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Strategies Advanced Placement High School Teachers Use to Teach Diverse Learners

Patti J. Tate
Walden University

Walden University

College of Education

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Patti J. Tate

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Review Committee
Dr. Karen Hunt, Committee Chairperson, Education Faculty
Dr. Heather Caldwell, Committee Member, Education Faculty
Dr. Mary Howe, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

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Abstract

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MEd, Converse College, 1987

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Project Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Since Advanced Placement (AP) College Board's 2002 implementation of the Equity and Access Policy, the number of students enrolled in AP courses has increased, but student success on passing AP exams has dropped. This signifies that the new populations of AP students are not well prepared with the skillsets necessary to succeed on AP exams. This qualitative exploratory case study focused on how high school AP teachers in one southeastern school district provided differentiated instruction (DI) through content and strategies to diverse learners. Data on the use of DI with AP students were collected through interviews of AP teachers at two schools and document reviews of AP Professional Learning Community Canvas files. The framework for the study was based on Gardner's multiple intelligences, Vygotsky's zone of proximal development, and Tomlinson's differentiation model for instruction. The study detailed how AP teachers selected content, implemented strategies, and created classroom environments using DI frameworks. Seven AP teachers of varying subject expertise participated in the study. Data from the interviews and document reviews were transcribed, coded, and analyzed for common themes. Findings showed that AP teachers used College Board AP resources to guide instruction and content to provide student-centered learning. AP teachers also understand how their knowledge of students and their relationships with them are necessary for DI. The teachers' perspectives indicated that they needed opportunities and time to explore DI strategies to assist AP students. A three-day professional development workshop was created as a project based on the findings. Positive social change might occur if more academically diverse students are provided with student-centered learning to succeed in AP courses and subsequently in postsecondary environments.

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Dedication

This study is dedicated to David, Zachary, and Payton. Throughout the journey, you all were always encouraging and gave me confidence that I could succeed. Thank you for believing in my dream.

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Section 1: The Problem

The Local Problem

Students who take Advanced Placement (AP) classes in high school settings find more success in postsecondary settings because of the rigorous curriculums and courses of study (College Board, 2017; Park et al., 2014). Students who take these classes are challenged by the rigor, content, and requirements and are prepared for higher education course work. Additionally, students who take AP classes have a 58% postsecondary graduation rate as compared to a 38% four-year postsecondary graduation rate of students who do not take AP classes (Blankenberger et al., 2017; College Board, 2017; Shaw et al., 2013; Warne et al., 2015). In 2002, AP College Board recognized that there was an underserved population of students, meaning that there was a lack of diversity among AP test takers. Because of these findings, AP developed the Equity and Access Policy to open AP classes to all students. Since that time, many schools have opened AP classes and encouraged students who are underprepared to take advanced level classes (Kolluri, 2018; Warne, 2017).

Although there are studies on equity and access to AP classes related to demographics (Koch et al., 2016), there is limited literature on AP teachers' current use of differentiated strategies that are needed to meet the needs of academically diverse students. Across the nation, the number of students enrolled in AP courses increased by 168% from 2002 to 2016 (College Board, 2017; Judson, 2017b). However, since the Equity and Access policy implementation, student success on passing AP exams has dropped, potentially signifying that the new populations of AP students are not well

prepared with the skillsets necessary to succeed in AP classes and on AP exams (Fenty & Allio, 2017; Judson & Hobson, 2015). Even more alarming is the increase in the number of students who score the lowest possible score of 1 on the AP exam, which indicates that students lack the skills necessary to succeed in AP classes (Judson & Hobson, 2015). The change in policy brought a change in the types of students who traditionally take AP classes. At the center of the decrease in pass rates is the lack of rigorous curricula at earlier stages in students' education (Gagnon & Mattingly, 2016). One way AP teachers support their mixed-ability students' needs is differentiated instruction (DI) through content, strategies, and assessments so that all students can learn (Godley et al., 2015; Tomlinson, 2017). Therefore, the problem is that diverse learners in AP classes need the additional support of content, strategies, and assessments that AP teachers can provide through DI.

Rationale

To ensure diverse learners in AP classes succeed, it is essential to explore AP teachers' use of instructional strategies to support the students' various abilities. This study is unique in that there is limited research on AP teachers' current use of strategies that are needed to support students who may not have the skillset or background to be successful in AP classes.

This study addressed a local problem by exploring the instructional strategies AP teachers use when teaching diverse learners. At a suburban high school in the southeastern United States, the number of students enrolled in AP courses increased by 376% from 2008 to 2016, yet the AP exam pass rate decreased from 74.6% in 2009 to

35.9% in 2016 (NHS AP Data, 2016; South Carolina Department of Education, 2016). In AP Professional Learning Community (PLC) meetings, AP teachers communicated the lack of critical reading, writing, and thinking skills of their students (AP PLC meeting minutes, October 10, 2017). Minutes from the AP PLC (October 10, 2017) also included discussions of results from AP pre-assessments, indicating students are not prepared to make a passing score of 3, 4, or 5 on the AP exam. The director of secondary education has also expressed concern over the decreasing AP pass rates and is seeking ways to provide support for AP teachers (IB/AP advanced studies meeting, November 10, 2017). The administration asked AP teachers at the three high schools in the district to give common mock exams so that the AP teachers can collaborate, calibrate essay scoring, and have conversations about best practices. With the emphasis on raising AP scores, the superintendent of schools established a district goal to increase the success of AP students who earn a passing score of 3, 4, or 5.

The results of this project study offer the study schools and the district insights into AP teachers' use of DI to support diverse students. The findings from this study provide teachers with an enhanced awareness of the instructional strategies that will promote AP student success. Using the data, district officials and administrators may develop support systems necessary for the expansion of AP teachers' skills in educating AP students. The study promotes social change in that more diverse learners may succeed on the AP exam and as a result may view the AP classroom as a safe, inclusive environment. With the national focus on college readiness, access to and success in AP classes may allow more academically diverse learners to succeed in higher education.

The purpose of this study was to explore how AP teachers differentiate instruction through content, process, and assessment to support academically diverse AP students. With the implementation of open enrollment that allows academically diverse students to take AP classes, there is a need for teachers to differentiate the content, instructional strategies, and assessments in such a way that all students in the classroom can succeed. AP teachers continue to plan learning experiences for the most advanced learners, but at the same time, they need to provide support for the learners who may not have the academic skills to be successful (Tomlinson, 2015). In this study, I explored the instructional strategies AP teachers use to reach all learners.

Definition of Terms

Advanced Placement: The College Board's AP Program launched in 1956 after two studies that supported motivating high achieving students to a greater potential. Today the AP program offers 34 courses with subsequent exams that offer potential college credit to academically diverse students (College Board, 2014).

Advanced Placement exams: Each subject area has an exam that is unique to the content. Exams consist of two portions including a multiple-choice section and an essay or extended response section. The exams are scored on a range of 1-5. Scores of 3, 4, and 5 are considered a passing grade on the AP exam and indicate that the student is college-ready (College Board, 2017).

Advanced Placement success: A minimum score of 3 on an AP exam equates to success on AP exams. AP scores their exams with 1, 2, 3, 4, and 5. A score of 5 is the highest AP score (College Board, 2017).

College Board: This is a nonprofit organization that promotes a connection between secondary schools and postsecondary education (College Board, 2014).

Differentiated instruction: This is researched based model of teaching and instruction helps educators design curriculum, instruction, and assessments to help diverse learners maximize their abilities.

Diverse learners: Students with varying needs in relation to content, process, and product (Tomlinson, 2015).

Equity and Access Policy: This is a policy created by the College Board and AP in 2002 that promoted the AP Program as an avenue of equity and access for underserved students to challenge them academically and to provide a rigorous curriculum for all students who want to take AP classes (College Board, 2002).

Open enrollment: An AP policy where districts expand access to students to participate in AP classes without specific test scores, teacher recommendations, or specific grades in pre-requisite classes (Rowland & Shircliffe, 2016).

Readiness: Readiness is the student's current understanding of specified knowledge and skills and with gradual release will grasp new, complex ideas (Tomlinson, 2017).

Significance of the Study

This study addressed a local problem by focusing on instructional strategies high school AP teachers use when teaching diverse learners. Because there was an increase in the number of students taking AP classes and a decrease in the overall pass rates on AP exams (College Board, 2017), the results of this study may offer the study school insights

into AP teachers' use of DI to support academically diverse students. The findings from this study provide AP teachers with an understanding of the instructional strategies that may foster success for academically diverse AP students. Using the data, district officials and administrators may develop support systems necessary for the expansion of AP teachers' skills in educating AP students. The study promotes social change in that more diverse learners may succeed on the AP exam, which can lead to future opportunities such as attending 2- or 4-year colleges.

Research Questions

Understanding the instructional strategies AP teachers use, exploring how teachers plan for diverse learners, and examining supports needed by AP teachers to engage all students in AP classes may help teachers of AP classes where there are academically diverse learners. Information from the study could be used to provide AP teachers with the necessary support to teach all learners. Five research questions (RQ1-RQ5) guided this study:

- RQ1: How do high school AP teachers determine their students' ZPD or readiness, interests, and learning profiles?
- RQ2: How do high school AP teachers select their content to support all learners?
- RQ3: What processes or strategies do high school AP teachers use to differentiate instruction?
- RQ4: How do high school AP teachers create classroom environments where students achieve?

- RQ 5: What supports do high school AP teachers perceive they need to implement DI?

