants' responses according to Tomlinson's model (2004) is captured in Table 2. Sixteen of the 20 participants answered the question while the remaining four elected not to answer the question. At the time of the survey, three of the 16 participants stated that they were unable to define differentiated instruction, resulting in 13 respondents' answers coded using Tomlinson's model.

Instructors participating in this study primarily described their understanding of differentiated instruction as 1) content, 2) process, 3) product, and 4) learning environment. The majority of the endorsements (n=10) were for the process category. Previous literature (e.g., Dosch & Zidon, 2014) has provided theoretical definitions of differentiated instruction, but this finding provides definitions from practitioners. For example, one participant defined differentiated instruction as "providing instruction intended to reach different styles of learners." Another participant described differentiated instruction as "a way to best reach/teach each student." Although participants focused heavily on process, a few participants highlighted content, assessment, and learning environment to define differentiated instruction. For example, one participant defined differentiated instruction as "preparing curriculum and outcomes based on individual student needs based on personal interests, culture, ability/disability, socio-economic status, sex, etc."

In response to the open-ended question asking for additional comments, further comments provided enlightenment on this research question. One participant described differentiated instruction as a way to "understand what students need, give them the resources to discover the solution, [and] point them in the direction of additional resources." Another participant said the following:

> After the first question [define differentiated instruction], I looked up 'differentiated instruction.' What I do [in class] would probably not be defined as that: I give every student a variety of avenues for learning; all avenues are presented to all students with the hope (and the experience) that each student will find several that work well.

These statements show that differentiated instruction is not only a challenge to understand, it is difficult to practice. This supports previous research about differentiated instruction touching on all facets of teaching (Tomlinson, 2004) and when pressed to define differentiated instruction, contrasting and even misinformed descriptions are offered (Wormeli, 2005).

Research Question Two: Use of Differentiated Instructional Strategies

When asked how often participants engage in whole-class instruction such as teacher-led lecture and/or demonstrations, all participants reported some use of this pedagogy, with more than 85% of the participants utilizing either direct whole-class instruction always (56%) or often (31%), while two (13%) frequently used this teaching strategy. In contrast to this usage, Wormeli (2005) states that while some students learn primarily in whole-class instruction, others prefer small groups or working individually. In a check of differentiated practices, only three participants (19%) reported they use differentiated practices on a regular basis while seven (44%) reported they use differentiated practices sporadically. The remainder, or about one-third, of the participants reported that they do not use differentiated practices. This practice of depending primarily on one pedagogy is in contrast to the research that successful instructors offer all three formats (i.e., whole-class instruction, small groups, work individually) throughout the course of a week or unit of study. To address this contrast in practice with research, Tulbure (2011) recommends a blended teaching practice or a combination of differentiated instruction with the traditional whole class. This would allow instructors to compensate for the disadvantages of the traditional approach with the advantages of differentiated instruction.

Research Question Three: Perceptions of Using Differentiated Instructional Strategies in Large Classes

This question was answered by only 16 of the 20 participants. Although few instructors practiced differentiated instruction as noted in findings for research question two, more than 75% of the responding participants described differentiated instruction in higher education as somewhat important

Table 3
Opinion About Using Differentiated Instruction in Higher Education (n=16)

Response	*n*	Percentage
Somewhat important.	10	63%
Not effective in higher education.	3	19%
Extremely important.	2	13%
A buzzword that will fade.	1	6%

Table 4
Challenges to Differentiated Instruction in Higher Education

Response	*n*	Percentage
Class size.	13	87%
Lack of instructional time.	11	73%
Lack of resources.	9	60%
Lack of training.	4	27%

Note: N = 16. Instructors responded with more than one selection on this question.

or extremely important. Only one instructor described it as a buzzword that will fade (see Table 3).