Review of the Literature

The Conceptual Framework

The conceptual framework for this study was Tomlinson's (2015) differentiation model for instruction that supports teachers in addressing the varied levels, experiences, and abilities of all students in a classroom through instructional strategies designed to reach all learners. Tomlinson's model helps educators design curriculum, instruction, and assessments to help students maximize their abilities (Tomlinson, 2015). Differentiation is about superior performance for all students and how teachers provide opportunities to meet these needs (Tomlinson, 1999). When teachers adjust their teaching for students' diverse abilities to increase student's success and growth, students can achieve (Dixon et al., 2014).

DI is based on differing theories, including Gardner's theory of multiple intelligences and Vygotsky's theory of zone of proximal development or ZPD (Morgan, 2014). Gardner's theory supports the idea that students learn using multiple intelligences that include the following: logical, spatial, musical, visual, kinesthetic, interpersonal, and intrapersonal (Gardner, 1983). Focusing on the premise that all children are not alike in how they learn, Gardner's theory suggests that students can be gifted in areas other than mathematics and language arts. When teachers provide students different educational opportunities through content, process, and products, they differentiate and provide the best instructional practices for the individual students. Likewise, Vygotsky's ZPD is the

area in children's development where they can learn, but they must do so under the guidance of a teacher, and when they master the concept, they can learn on their own (Vygotsky, 1978). Vygotsky theorized that children learn best at a level where there is no frustration and as the area where children can succeed if they partner with peers of similar abilities. Children can learn when the concept is difficult and challenging but only when the idea is within their capacity for understanding. Before teachers can incorporate DI into the classroom, they must identify students' areas of development where learning can be maximized (Ortega et al., 2018). When teachers know their students' ZPD, they can scaffold or differentiate content, process, and product to help all learners find academic success.

Tomlinson, an education expert, has written numerous books and research articles on DI. Her original text, *The Differentiated Classroom: Responding to the Needs of all Learners* (1999), is now titled *How to Differentiate Instruction in Academically Diverse Classroom* (2017). Through her research, she has edited and revised her works based on the evolution of the shifting American student and classroom. Tomlinson is at the forefront of providing educators with an understanding of how DI is a framework that best serves all students. Yet, with the development of DI, teachers find it challenging to implement with fidelity and consistency and have overall concerns about their ability to use DI in their lessons (Suprayogi et al., 2017).

The concept of one-size-fits-all in the traditional classroom is the norm of most schools (Wan, 2015); however, it should be educators' responsibility to teach to individual students and not to a whole classroom (Tomlinson, 2015). Students who enter

AP classrooms are diverse in ethnicity, socio-economic status, and intellectual ability; therefore, educators should meet students' diverse learning requirements through content, process, and products (Tomlinson, 2015). Using differentiation, AP teachers can provide multiple approaches for the content that students learn, how students understand the material, and how they show mastery of the skills.

The basis of this literature review was to provide justification that DI is an approach to teaching that supports academically diverse learners. In addition to exploring differentiation in this review, I also explored research regarding the change in College Board's AP program and the changing population of AP students who are more academically diverse. To conduct the review, I used Walden University library search engines including Thoreau, ERIC, Education Research Complete, Taylor and Francis Online, SAGE Journals, and Google Scholar. As I searched, I entered terms including *differentiation, differentiated instruction, DI, Advanced Placement, gifted students, heterogeneous grouping, equity and access*, and *instructional strategies*, as well as multiple Boolean combinations including *Advanced Placement and differentiation*, *Advanced Placement and diverse learners*, and *zone of proximal development* among others. I searched for articles published in the past 5 years to gather data to support the need for DI. After reviewing the articles, I gained scholarly insight concerning the following themes: DI and readiness, strategies, and assessment or product; the need for DI; concerns about DI; and the implications for student achievement when teachers understand, implement, and provide DI to maximize the academic potential for diverse learners. However, there is a paucity of literature regarding DI and AP classes.

Description of DI

Teachers differentiate through content, process, product, and environment (Tomlinson, 1999, 2015, 2017). The *content* refers to the "what" of the instruction, whereas the *process* refers to how the teacher leads students to an understanding of the lesson; the *product* refers to the culminating evidence of the instruction that shows the student mastered the concept or standards of the unit; and the *environment* refers to the classroom safety and teacher relationship with the students (Taylor, 2015; Tomlinson, 2017). For teachers to differentiate, they must know their students' ZPD or readiness level. ZPD emphasizes the significance of teachers understanding the instructional needs of all students. Vygotsky (1978) communicated that "instruction is useful when it moves ahead of development" (p. 212), which leads the students to perform skills and tasks outside their skillset. According to Wass and Golding (2014), if teachers understand the abilities of their students and if teachers create lessons that are difficult for students, then the greatest learning will take place. When teachers create assignments that are beyond a student's ability but which the student can complete with assistance either from teachers or peers, learning is maximized. As teachers teach in the ZPD by providing opportunities for students to complete hard tasks with assistance, students will experience growth and achievement.

ZPD has three interpretations as presented in Eun's (2017) synthesis of Vygotsky's ZPD theory. First, ZPD can be interpreted as the space between what a student is able to do alone and what a student is able to accomplish with support from a peer or instructor. This interpretation supports DI through scaffolding (i.e., structured

support that is progressively removed as student abilities increase) as a teaching strategy. Next, ZPD is the space between what students learn from formal instruction and how the students relate this information with world knowledge. This supports DI in that teachers must know their students' interests. Finally, ZPD is defined as knowledge the students learn from social, collaborative efforts. Again, this supports DI in that grouping or collaboration among students is a DI strategy. Smit et al. (2013) acknowledged that adaptive support for DI is only successful if teachers understand what the ZPD level is for their students. In their study, they presented ways that teachers can diagnose their students' ZPD levels or DI readiness by examining work completed by students, reflecting on their lessons, and examining students' written work. This diagnosis can occur during and after lessons through pretests, posttests, questioning, and other formative assessments (Smit et al., 2013; Zulu et al., 2018). Councill and Fiedler (2017) studied learners in a music classroom and found that teachers can determine a student's development level through observation, oral inquiry, and performance assessments. Through the diagnosis of the students' ZPDs, the teacher knows the DI readiness characteristics and can provide content and processes for all students to achieve.

Within the ZDP are strategies and tools that teachers can implement with DI to support student success. Armstrong (2015) conducted a study to ascertain students' experiences with learning when teachers utilized the ZPD approach or determined DI readiness. In this study, the students were introduced to new, in-depth, complex concepts. Yet, through the instructor's emphasis on learner interaction with both the instructor and peers, the students left the class with knowledge and understanding of new ideas.

Students realized that the opportunities to collaborate with their peers and to communicate with the instructor during difficult activities or new learnings supported their overall success in the class. Therefore, Vygotsky's emphasis of learner interaction with experts, including peers and instructors, supported the learners' success in the classroom.

DI Strategies

DI builds on the ZPD, where the goal of differentiation is to determine the student's developmental stage for learning new concepts and skills. With appropriate scaffolding strategies and support, teachers customize learning in a way that best supports the student's ZPDs (Civitillo et al., 2016). During scaffolding, a teacher supports a student with strategies and aids so that the student achieves a learning skill that they cannot achieve without the assistance of a teacher. Through the progression of the learning task, the teacher gradually decreases the support as the student completes the skill independently (Van Driel et al., 2018). Scaffolding is an important aspect of DI, as shown when Gritter et al. (2013) conducted a case study on how an AP history teacher used scaffolding strategies in an AP U.S. history class to promote historical knowledge in students' historical thinking skills and writing skills. In this study, the researchers observed the scaffolding strategies of the teacher and how these supported the academic success of the participants. Findings from the study show the following as scaffolding supports for all students:

- create connections between knowledge,
- metacognition,

- modeling,
- bridging,
- questioning,
- contextualizing, and
- visual cues.

As Vygotsky (1978) intimated, scaffolding occurs when the teacher supports students in achieving what they could not do alone.

Another DI strategy that supports student achievement is cooperative learning. Clapper (2015) defined cooperative learning as "intentional learning activities where learners work together to achieve common learning objectives" (p. 151). During the cooperative learning process, members of the group support and teach other members. Students learn more from each other than from strategies such as whole group lectures. Specific cooperative learning strategies include jigsaw and group investigations. As noted, the teachers must position themselves where they can observe, question, support, and monitor the learning process. Even with cooperative learning, the teacher is still instrumental in the educational process. Clapper concluded that using cooperative learning and ZPD as a tool for instruction is a valuable DI strategy.

Still other DI strategies that supports ZPD are the use of open-ended and complex questioning and collaborative grouping. Open-ended questions create opportunities for students to think critically. Even though complex questioning can lead to cognitive loading or frustration for the students, locating tasks associated with the complex question in the ZPD lead to self-directed authentic learning (Zulu et al., 2018). Similarly,

Helgeson (2017) contended that literature circles are an effective DI strategy because it allows for students to collaborate, interact, and discuss. Within the literature circle, teachers assign readings according to students' interests and abilities. Teachers provide choice in content and assessments. This strategy fosters learning and responsibility in students.

Other researchers have found that using varied DI strategies can be effective for teaching diverse students. Gumpert and McConell (2019) addressed student diverse individual needs by designing varied science content activities that catered to individual students. In their classroom, they included manipulatives, flexible grouping, and tiered assignments. Each activity was tailored for students' specific needs. There were numerous strategies that supported the DI instructional process that equip diverse learners with the tools to complete tasks on their own. Additionally, Al-Subaiei (2017) in a research study on classrooms with mixed-ability students found that teachers should use DI strategies such as grouping, game competition, and dramatization of content. Using varied DI strategies allowed teachers to reach diverse students.

Providing students with choice was another DI strategy that educators used to engage and motivate students in the learning process (De Meester et al., 2020; McClung et al., 2019). Maeng and Bell (2015) studied seven high school science teachers and how they used DI in their classrooms. They observed the teachers using preassessments as a strategy to determine the students' readiness. Throughout the lessons, all of the teachers used formative assessments such as informal questioning, whole class discussions, and classroom response systems to gauge students' understanding. The science teachers also

used the strategy of providing authentic contexts to their learning by taking the students to an outside classroom to explore nature. To complete assignments, the teachers gave the students a variety of resources and materials for task completion. Again, the teachers provided choices that were integrated into a learning menu. Through the menu, the students chose their content, process of learning, and product for assessment. The study provided practical strategies that other teachers can use in their classrooms.

DI strategies can be used in all educational courses. Melo et al. (2020) contended that DI strategies could be implemented in physical education classes. They described a secondary physical education class where individual students led warm-up prior to activities. Others were paired with students who needed work on skills. They suggested that teachers create stations so students could select activities from the different stations based on their abilities. Allowing student choice supported the teachers' challenges of reaching all participants.

DI Lesson Planning

Teachers who differentiate begin by planning lessons that are geared for the most advanced learner, teach from a rigorous, challenging curriculum, and then scaffold for other diverse learners. Lessons are based on the students' readiness, interests, and learning profiles (Tomlinson, 2015, 2017). Teachers differentiate instruction to provide diverse learners with suitable challenging learning opportunities.

A critical component of DI is the teacher's focus on the students as individual learners rather than a focus on strategies or tasks. Specifically, to implement DI, a teacher must understand a student's readiness, interests, and learning profile (Tomlinson, 2015,

2017). Readiness is the point where the student can learn and with gradual release will grasp new, complex ideas (Morgan, 2014; Tomlinson, 2017; Vygotsky, 1978). At the beginning of units of study, teachers use a variety of measures to determine readiness, and then they use formative and summative assessments during the unit (Tomlinson, 2015).

In a study of elementary mathematics teachers, Van Geel et al. (2018) presented DI as a complex teaching skill and that understanding the readiness aspect is critical. From their data, the researchers created a hierarchy of skills that are necessary for DI, and one skill they found to be most important is a teacher's content knowledge. Without in-depth content knowledge, teachers cannot provide insight into their students' needs and cannot make correct instructional supportive decisions. Without expert knowledge, teachers do not have the ability to determine their students' ZPD to establish readiness (Van Geel et al., 2018). A highly qualified teacher who is an expert in content will best determine student readiness.

Although readiness is measurable and more easily understood, teachers also plan according to the students' interests. Tomlinson (2015) defined interests as topics or activities that induce curiosity and passion in students. By creating plans and content around students' interests, teachers involve students through curiosity and authentic engagement (Tomlinson, 2017). Yet, students' interests are more difficult to measure and sustain. Students' interests are fluid or ever-changing and can be influenced by the teacher's role, strategies, and self-perception of competence (Colquitt et al., 2017; Tomlinson, 2017). Van Geel et al. (2018) maintained the importance of teachers knowing

both academic and personal aspects of students. To engage students, teachers need to know how to inspire them. Teachers should understand the personal aspects of students, their peer relations, their outside interests, and how to use these interests to motivate them. Fitzgerald (2016) presented several practices to show how teachers become aware of students' backgrounds, interests, and hobbies. These include educational histories, surveys, self-portraits, and journals. To engage students through their interests, Taylor (2015) suggested that educators give students choices in their assessments and content. For example, students are presented with choice boards where they select what they learn and the product for assessment.

Finally, the students' learning profiles guide teachers in their planning of differentiated lessons. According to Tomlinson (2017), students' learning profiles encompass their learning styles, learning intelligences (Gardner, 1983), learning preferences, gender, and culture. Students will vary in their approach to learning and often have more than one preferred means of learning that can be contextualized by the learning objectives chosen by the teacher (Tomlinson, 2017). To maximize the achievement of learners, teachers should know and understand their students' learning styles (Cameron et al., 2015). Students need teachers who are both content experts and pedagogical experts (Swanson et al., 2020). Although readiness, interests, and learning profiles are important for DI, establishing a safe, positive classroom environment is equally important.

A positive learning environment contributes to higher student achievement (Back et al., 2016). Sharma (2015) believed the significance of a safe and positive classroom

and learning setting. Through a study on risk taking in mathematical classes, she determined that classes where teachers create an environment that encouraged learning rather than students correctly answering questions had higher student achievement results. To create a safe environment, the teacher used whole group discussions where key terms were explained and connected to prior learning, small group activities, music, and questioning strategies that included the students creating the question.

Research shows that questioning strategies are important aspects of creating safe learning environments. Luna et al. (2018) purported that questioning strategies used by teachers during the process of learning are an essential aspect of building students' feelings and safety in a classroom environment. Wait time, open-ended questioning, and higher-order questions are questioning techniques that build confidence in students. Accordingly, they suggested that creating classroom procedures is another important part of establishing safe classrooms where students feel they can take chances and learn. Providing collaborative spaces, asking for student input on establishing rules, creating project-based learning opportunities, and constant teacher monitoring are all important in creating an environment for students to achieve. Furthermore, interpersonal relationships are fundamental to learning and help establish positive learning environments (Royston, 2017). These relationships are developed through repeated encounters where classroom routines and procedures are firmly in place. Students know the expectations and requirements in the classroom. Royston continued that with the challenges of teachers who have diverse students in their classroom, it is important to understand the needs of

all students. Through findings from a survey, Royston found that students want the following from their teachers:

- trust,
- humor,
- enthusiasm,
- personal interest,
- high standards, and
- listening skills.

These qualities promoted positive learning environments in classrooms where students felt safe and were willing to take chances with their learning.

DI and AP

In 2003, the number of high school graduates who took AP courses was 18.9%, and this increased to 33.2% in 2013 (College Board, 2014). Pass rates vary by state, and according to the South Carolina Department of Education, from 2009 to 2016, the AP exam percentage pass rates by schools have decreased (South Carolina Department of Education, 2016). In Florida, a school system implemented open enrollment for students willing to take AP classes. Rowland and Shircliffe (2016) contended that when school districts open their AP classrooms to students who have not been academically equipped to succeed in AP, there needs to be support systems in place to prepare them.

With an increase in the number of AP students, school systems are seeing a decline in AP pass rates. Judson and Hobson's (2015) longitudinal study on national AP scores and trends showed rapid growth in the number of AP test takers yet pass rates have

decreased significantly. Students who earn a passing score of 3, 4, or 5 on an AP exam have the potential to earn college credit. From their study, they indicated that the percent of students scoring a 3, 4, or 5 decreased from 65.5% in 1992 to 59.2% in 2012. Furthermore, they also concluded that students who received a score of 1, the lowest score possible on an AP exam, increased significantly from 1992 to 2002 (Judson & Hobson, 2015). Judson (2017b) also maintained there was an upward trend in the number of academically diverse students opting to take AP classes while their AP success rate was poor. While advocating for increasing student access to AP, College Board (2014) recognized that there are still challenges for students with diverse academic abilities.

The College Board's AP Program launched in 1956 after two studies that supported motivating high achieving students to a greater potential. Today the AP program offers 34 courses with subsequent exams that offer potential college credit (College Board, 2014). Students must score 3, 4, or 5 to earn corresponding or equivalent college credit. The credit is awarded by the colleges and universities and not by College Board. Although AP was first created for only high-achieving students, this transformed in 2002 with College Board AP's Access and Equity policy. AP was originally designed for elite learners, but a change occurred with the new policy, and more students with diverse academic abilities now take AP classes (Muijs & Reynolds, 2015; Warne, 2017; Warne et al., 2015).

With the implementation of standards-based learning and 21st century skills that students need to be successful in a global world, many AP classrooms are full of diverse learners that range from students who struggle academically to students who are labeled

as gifted and talented (Warne, 2017; Warne et al., 2015). Starr (2017) explained the importance of opening AP classes to provide equity for all students in high schools. He argued that it is the school leaders' responsibility to provide opportunities to students to achieve academically who may not have skills to be successful in a rigorous AP class. One way to address the needs of diverse learners is through DI both throughout the school district and in the classroom (Tomlinson, 2015).

There are practices and dispositions that school systems need to support DI. Frey and Fisher (2017) identified relationships, responsiveness, communication, and sustainability as four systematic dispositions that should be present for DI to be successful. High quality teacher relationships can advance learner success with two years' growth (Frey & Fisher, 2017). Likewise, when teachers were responsive to learner needs and can adjust instruction and create a safe environment for diverse learners, then DI can be supported. It was also important to communicate with parents who can provide insights that teachers need to implement DI. Finally, DI should be sustainable. For DI to become a core aspect of instruction in a school, administration should look to the systems within to sustain relationships, responsiveness, communication, and sustainability.

When determining the need for DI, it is also important to look at the diverse learners in classroom settings. Fenty and Allio (2017) recognized that many AP students do not have the skills necessary for the rigor of AP. They determined that more research is needed to investigate how teachers' use of instructional strategies influence student success in the AP classroom and on the AP exam. AP teachers should be intentional in

their instructional strategies and when planning need to be aware of students' abilities and interests to maximize learning (Thomas & Green, 2015).