Among the responses to the final question asking for additional comments, one participant offered a detailed explanation of his/her response to the interplay between the usage question and the perception question:

> Differentiated instruction IS a buzzword for what good teachers have been doing, but with limited resources and pressures to meet many other educational and performance goals, it is often very hard to fully offer what might be the best in meeting students' needs. There is a very fine line between… the responsibility of the teacher for teaching methods and… the responsibility of the students for accepting new methods of learning. Today we are teaching [so] many more students with special learning needs and cultural/language issues that the challenge is [an] even greater issue.

Research Question Four: Benefits and Challenges of Using Differentiated Instruction in Large Classes

This research question was explored through three survey questions, two Likert and one multiple choice. Again, only 16 participants answered all three of these questions. When examining the conundrum of benefits versus challenges, only three, or less than 20%, selected the response that differentiated instruction is both practical and reasonable, the response that would indicate seeing benefits and willingness to take on the challenges. At the other end of the scale, 25% selected impractical and unreasonable. The remaining nine were split between the responses that differentiated instruction in higher education was practical but unreasonable (*n*=2) and impractical but reasonable (*n*=7).

Although none of the participants selected the multiple-choice option of "significant and worthy of the effort," half of the participants (*n*=8) selected the response that the benefits of differentiated instruction in higher education were significant and somewhat worthy of the effort required to implement. And another fourth of the participants (*n*=4) selected the response that it is insignificant but somewhat worthy of the effort required to implement. In overview, three-fourths of the participants saw some benefits to using differentiated instruction. As with the previous question, another fourth (*n*=4) indicated that they perceived differentiated instruction as insignificant and not worthy of the effort required to implement. This mixture of responses is similar to the anecdotal findings of Wormeli (2005) who noted that differentiated instruction had both rewards and downsides to implementation in a classroom. The use of differentiated instruction in higher education, as with primary and secondary education, represents challenges to faculty.

Responses in the final open-ended question provided some additional insight into the mixed messages found in the participants' responses to the two Likert questions, and they provide some unique perspective of faculty in higher education. One participant explained that

> Most of us don't even have graders, so it's difficult to manage the ideal teaching strategies. I'd add one more item to your list of challenges: Faculty are encouraged to do the things that make it easier for them so that they can focus on grants and research. They are not rewarded for putting extra into

> teaching. In fact, the promotion and tenure process may view it as a mistake since it's not a factor. Recently I heard our dean say: "It is not possible to earn full professor rank on teaching."

Although instructors in K-12 have challenges of job growth and promotion, most have teaching as their top priority, unlike instructors in higher education.

In a focus on challenges to the use of differentiated instruction, participants were asked which of the following—class size, lack of instructional time, lack of resources, or lack of training—makes differentiated instruction in higher education challenging to implement. Given the opportunity to select more than one, the challenge receiving the highest response rate was class size (see Table 4). The next most common responses were lack of instructional time and lack of resources. Differentiation requires a considerable amount of time, effort, and dedication from the instructor (Santangelo & Tomlinson, 2009). Lack of training was selected by a few respondents, indicating a need for more knowledge of the pedagogy, which consequently would require more time and other resources.

In additional comments, participants emphasized these perceptions about the challenges of implementing differentiated instruction in large classes: (a) it is difficult for instructors to provide differentiated instruction in large classes, (b) instructors face time and resource constraints to provide differentiated instruction, and (c) instructors have academic pressures to meet research and other requirements of a research university. The following comments from participants are examples of these three concepts, especially in the context of large classes:

- "Next to impossible in a class of 450 students. And, large class sizes make this difficult."
- "It is a pipe dream. Plato wrote of 'knowing the soul' if one was to effectively persuade, and this is the same. There is no possible way of implementing this [on a] large scale. The larger the class, the LESS ability to differentiate. AND, how is one to grade students using different scales for the same class and credit? Not going to go over well, and may well open the door to legal challenges since DI does not treat all students the same."
- "Differential instruction can work in small classrooms. It has no place in a large classroom at a research university. Part of learning should be that you need to adapt to the environment and not expect the environment to adapt to you."