In a research study a school system opened AP English classrooms to diverse learners. Godley et al. (2015) described how a school in an urban area detracked its AP English and Composition classes and intentionally opened them to students who had never been in an advanced or honors class. Understandably these students were diverse in their academic levels of learning. Through the study, they described how the AP teacher used DI strategies to include scaffolding, graphic organizers, and student interest when planning and teaching the class. Not only did these strategies support lower-level students, but they also helped academically advanced students make greater academic gains (Godley et al., 2015). Likewise, Bavis (2016) described how a diverse high school detracked and opened its freshman courses in English, biology, and social studies to include more rigor to enable more students to be prepared for AP courses during their junior and senior years. With detracking, the local school district experienced a rise in the number of students enrolling in AP classes. Through detracking and opening AP classrooms to more students, there also came a need for more supports for both students and teachers.

Positive Effects of DI Strategies

The literature is beginning to show the positive effects of teachers implementing DI strategies in their classrooms. Bal (2016), in a mixed-methods study on DI, determined the academic effects of differentiated learning on algebra students. Students in the experimental group were taught using DI strategies, while the control group was

taught in a traditional manner. According to the study, sixth graders in the experimental group showed a significant increase in algebra success over the control group. This study provided data to support that DI in classrooms improved student achievement. Valiandes (2015) recommended that implementation of DI also led to academic success for students in mixed-ability classrooms. Through a study of 24 teachers, Valiandes supported the use of differentiation. While the teachers were skeptical of the effects of differentiation, their students showed positive academic growth after their teachers provided instruction through differentiation. Likewise, Prast et al. (2018) studied three cohorts of teachers over a 3-year time span and concluded that teachers who use DI increase the achievement of both low level and high levels learners.

Further research continued to show the positive effects of DI in classroom achievement. Ocampo (2018) investigated the effectiveness of DI in the reading achievement of high school students. Through quasi-experimental research, he wanted to determine if there is a significant difference in reading comprehension between two experimental groups. One group had conventional reading instruction while the other group had reading instruction with an emphasis on DI. Ocampo gathered data using pre-test and post-test results. The results showed that DI was more effective than whole class or conventional instruction because the experimental group had higher test scores than the students in the conventional group. The statistical analysis of the data showed a significant difference between pre-test and post-test results, therefore showing DI as a method for teachers to use to improve student achievement. Another study that supported DI and student achievement was Firmender et al. (2013) findings on the influence of DI

on elementary students who struggled with reading fluency and comprehension. After DI, students showed positive gains in their reading performance. While Pablico et al. (2017) studied the effect of DI on the achievement of high school science students, their findings indicated that DI had no significant effect on student success on an end-of-course (EOC) exam. Still, the students who were in the DI group outscored the students in the non-DI group on their EOC with 76.9% of students scoring Good or Excellent compared to the 67.6% of the non-DI group. Senturk and Sari (2018) concluded that DI improved the engagement of science and technology students. Through DI strategies, students improved scientific process skills and consequently improved their science literacy levels. Dosch and Zidon (2014) compared two classroom settings in which the course and instructor were the same. Yet, in one classroom the instructor implemented DI strategies, while in the second classroom, the instructor did not use DI strategies. Findings from the study show that overall, the classroom with DI significantly outperformed the classroom without DI. Moreover, the students in the DI classroom felt that DI supported their learning achievements.

Overall, based on the literature review, students who were in classrooms where teachers implement DI show growth, high engagement, and achievement. DI is beneficial to students in all courses and with all levels of learning (Tomlinson, 2017).

Teacher Concerns About DI

While AP teachers understand the significance of DI, many do not include DI practices in their classrooms because of the challenges associated with the implementation (Birnie, 2015; Wan, 2015). Implementing DI is based on teachers' beliefs

in their own ability to educate others and their efficacy in their content knowledge (Wan, 2015). To differentiate, teachers need to have confidence in their teaching abilities and in their subject area. However, many claim they do not have the time, resources, or support to maintain DI (Suprayogi et al., 2017). They believe that it is a good practice, and many try to differentiate, but there are too many challenges to support it consistently in the classroom (Birnie, 2015). While some view DI as a fad, this approach has been around since the one-room schoolhouse where teachers had all students and all abilities in one room and subsequently had to teach students in varying grades and levels (Wan, 2015). While differentiation is not a new idea, it is an impetus to the success of all students. Another concern is that educators view DI as constructing lesson plans for individual students (Birnie, 2015; Tomlinson, 2017). Thus, if teachers had 30 students in a classroom, they would create thirty different plans. Yet, this is not the case. DI can include strategies such as literature circles (Helgeson, 2017), study guides (Conderman & Hedin, 2017), centers, small groups, contract learning, digital use, and others (Tomlinson, 2015).

Teachers need time and careful planning to succeed in implementing differentiation strategies. Suprayogi et al. (2017) examined variables that could be challenging to DI, such as time to prepare DI lessons, class size, and teacher knowledge of DI. Teachers who are successful at DI, plan units, have classroom routines and procedures in place, and are organized (Morgan, 2014). Additionally, high teacher efficacy or self-belief has been linked to the successful implementation of DI (Suprayogi et al., 2017). When teachers are experts in their content knowledge, then they include

differentiated strategies. Ekstam et al. (2017) recognized that teachers who have high efficacy in their teaching abilities use DI strategies more frequently. Their study showed that teachers who have high efficacy beliefs about their teaching ability have more capability to implement teaching tasks that address diverse learners. These teachers dedicate more time into trying new teaching strategies and providing individual support for students. Thus, a teacher's efficacy beliefs on their content knowledge, pedagogy, and overall teaching ability are important when considering DI.

Nonetheless, the most prominent teacher concern is that they do not have the knowledge of how to include DI strategies in their lessons. Mills et al. (2014) noted that many teachers do not know how to apply DI in their classrooms. In their study of a secondary school in Queensland, Australia, the principal and various teachers had different ideas of what differentiation looked like in practice. Mills et al. concluded that schools need to provide more support for teachers to understand and practice differentiation. With this concern comes the need for professional development opportunities that are sustainable and implemented with fidelity (Gaitas & Martins, 2016). Professional development on DI is a critical aspect of teacher's fidelity of implementation.

Implications

The study site has numerous concerns surrounding the participation and success of AP students. Enrollment and participation in AP classes have shown to be an indicator of college readiness and college success after high school. I sought to explore the instructional strategies that AP teachers use when they are teaching AP classes with

mixed ability students. The findings from this study resulted in determining the necessity for teacher professional development in meeting the needs of diverse learners in classes that were historically created for advanced learners. Using the study's findings, I created a professional development for my project study to assist the district.

Participation in sustained, meaningful professional development that will inform educators on the best instructional strategies may increase the number of students who score 3, 4, or 5 on AP exams, showing mastery of the content. Increased success on AP exams and increased participation in AP classes by diverse learners may create opportunities for positive social change in that more underserved students will be provided opportunities to succeed in postsecondary environments.

Summary

Providing support for diverse learners in AP classes offers many opportunities for students. Students who have not been on a college preparatory or honors track in high school will benefit from instructional DI support from teachers.

To better understand how to provide support for teachers and students, I sought to examine the instructional strategies AP teachers use when there are diverse learners in their classroom. This study provided findings and an implementable project on the use of DI that AP teachers might use to support the success of both advanced students and students who need more support.

Section 2: The Methodology

Qualitative Research Design and Approach

The purpose of this study was to explore the instructional strategies that AP teachers use to ensure the success of their diverse learners. The research questions that guided this exploration were as follows:

- RQ1: How do high school AP teachers determine their students' ZPD or readiness, interests, and learning profiles?
- RQ2: How do high school AP teachers select their content to support all learners?
- RQ3: What processes or strategies do high school AP teachers use to differentiate instruction?
- RQ4: How do high school AP teachers create classroom environments where students achieve?
- RQ 5: What supports do high school AP teachers perceive they need to implement DI?

To address these questions, I used a qualitative case study methodology to gain insight into and to understand the participants' experiences as AP teachers who have diverse learners in their classrooms. According to Creswell (2012), a qualitative researcher "explores a problem and develops a detailed understanding of a phenomenon" (p.16). Yin (2009) indicated that a case study focuses on significant and meaningful real-life situations. In a qualitative case study, researchers interact with participants, observe

behaviors, and obtain specific information about the circumstances and context of the participants' or teachers' work (Yin, 2014).

By exploring and examining the instructional strategies AP teachers use to teach diverse learners, I gained a greater understanding of AP teachers' needs and supports to ensure all students' success. An exploratory case study approach is a method of qualitative research that "endeavors to discover meaning, to investigate process and to gain insight into an in-depth understanding of an individual group or situation" (Lodico et al., 2010, p. 269). In this qualitative case study, the targeted number of participants was seven to nine AP teachers of varying years of experience and content subject expertise in two schools in one school district. With a case study, the researcher identifies the problem, and in this study, the problem is that diverse learners in AP classes need additional support of content, strategies, and assessments that AP teachers can provide through DI. Exploring the instructional strategies AP teachers use provided descriptions and themes to capture AP teachers' use of DI.

Although I chose to use the exploratory case study design, I could have used other qualitative research approaches, such as ethnography, grounded theory, phenomenology, or narrative. Ethnographic research seeks to understand the reality of a culture and to describe the group in its natural setting. For this type of study, the researcher recognizes the importance of setting and the role that it plays (Lodico et al., 2010). The purpose of ethnographic research is to define a culture and requires prolonged engagement in the field with multiple data collection instances and methods. Another type of qualitative research is grounded theory, where the researcher collects data over time to construct

theories grounded in the data. The researcher attempts to generalize the findings to relate to other settings of the same type (Bogdan & Biklen, 2007). Still another approach to a qualitative study is the phenomenological approach, which pertains to research that is concerned with understanding a phenomenon from the points of view of the subjects. Phenomenological research centers on the participants' experiences and how they view different experiences (Bogdan & Biklen, 2007). This approach also requires prolonged engagement and multiple instances of data collection. An additional research design is the narrative analysis, in which researchers collect and narrate stories about their participants. In educational research, narratives may include experiences in the classrooms and schools (Creswell, 2012). However, the purpose of my research was neither to study a culture, develop a theory, understand points of view, nor to narrate an experience, so these methods would not work.

Finally, I chose not to use quantitative research methodology because I am not looking for trends or explanations (see Creswell, 2012). Instead, I chose a qualitative case study as my method because I sought to explore and obtain a deeper understanding of teaching strategies that AP teachers use with diverse learners. A qualitative case study was the best methodology because this method permits researchers to work directly with research participants and obtain direct information and experiences about the contexts of teachers' work (Yin, 2014). Therefore, an exploratory case study using interviews with open-ended questions and data from document reviews to explore the DI strategies AP teachers use was a methodology appropriate to accomplish the study's purpose.

The setting for the exploratory case study was a suburban school district located near a large city in a southeastern state. During the 2016-2017 school year, the district served approximately 18,000 students in 17 elementary schools (Grades PreK-5), five middle schools (Grades 6-8), three high schools (Grades 9-12), and one technology school. The school district has a one-to-one technology program, meaning that all students in the district have access to an HP computer to use at school and at home. The percentage of students in the school district enrolled in AP and International Baccalaureate (IB) classes is 26.2%. Of these students, 45.8% have successfully passed the AP or IB course exams. All teachers who are instructors in the AP and IB courses are sent to AP and IB training by the district. The setting of the case study is a district case of two high schools in the district.

Participants

The participants for the research study were selected because they are AP teachers from the two high schools at the local study site. Lodico et al. (2010) suggested that the participants in a qualitative study should be chosen based on their knowledge of the emphasis of the research study. Because of the district's AP open enrollment policy, participants for the study teach students in the AP classrooms who are diverse in their abilities. The focus of this study was to explore the instructional strategies that AP teachers used to ensure the success of their diverse learners. Merriam (2009) described purposeful sampling as what the researcher desires to "discover, understand, and gain insight" on in a study (p. 77). Through purposeful sampling, I invited AP teachers who teach one of the following courses: AP English Language, AP English Literature, AP

European History, AP U.S. History, AP Human Geography, AP Government, AP Macro, AP Calculus, AP Statistics, AP Chemistry, AP Biology, and AP Art. Using a homogeneous sampling of AP teachers who were information-rich because of their AP teaching experiences provided depth and breadth of knowledge from multiple perspectives (Lodico et al., 2010).

Number of Participants

The number of participants varies among qualitative studies (Creswell, 2012). However, Creswell provided guidelines for determining the sample size and cautioned against using too many participants because many cases is not manageable and may become superficial. Merriam (2009) suggested that purposeful sampling should be conducted before the data collection begins. Merriam further recommended that the number of participants selected should be sufficient to provide answers to the purpose of the study. For this project study, all AP teachers at the study sites were invited to volunteer to participate in the study. However, a range of seven to nine was necessary for the research study. The final sample size included seven participants.

Procedures for Gaining Access to Participants

After approval from the Walden Institutional Review Board (IRB) and with authorization granted through a signed letter of cooperation from the district of the school study sites, I worked with the gatekeeper to gain access to the participants. Once the study site granted permission to gain access to the participants, I composed an email to all the AP teachers at the schools selected to invite them to participate in the study on a voluntary basis. The email described the study and asked the teachers to respond if they

wanted to participate. For teachers who agreed to participate, I met with them individually to give a more detailed overview. During this meeting, I gave them a letter of consent so that I could obtain their signatures for participation, which they returned within 24 hours of the meeting. The consent letter consisted of the following:

- a description of the research study detailing the activities and amount of time for participation,
- details of any risks that may be involved,
- an explanation of the voluntary aspect of the study,
- an explanation that if the participant agreed to participate, then they may leave the study at any time,
- an explanation of how I would ensure the confidentiality of the participant, and
- a description of the steps that I took to maintain confidentiality.

Interviews took place after school hours at the study sites and via phone. I asked the principals for permission to use the schools' conference rooms or another quiet place for interviews. However, during the time of interviews, the school district closed because of COVID-19. With permission from IRB, I collected data from four of the participants via phone to replace face-to-face contact.

Building relationships with participants is important and the interviewer "must be reassuring and supportive" (Bogdan & Biklen, 2007, p. 103). The study site was in the district where I teach. I have taught in the district of the study site for 10 years, so the teachers that I interviewed may have known me. However, I am not in a supervisory

position, and I do not hold a position of authority over any of the AP teachers who were asked or who agreed to take part in the study. Because I used interviews to gather data, I was reassuring and supportive. Bogdan and Biklen (2007) stated that "good interviews are those in which the subjects are at ease and talk freely about their points of view" (p. 104).

Establishing ethical protection of the participants is of greatest importance (Creswell, 2012). To protect the participants, I adhered to the Walden IRB's 40 ethical standards. Participants were assured of their privacy and anonymity, as established in the informed consent letter. I articulated to the participants that their involvement was voluntary and would not affect their position at the school. If they agreed to participate, their confidentiality was assured as their names and identities were kept confidential and will be referenced as an assigned letter, such as Teacher A, Teacher B, or Teacher C. Transcriptions from the interviews will be kept in password-protected computer files and stored for 5 years beyond completion of the study at my residence. Any hard copies of data will be converted into electronic forms and stored in a computer password-protected file. Electronic files will be deleted from my computer. Data that are collected on paper will be destroyed.

Data Collection

In this study, I explored the instructional strategies that AP teachers use to provide support to diverse learners in AP classes. I used interviews and document reviews of PLC notes to gather data. After obtaining IRB approval (Approval no. 02-05-20-0389743), I submitted a letter of cooperation to my superintendent of schools. After approval from

my district, I then sent an email to the principals at each school asking for a list of AP teachers that I could contact for interviews. Once the principals shared AP teachers' names, I sent individual emails to 19 AP teachers with a comprehensive explanation of the voluntary project inviting them to participate in an interview. Seven AP teachers consented to participate in the study through the interview process.

Interviews

The focus of the data collection for this study was through interviews with AP teachers. Creswell (2012) identifies interviewing as a popular method of gathering data in qualitative research. This happens during the time when participants answer open-ended questions while the researcher records the answers through handwritten notes or audio recordings, and then analyzes the data for themes. Open-ended questions create opportunities for the participants to self-report personal experiences of teaching diverse learners in AP classes. There was an interview protocol that included semi-structured, open-ended questions that were created by the researcher and aligned with the problem statement, literature review, conceptual framework, and research questions. While Creswell described one-on-one interviews as ones that take the most time, this was the best approach for my study. The one-on-one interviews with the participants who agreed to be a part of the research were used to gather descriptive data so that I explored how the AP teachers explain their DI strategies. Lodico et al. (2010) suggested using the following protocols to facilitate a good interview that is rich in descriptive information:

- reintroduce myself and the general topic of the interview,
- read an excerpt which explains the purpose of the study,

- ensure the participant knows that the interview will last between 30 and 60 minutes,
- remind the participant of the confidentiality and anonymity of his or her responses,
- be a good listener and nonjudgmental in reactions to participants' responses,
- remind the participant of the consent agreement, and
- use effective probes to follow up on responses to questions.

I recorded the interviews, but I only used an audio recorder if the participant agreed to it as indicated on the consent form. If the participant was uncomfortable with audio recordings, then I took extensive notes. All the interviews occurred in an area that ensured privacy and at a convenient time for the participants. Interviews took place at the study sites either before or after school hours, or via a phone interview. Time for the interviews ranged between 30 and 60 minutes.

Document Review

The second source of data was a document review of AP PLC Canvas files. Merriam (2009) describes documents as official records, letters, meeting notes, memos, among others. While Merriam suggests that the use of documents in qualitative research is underused, it is also important to know the limitations associated with the data. Yet, data "found in documents can be used in the same manner as data from interviews" (p. 155). I acquired permission from the study site to have access to the documents. In the letter of agreement with the district, I included a paragraph asking permission for access to PLC meeting notes and files at the study sites. The data acquired through the

documents are also kept in computer password-protected files to be stored at my residence for 5 years beyond the completion of the study.

Sufficiency of Data Collection

Keeping track of data was an ongoing process throughout the study. A primary source of my data was interviews. Merriam (2009) suggested creating a system for organizing and managing data for the interview data by coding. Coding is a process where the researcher assigns an identifying term, word, color, number, or letter to different aspects of the data so that it is easily identified. During the interview process, I assigned letters to each interview participant. After each interview, I transcribed the audio recordings and made comments and notes. Still, another system of tracking data involved a research journal where the researcher keeps notes and observations. During and after the transcription process, I kept a research journal of my reflections and thoughts. Finally, Merriam suggested that the researcher transcribe his or her own recorded interviews. Through the transcriptions, I captured observations and thoughts in comments and margin notes. My system of organizing data and emerging understandings included developing a priori codes based on the conceptual framework for each interview, keeping a journal of my thoughts and reflections of each interview, and transcribing my interviews instead of hiring a third party to do so. Gibson and Brown (2009) described a priori codes as common categories that derive from one's research interests and form a basic outline for the exploration of the data.

Accessing the participants required a systematic process, and I completed the following:

- obtained authorization to proceed with the research from Walden IRB,
- obtained permission from the study site and school district,
- obtained permission from the gatekeeper of the study site to obtain the names and emails of AP teachers at the school,
- emailed the AP teachers with a comprehensive explanation of the voluntary project, inviting them to a meeting where I provided a summary with assurances of confidentiality.