In summary, the participants in the study were mostly aware of differentiated instruction, used it to a minor extent, and identified both benefits and challenges of differentiated instruction in large classes. Their responses for large class instruction confirmed much of the previous literature in both K-12 instruction and in higher education. For these participants, class size and resource constraints posed some of the major challenges to using differentiated instruction in large classes. Although the participants provided limited detail about resource constraints, they clearly considered the issue of time as a separate but also constraining resource. These instructors asserted throughout the survey that differentiated instruction in a large class is time consuming. This is supported by their affirmation that they most often chose direct whole-class instruction instead of differentiated instruction.

Implications and Recommendations

Both the goal and the means for measuring quality teaching rely on promoting student learning (Schuck, Gordon, & Buchanan, 2008). Newer teaching strategies introduced into higher education often incorporate a collection of teaching methodologies, a combination of face-to-face and online methods, and a campus-wide responsiveness to effective teaching practices. This description well fits the definitions of differentiated instruction. Although many new instructional practices are beneficial, moving beyond age-old teaching initiatives, such as whole-class instruction, generates both apprehensions and challenges for instructors at any curriculum level, and especially at the higher education level (Kanuka, 2010). The findings by Kanuka (2010) are clearly confirmed in this current study that instructors find differentiated instruction challenging, especially in large classes. However, other literature indicates that differentiated instruction has benefits to students at the K-12 level and has potential benefits to the higher education student.

With this conflict in mind, Allan, Clarke, and Jopling (2009) task teachers in higher education to "(re)conceptualize their role as a subject specialist-cum-teacher" (p. 369). Among the many directions of university education reform, differentiated instruction has the potential to provide the following: reassessment of individual differences, emphasis on students and learning activities, equal opportunities for professional training, and individualized and flexible learning paths (Tulbure, 2011). The findings of this study indicated that most of the instructors were aware of differentiated instruction but many of them expressed some measure of resistance in implementing the pedagogy.

Time consuming was the challenge reported most frequently by these instructors and the challenge that is also noted by previous research (Santangelo & Tomlinson, 2009). Although challenging to implement in large classes, differentiated instruction is plausible

(Ernest & Ernest, 2005). For example, once a course has been developed, the instructor can then explore strategies to differentiate instruction. A few strategies include: share a story that relates to the instructional content; display an illustration (graphic or media) of the topic being discussed; and allow student choice in assignments. Instructors will need training and other assistance to implement these strategies in their classrooms. Methods for effective training and the overall effectiveness of these strategies should be measured in future studies.

As awareness and training are effective tools in creating instructional change (Dosch & Zidon, 2014), the findings of this study indicate that this is an area that needs future work for administrators and instructors. Over half of the participants had no training in differentiated instruction, while a smaller portion had only read some literature or had attended a workshop or conference presentation. The lack of extensive training among the participants may account for the conflicting information found in the responses to both definition of differentiated instruction and the challenges to differentiate instruction. Referring again to one participant's comment, "After the first question [of the survey], I looked up 'differentiated instruction.' What I do would probably not be defined as that. [However,] I give every student a variety of avenues for learning; all avenues are presented to all students with the hope (and the experience) that each student will find several that work well."

Types of differentiated instruction is another finding from this study with implications for future research and practice. Given that students widely differ, there are no right ways in teaching and learning methods (Chamberlin & Powers, 2010; Pham, 2012; Santangelo & Tomlinson, 2009). Facing wide variations in learning profiles among students, teachers need knowledge about the types of differentiated instruction and an understanding that not every part of a lesson or even every unit needs to be differentiated (Logan, 2011; Wormeli, 2005). The findings of this study showed that many of the participants did not know about all of the types and practices involved with differentiated instruction. The need for more knowledge about differentiated instruction has implications for administrators and faculty mentors who work with instructors in improving their classroom activities. A key factor to student success and achievement lies with the support that instructors can provide (Wormeli, 2005). Clearly, instructors in higher education need more support and training in differentiated instruction to better aid student learning and achievement.

Limitations

This study, as an exploratory survey, has certain innate limitations which provide the findings with both biases and enrichment. The instructors who participated were teaching large classes within one academic college at a large research institution located in the southeastern United States. Their perceptions are not compared to those of instructors at other institutions, as there is limited to no research literature on differentiated instruction in large classes. Thus, the findings are confined within, and bounded by, this limited perspective. In addition, the participants' perspectives are contrasted with those held by instructors teaching smaller classes only through comparison to previous literature. The perceptions and knowledge of administrators, students, or other stakeholders are also not considered in this study. These limitations provide suggestions for future research as all stakeholders in higher education have purchase in this discussion of differentiated instruction. Despite these limitations in this study, the findings provide a focused look at the challenges that instructors face when they attempt differentiated instruction in large classes. Although the strategy is common in K-12 education, differentiated instruction has yet to take hold in higher education.

Conclusion

This study took a renewed look at differentiated instruction through the lenses of higher education instructors teaching large classes at a research university. Although differentiated instruction seems to be gaining ground in educational fields, especially among elementary and secondary educators, the strategy seems to lose momentum among higher education practitioners, a perspective reflected in the findings of this study. The findings are useful because they add to the literature and rekindle the need for discussion about differentiated instruction in higher education. As classroom enrollment increases across the country, instructors are positioned to revolutionize teaching and assessment in large classes by refocusing on learner variances. Through the use of differentiated instructional strategies, instructors are also positioned to reinvigorate the environment of teaching and learning in large classes.

Further, this study highlighted a need to create awareness about differentiated instruction and the potential benefits for students and instructors alike. Those familiar with differentiated instruction cited lack of resources, training, and time as challenges for incorporating differentiated instructional strategies into large classes. Despite these difficulties, many participants voiced a belief that instructors have an opportunity to provide a variety of methods to teach and assess student learning, which increases the opportunities for students to learn and excel within a large class. While this study points to some inroads into the use of differentiated instruction in higher education,

there remains additional work to better understand how instructors can implement differentiated strategies

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Appendix

IPDI Survey

1. Which department within CLAHS do you teach?
2. What class(es) do you regularly teach?
3. In your own words, please define "differentiated instruction/DI."
4. How would you describe your use of differentiated instruction?
    a. I do not use differentiated practices.
    b. I use differentiated practices sporadically.
    c. I use differentiated practices on a regular basis.
5. Which type of training in differentiated instruction have you received?
    a. None.
    b. Read some literature.
    c. Attended a workshop and/or conference presentation.
    d. Attended several workshops and/or conference presentations.
6. How often do engage in direct whole-class instruction?
    a. Seldom (under 10%).
    b. Frequently (10% - 40%).
    c. Often (40% - 60%).
    d. Always (60% or more).
7. How would you describe your personal opinion about using differentiated instruction in higher education?
    a. Not effective in higher education.
    b. A buzzword that will fade.
    c. Somewhat important.
    d. Extremely important.
8. How would you describe the practicality of using differentiated instruction in higher education?
    a. Impractical and unreasonable.
    b. Impractical but reasonable.
    c. Practical but unreasonable.
    d. Practical and reasonable.
9. How would you describe the benefits of using differentiated instruction in higher education?
    a. Insignificant and not worthy of the effort required to implement.
    b. Insignificant but somewhat worthy of the effort required to implement.
    c. Significant but not worthy of the effort required to implement.
    d. Significant and worthy of the effort required to implement.
10. Which of the following makes differentiated instruction in higher education challenging to implement? (select more than one answer if applicable)
    a. Lack of training.
    b. Lack of resources.
    c. Lack of instructional time.
    d. Class size.
11. Please share any other comments that you have about differentiated instruction in higher education.