The second source of data was a document review of AP PLC Canvas files and notes. To gain access to the PLC meeting files and notes, I completed the following:

- acquired permission from the school district, and
- obtained permission from the principal of the study site.

Just as I described a plan to develop a system of managing the interview data, I also used the same system for the document review. I used a system of keeping track of data and developing understandings that included developing a priori codes based on the conceptual framework for each document, keeping a journal of my thoughts, and reviewing the documents multiple times looking for categories and themes. Available AP PLC meeting notes were organized by AP course, and the data will be password protected in an electronic file stored on my computer. I organized by a priori codes based on my DI constructs of process or strategies, content, product, readiness, and environment.

Role of the Researcher

My role as the researcher was to design, apply, and report the research findings. I have been a teacher in the district where I conducted the study for the past ten years. The teachers at the schools where I conducted the research know me because we have attended professional development opportunities and meetings. We have worked together on creating curriculum guides, writing pacing guides for English classes, and choosing textbooks, among others. However, I am not in a supervisory position and do not hold authority over the teachers who were invited to participate in the study. The participants were volunteers and were asked to agree to participate and then sign the consent form. I followed Lodico et al. (2010) and Creswell's (2012) suggestions for interview protocols. Most importantly, procedures and protocols were in place to safeguard the participants.

I kept a reflective journal to address any bias I may have had. Bogdan and Biklen (2007) determined that qualitative researchers "study the subjective states of their subjects" (p. 37). The qualitative researcher spends copious amounts of time collecting and reviewing data. During this time, the researcher should confront his or her own biases. Bogdan and Biklen also suggested that the qualitative researcher should keep detailed notes and comments on these biases. To further check any biases I may have had, I asked the participants in the study to do member checking of their data. Merriam (2009) proposed that member checking is a means of ruling out the possibility of misinterpretations and identifying the researcher's biases. Member checking is a two-phased process. One step of the process is a participant review of the transcriptions. However, before I asked participants to do this, I checked the transcriptions against the

audiotapes. During the research process, this step is usually omitted because it is my responsibility to verify the transcriptions against the audio version. However, the second step of asking the participants to review the draft findings and to check my interpretations of the findings for the accurateness of the participant's data and for the viability of the findings in the setting was vital. The second step was necessary as I interpreted what the participants said in the context of the study. During this step, each participant was given an opportunity to discuss the data with me. None of the participants expressed concerns or indicated that the data were not accurate.

Data Analysis

Data analyses in qualitative research are inductive processes, and the researcher must organize and prepare the data. All data from the interviews were organized by participant in a case study database, and data from document reviews were organized by AP PLC subjects (Merriam, 2009). Next, data from interviews and document reviews were transcribed into Microsoft Word documents that were password-protected on my computer. After organizing, I read through the data numerous times to get an overall understanding of the data collected. After exhaustively reading and rereading and sorting, I first organized by a priori codes guided by the constructs in the conceptual framework. The constructs included the following: DI, process, content, product, readiness, and environment. I then used open coding to break the data into segments. Next, I examined and compared the segments for similarities and differences. Then, I combined the codes using axial coding to develop themes. After the data were analyzed, I presented each participant with a draft of the research findings to check my interpretations of their own

data and for the validity of the results. I gave each participant an opportunity to discuss the results with me, and the participants confirmed my findings as presented to them.

Analysis of Interviews

Lodico et al. (2010) recommend that qualitative researchers use 30 to 40 codes. I wrote detailed narratives, including quotes from participants to provide detailed descriptions of the themes that provide information for my exploratory case study. I looked for quotes that are relevant to the research questions. I then created a Microsoft Excel workbook for the interviews and entered the quote segments. Next, I created Microsoft Excel worksheets for each participant, and as I entered the quotes into the worksheet, I began to assign codes. It was important that I got a "general sense of the data" (Creswell, 2012, p. 243) so that I got an overview. Therefore, I read the transcripts multiple times from the interviews to arrive at a complete understanding of the participants' responses that were applicable to the research and research questions. To keep track of the participants, I made notes about potential ideas to explore further. Next, I cut and pasted participant quotes that were specific to the research questions and constructs that included: DI, process, content, product, readiness, and environment. I then sorted the potential codes into groups as they supported and responded to the research questions. I continued to combine codes based on similarities, differences, and research questions until no new codes developed. Based on the codes, I began building themes. According to Merriam (2009), themes should "be responsive to the purpose of the research" (185). As I read through the data, I identified possible themes to describe the concepts as they developed from the data. I reviewed, reread, reflected, and revisited

notes and transcriptions from the interview data until no new themes appeared. I continued the process with the document review.

Analysis of Documents

For the analysis of documents, I used the same process that I used for analyzing the interview transcriptions and data. As I read through the documents, I kept a journal of my thoughts and processes. I highlighted text segments from the documents that related to the research questions to mine for data (Merriam, 2009). I copied and pasted the text segments into a Microsoft Excel Workbook as they related to the research questions and constructs. I created a separate worksheet for each AP PLC document as they related to AP specific subjects. I then sorted the potential codes into groups. I continued to combine codes based on similarities, differences, and research questions until no new codes developed. Based on the codes, I built themes from the PLC document review.

Evidence of Quality to Assure Accuracy and Credibility of Findings

To ensure I presented an objective, credible truth to my findings, I included three approaches. First, I triangulated data from interviews and the document review of the AP PLC Canvas files and notes. Merriam (2009) describes triangulation as using various sources of data to compare and review data gathered at different times or from people with contrasting perspectives. In my study, I interviewed different AP teachers who were bound by the same study site and the AP course designation; yet they held different perspectives because of their different content areas. A second strategy I used was member checking. Merriam described member checking to "solicit feedback on [the] emerging findings from some of the people that [were] interviewed" (p. 217). Through

this process, I validated the accurateness of the interview transcriptions. After the data were analyzed, I presented each participant with a draft of the research findings to check my interpretations of their own data and for the validity of the results in the setting. I gave each participant an opportunity to discuss the results with me.

No discrepant cases emerged in the data analysis. If discrepancies had emerged through the datasets, I would have explored the datasets to discover possible explanations or reasons for the discrepancies. I would have contacted participants to resolve discrepancies, adjusted the data accordingly, and reported discrepant cases.

Finally, I also used a peer reviewer. I invited a colleague who serves as a second committee doctoral chair for another institution to review all the data to check my themes and findings through a peer review process. This colleague signed a confidentiality agreement before reviewing the data. These approaches: triangulation, member checking, and peer review ensured that the data was credible and trustworthy.

In summary, through an exploratory case study I sought to explore how AP teachers used DI strategies in their classrooms. Through interviews of AP teachers and a document review of AP PLC Canvas course documents, I triangulated the data to provide a rich, detailed, narrative depiction. I used member checking and a peer reviewer to establish validity, trustworthiness, and credibility to ensure I was objective in reporting my findings.

Transferability

Transferability is the “degree of similarity between the research site and other sites as judged by the reader” (Lodico et al., p. 275). Therefore, transferability is when

readers decide how the research relates to their communities and situations. Merriam (2009) stated that a qualitative researcher has an "obligation to provide enough detailed description of the study's context to enable readers to compare the 'fit' with their situations" (p. 226). I provided a thorough, detailed, and comprehensive description of the setting so that readers will find transferability. Readers with similar settings may make comparisons with their own situations. Another way to provide transferability is through the potential findings. To support the validity and trustworthiness of the findings, I included quotes from the interviews of AP teachers to provide evidence and support. Additionally, quotes and data mined from PLC documents further provided evidence so that readers may transfer the findings to their similar contexts.

Discrepant Cases

After I analyzed the data, I gave each participant a draft of the research findings to check my interpretations of the data and ensure the results' validity. I gave each participant a chance to discuss the results with me to check for discrepancies. However, no discrepancies occurred in the data analysis. Although, if discrepancies had emerged through the datasets, I would have explored the datasets to discover possible explanations or reasons for the discrepancies. I would have communicated with participants to resolve discrepancies, adjusted the data, and reported discrepant cases. However, there were no discrepant cases in the study.

Data Analysis Results

Through this study, I explored the instructional strategies that AP teachers use to ensure their diverse learners' success in AP classes and on AP exams through interviews

and document reviews of PLC notes and files. After IRB approval, I submitted a letter of cooperation to my district through my superintendent of schools. After the letter was approved and electronically signed, I then sent an email to the principals at each school asking for a list of AP teachers who I could contact for potential participation in the study. Once the principals shared AP teachers' names, I sent individual emails to 19 AP teachers with a comprehensive explanation of the voluntary project inviting them to individual meetings where I provided a summary of the study with assurances of confidentiality. Invitations included the consent form as an attachment. Seven AP teachers consented to participate in the study.

After receiving electronic consent from seven participants, I set up face-to-face interviews with three participants based on times and dates that were convenient for them. The other four interviews were conducted through telephone interviews after I received electronic consent from them. On March 16, my state closed schools due to Covid-19. With permission from IRB, I held the remaining four interviews via phone, and I scheduled the phone interviews that were based on times and dates convenient for each participant. The interviews took 30-45 minutes to complete. All interviews began with a reassertion of the confidentiality agreement detailed in the consent form that each participant received. The participants all agreed to be audio recorded and then transcribed. After each interview, I told each participant that I would send them a transcription of the interview so that they could check it for accuracy. I also emailed the participants a summary of my findings so that they could provide member checks for the conclusions.

After I interviewed the participants, I immediately transcribed the recorded audio verbatim within two days of the interview. I copied and saved each audio transcription on my computer in a password-protected file. All participants were assured that their names and identities would be kept confidential and would be referenced as an assigned letter such as Teacher A, Teacher B, or Teacher C.

For the transcript review, I began reading through each interview transcript. As I read, I made notes of my initial thoughts and reflections in the margins of each transcript and kept a journal of my thoughts. Once I read through the transcripts multiple times and became familiar with the data, I used a priori coding based on the conceptual framework's constructs. Gibson and Brown (2009) described a priori codes as common categories that derive from one's research interests and form a basic outline for the exploration of the data. Following a priori coding step, I used open coding to discover emerging themes. Open coding involved carefully rereading the data, breaking the data into segments, and examining and comparing the segments for similarities and differences. I then identified all the segments that were related to the research questions. The process of open coding helped me to label segments of data that contained common phrases or sentences from each interview for each participant. Once I attached labels to the open codes, I began sorting the open codes to develop the axial codes. The axial coding process helped me to group the open codes or labels based on their relationship to the research questions. I then analyzed the data using axial coding to generate themes. Eight themes emerged from the interview data, and they included the following:

- use of assessments to inform instruction,

- knowledge of students,
- teacher use of College Board AP resources,
- importance of critical thinking, reading, and writing,
- building relationships,
- student-centered learning,
- differing thoughts of differentiation, and
- the need for collaboration and time.

For the analysis of documents, I used the same process that I used for analyzing the interview transcriptions and data. As I read through the documents, I kept a journal of my thoughts and reflections, and processes. After I read the documents multiple times, I used a prior coding based on the framework's constructs. I highlighted text segments from the documents related to the research questions to mine for data (Merriam, 2009). Next, I applied open coding by examining the segments and comparing the data segments for similarities and differences. Once I attached labels to the open codes, I began sorting the labels to develop the axial codes. The axial coding process helped me to group the open codes or labels based on their relationship to the research questions, and I repeated this step until no new themes emerged. Based on the codes, I constructed themes from the PLC document review. The themes I discovered from my PLC document review data were as follows:

- use of assessments to inform instruction,
- knowledge of students,
- teacher use of College Board AP resources,

- importance of critical thinking, reading, and writing, and
- student-centered learning.

Finally, I used a peer reviewer to discuss the analysis of both data sets. A colleague who serves as a second committee doctoral chair for another institution reviewed the data to check my themes and findings through a peer review process. The peer reviewer and I met and discussed the themes and findings, and the reviewer agreed with my analysis.

The results of this study provided insights into the five research questions and presented the following themes as they pertain to each research question and data source. The research questions, themes, and interview data source are presented in Table 1 and the research questions, themes, and document data source are presented in Table 2.

Table 1

Table Showing Research Questions, Themes, and Interview Data Sources

Research questions	Themes	Data source
RQ1 How do high school teachers determine their students' ZPD or readiness, interests, and learning styles?	Use of assessments to inform instruction Knowledge of students	Interviews
RQ2 How do high school AP teachers select their content to support all learners?	Teacher use of AP resources Importance of critical thinking, reading, and writing skills	Interviews
RQ3 What processes or strategies do high school AP teachers use to differentiate instruction?	Student-centered learning	Interviews
RQ4 How do high school AP teachers create classroom environments where students achieve?	Importance of relationships	Interviews
RQ5 What supports do high school AP teachers perceive they need to implement DI?	Differing thoughts of differentiation Need for collaboration and time to plan	Interviews

Table 2

Table Showing Research Questions, Themes, and Document Data Sources

Research questions	Themes	Document data source
RQ1 How do high school teachers determine their students' ZPD or readiness, interests, and learning styles?	Use of assessments to inform instruction Knowledge of students	Document review
RQ2 How do high school AP teachers select their content to support all learners?	Teacher use of AP resources Importance of critical thinking, reading, and writing skills	Document review
RQ3 What processes or strategies do high school AP teachers use to differentiate instruction?	Student-centered learning	Document review
RQ4 How do high school AP teachers create classroom environments where students achieve?	NA	
RQ5 What supports do high school AP teachers perceive they need to implement ?	NA	

In the following sections, I present each research question with the findings and themes that were derived from the interviews. Following the interview themes, I then present the findings and themes derived from the document review data.

Findings and Themes for RQ1

RQ1: How do AP teachers determine their students' ZPD or readiness, interests, and learning profiles?

Interviews

During the interviews, the teachers indicated that they used multiple strategies to gather personal and academic information about their students to determine their students' ZPD or readiness levels, interests and learning profiles. These strategies included interest inventories, surveys, pretests, reading comprehension activities, and writing activities to help determine the students' readiness levels for learning both AP content and skillsets. As previously defined in definition of terms, readiness is the student's current understanding of specified knowledge and skills and with gradual release, the student is able to grasp new, complex ideas (Tomlinson 2017). Before teachers can use DI strategies, teachers must identify students' areas of development where learning can be maximized (Ortega et al., 2018). Vygotsky (1978) theorized that students learn best at a level where there is no frustration and as the area where students can succeed with support. Tomlinson (2017) suggested that to understand a students' readiness for learning, teachers should assess for instruction by providing pretests, interest inventories, or learner profile survey to gather knowledge. An AP teacher's understanding of students' readiness levels assists in planning effective and appropriate

content and process differentiation for students' diverse ability levels. Two themes that emerged were AP teachers realized the importance of *knowledge of students* and the use of *assessments for instruction* to determine their students' readiness levels for learning new AP content and skills. AP teachers use assessments as a means to design instruction that is appropriate for diverse student needs. Students begin each new AP course or unit of study with differing levels of knowledge and experiences. To determine a student's readiness to learn new content, some AP teachers began the school year with surveys and questionnaires. To gain information on the students' interests, three of the seven teachers indicated that they used surveys or inventories to gain insight into their students' interests and abilities. Teacher A stated, "I have surveys that I give them at the beginning of the year, and I try to glean their interests." Teacher E used a similar strategy when she stated, "I do an interest inventory at the beginning of the year." Teacher G gathered information about her students' abilities by using Northwest Evaluation Association Measures of Academic Progress scores (MAP), interest inventories, and looking at their previous performance in other classes.

Other AP teachers began their school year by determining their students' readiness levels for the AP coursework with formative assessments that are modeled after AP exams. Teachers use formative assessments as a tool. Tomlinson (2017) describes formative assessments as a method to create instruction appropriate to student learning levels. Teacher C stated that AP Classroom, a new tool presented by AP College Board that imitates AP multiple choice and essay exams, helped "on the diagnostic part of my teaching." Teacher C was able to utilize AP Classroom to determine her students'

readiness or current knowledge and understanding of the AP content. For example, Teacher C explained how AP Classroom helped to "pinpoint a specific indicator within a standard where a student might struggle." The teacher was then able to provide support for the struggling students. Teacher E began the school year with an introductory Free Response Question (FRQ) that is an official released AP exam question from AP Central. The teacher used the students' responses to determine what they know and to plan strategies for DI. Teacher E also implemented "AP Classroom for differentiation because [the teacher] chooses specific problems to give to students to support students at all levels." With the understanding of students' readiness or current knowledge and skills, the teacher was able to differentiate practice problems with varying degrees of difficulty for the students. Teacher B created writing assignments at the beginning of the year, and the students "write a major essay where they go through multiple revisions" based on their needs. Teacher B was able to assess the students' readiness for writing by providing a formative task that assessed the students' readiness for writing. Teacher A also had students "complete whole text practice with the multiple-choice questions at the very beginning of the year." The surveys, inventories, and preassessments helped AP teachers determine their students' readiness levels for learning new AP content and skillsets. With these tasks, AP teachers were able to determine the students' levels of knowledge and skills and use the information to create differing tasks for their students.

Assessments to inform instruction not only occurred at the beginning of the school year; AP teachers continued to formatively assess as the students continued to learn difficult concepts. Many of the AP teachers found that conferencing was an

effective strategy to use when understanding what their students know and do not know. To illustrate, Teacher E stated,

> We just talk to each other, and I can see how they are feeling about the content and if they need any more confidence in it or more specialized help based on anything that may be lacking in their responses. We can work one-on-one and conference through those problems to help get them where they need to be in the end.

Teacher A also stated, "I conference with them early on to ask them to determine what their goals are for the class, and what has worked for them in the past." Teacher B stated, "I will ask 'what do you understand about this'?" As AP teachers taught new concepts, they continued to use assessments and tasks to determine the AP students' readiness levels or current understanding of knowledge and skills as they moved from one unit of learning to the next.

Document Review

Within the AP PLC Canvas course, AP teachers submitted documents and shared files. While the Canvas course did not have documents providing assessments, there were shared documents that supported teachers' knowledge of students' interests. Through several of the shared documents, students were given choices as to how they wanted to present their knowledge. In one course document, students could choose how to demonstrate learning through multiple pathways, including creating a song, presentation, or skit. They were also given choices in reading assignments. In another course document, students were given a list of reading assignments, and students could choose a

reading passage based on their personal interests. Giving choice to students engaged them in the learning process and was a way to gain information about students' interests.

Findings and Themes for RQ2

RQ2: How do AP teachers select their content to support all learners?

Interviews

AP teachers utilize teaching resources to support all learners in the AP classrooms. I found that *using AP resources provided by AP College Board* was a theme for AP teachers when selecting content for all learners. College Board (2020) offers resources and support for AP teachers in all subjects through the AP Central website.

Some teachers used the AP guidelines to determine the content. AP Central provides specific standards and content for each course. Teacher B stated, "I follow the AP course and exam description" provided through AP Central. Teacher F taught the content "exactly in the order as AP College Board suggested." Likewise, Teacher E stated that when selecting content, "I select content based on what College Board says I should teach." Teacher G said,

> I select lessons that cover [my subject] chronologically and match the skills of the periods that College Board has assigned. If College Board say that students should understand a certain time period, I would select content that goes with that.

However, another theme was that AP teachers selected content based on students' interests. Teacher A teaches her content using examples from the real world and pop culture. Teacher D. stated, "I look at overarching universal themes, and I like to show the

diversity through each of those themes." Teacher C selected texts and content based on her "students' personalities" and "varied the texts and content selections each year."

While the AP teachers used AP resources and student interests to guide them in content selection, they also recognized that AP students needed critical thinking, reading, and writing skills to be successful in the AP class and on the AP exam. This created another theme of the *importance of teaching critical thinking, writing, and reading skills*. Teacher G stated,

> More than content, the students need thinking skills and need to be able to read any text and be able to analyze it, to comprehend it, … understand everything about it and be able to use it in an argumentative way.

Teacher A stated that her students needed to use "critical thinking skills through their writing." Teacher E elaborated that students "being able to communicate through their writing is probably the most important skill." Teacher C believed that students "need to know the difference between summarizing and analyzing." Teacher B agreed that "students should be able to think critically." While content and subject knowledge are important, teaching critical thinking, reading, and writing skills were equally important for all AP learners to be successful in AP classrooms and on the AP exam.

Document Review

In the shared AP PLC Canvas course, there were files that supported the interview data and theme of teachers selecting content based on AP College Board suggestions and teaching critical thinking, reading, and writing skills. For the five AP subjects represented in the AP PLC Canvas course, all subject areas had files related to AP writing rubrics. The AP teachers used rubrics released by AP College Board to assess their students' writing. The rubrics detailed the specific requirements of writing assignments. For example, one section of the rubric included the following: "The course requires students to produce one or more analytical writing assignments." This requirement supported the AP teachers' understanding of the importance of teaching critical thinking, reading, and writing skills. Another rubric included the following criteria: "Demonstrates a complex understanding of the historical development that is the focus of the prompt, using evidence to corroborate, qualify, or modify an argument that addresses the question." Again, this supported the need for all AP learners to have critical thinking, reading, and writing skills.

Findings and Themes for RQ3

RQ3: What processes or strategies do AP teachers use to differentiate instruction?

Interviews

AP teachers shared DI strategies that support the diverse learners in their classrooms. One theme that became prevalent was the use of *student-centered learning*. A strategy that many AP teachers incorporated in their lessons was different types of grouping based on pairs, skills, small groups, and rotating groups. Teachers use grouping

strategies so that students interact, engage, and learn from each other (McGlynn & Kozlowski 2016; Vygotsky 1978). Teacher A used the grouping strategy where she "groups students to teach a skill and then pulls them in smaller groups to address the weaknesses." Teacher D determined that some of the students do not understand difficult concepts and stated,

> I started grouping as a strategy very early on with some of the historical documents. I have the students break those down, and we start first in groups. I am working on those skills so that they had their peers to help them along the way.

Teacher G stated,

> First, they had some time to work in a group, and then we did a station rotation where each group came to me, and we conferenced and went over their thesis statement.

Teacher D asserted,

> I put them in a lot of small groups so that those who do feel overwhelmed talking to the whole group have that smaller environment, and I often walk around with a chair or stool while they're in those small groups.

Teacher E continued,

> Sometimes I purposely pair them based on similar ability levels versus different ability levels, depending on if it's a concept they are learning for the first time. But if they need to grow, they can help each other out and take turns teaching each other with their content.

Teacher B stated, “I will say ‘explain to me, what do you understand about this?’” AP teachers routinely used grouping as a strategy to support learners with diverse skills. They recognized the importance of students supporting each other to learn. Teacher A understood that students who struggled “benefit from hearing stronger students explain and use textual evidence to support their claims.”

The practice of students creating questions was another strategy that AP teachers used to support the theme of *student-centered learning*. Teachers A and D used Socratic seminars where students developed open-ended questions for classmates and then posed the questions to the class. Teacher D began units with preplanned discussion questions. After using this strategy, Teacher D then allowed the students “to create a question that they want to bring in and have the conversation about; so, there are opportunities for them to get multiple takes, multiple perspectives on things” to develop critical thinking skills. Teacher D also believed that with “Socratic seminars, students are encouraged to challenge one another.” Through student-led discussions, AP teachers taught critical thinking skills. Teacher C had a different perspective on questioning; while all students are preparing unique questions for a classroom discussion, not all the students had the skills to create questions. Therefore, she provided question stems to support the diverse learners. Through student-led discussions with student created questions, AP teachers provided opportunities for student centered learning.

Another strategy that supported the student-centered theme was conferencing. All AP teachers discussed holding individual conferences with students in some capacity.

Teacher E stated, “I conference with them early on to ask them what their goals are for the class.” Teacher F stated the following:

> I gave a pre-quiz on five sections. It did not count for a grade. They turned it in, and I graded all of them [students]. We conferenced about what they missed. I went through the questions individually as the rest of the class was working, got through the whole class, and then we learned a little bit more. We took another quiz, and it was graded. It had similar standards, and then I gave that back. We conferenced again after that and before their tests.

Teacher G stated,

> I first introduced what the Document Based Question (DBQ) is as a whole, and then we started working on writing and how you write a thesis. … the students worked in groups. First, they had some time to work in a group, and then we did a station rotation where each group came to me, and we conferenced and went over their thesis statements.

Many of the teachers incorporated conferencing into class time. Yet, Teacher B viewed conferencing differently. She held “conferencing during the lunchtime that we have available,” because she felt that conferencing with students during class time led to feelings of embarrassment. In sum, all AP teachers made time to conference with their students. Conferencing was a strategy that allowed the AP teachers to give individual instruction to support all students.

Document Review

The theme of *student-centered learning* practices and strategies were noted in the district AP PLC Canvas course, where the AP teachers who were part of the course shared different strategies. Some of their practices and strategies included grouping strategies. One file presented in the Canvas course included grouping students into teams of four. The student teams worked together to develop a side to an argument, and then the teams shared their arguments with the group of the opposing argument. This type of activity required students to work together and think critically. The students were responsible for presenting and defending arguments. Then the students had to work together to reach an agreement or consensus. Another strategy that AP teachers shared through the Canvas course was a Jigsaw Rhetorical Analysis Partner Critique. Again, students were grouped and asked to evaluate and analyze specific sections of a peer written response of an AP reading passage. Students were given the task of reading and critiquing their peers' writing responses. Therefore, the students led the learning process by working together, analyzing writing, and evaluating the responses. Through the document review of files in the Canvas course, AP teachers focused on strategies that were student-centered.

Findings and Themes for RQ4

RQ4: How do AP teachers create classroom environments where students achieve?

Interviews

All AP teachers spoke of the significance of creating positive student relationships in a classroom where students can achieve. Tomlinson (2017) believed that developing a positive, safe classroom environment was important in establishing DI opportunities. The AP teachers understood that it was important for students to feel relaxed, comfortable, and safe in their classrooms. The teachers grouped desks or used tables so student could engage in conversations in an environment conducive to learning. The teachers described their classrooms as noisy, having movement, and relaxed, which created a more collaborative climate. Because of this environment, Teacher D stated, "I feel like the students feel very comfortable talking about things." Teacher E described the classroom setting as "…traditional but relaxed. There's definitely the expectation of learning, but it's also not so structured that they have no freedom to do anything." Teacher F described the classroom as "engaging." Teacher G stated, "I tried to be very inclusive. I tried to let my students know that I am accepting of all of them." Teacher F stated, "… all of my teaching, all of my strategies come down to relationships." Classrooms where teachers create environments that are safe and positive contribute to higher student achievement (Back et al., 2016, Sharma 2015). Jafarik and Asgari (2020) conducted a study on students' academic achievement and found that the research indicated that positive, inclusive classroom environments had a direct and significant effect on students' academic achievements. All the AP teachers described positive, classroom environments where students felt safe, engaged, and included.

Findings and Themes for RQ5

RQ 5: What supports do high school AP teachers perceive they need to implement DI?

Interviews

All the teachers acknowledged that DI was important, but their understanding of DI differed and yielded the theme of *differing ideas about DI*. Teacher B said, "I don't know that I do differentiate." Teacher A stated, "I think it is a really important piece to have, differentiation, but I just have not had the time to do it this year." Teachers of advanced students needed to understand how to differentiate and how this will support their students' academic success. Teacher C said, "I do not feel in the AP classroom that we are as challenged to use DI as we are in others." While Teacher A said, "I just need strategies." Teacher G stated the need for "having a more specific understanding of some DI techniques for AP students." AP teachers understood that DI was important for the success of their students, but their understanding and use of DI strategies differed. Another theme that developed through the interviews was the AP teachers did not feel they had time to create DI strategies.

The AP teachers felt they needed support through time for individual planning and district collaborations. While there are multiple AP subjects taught at each school, most of the participants in this study were singleton teachers, meaning they were the only ones to teach the class at their school. Therefore, they were alone in the planning aspect of their courses. The central office did provide opportunities for same subject AP teachers to collaborate planning. Yet, the AP teachers felt they still needed more time to work

together as PLCs. Teacher A felt that "collaboration time is needed with time to plan with other teachers." Teacher B wanted time to collaborate with the same subject teacher from the other schools. The teachers felt that it was important to learn from other experts. Teacher A stated, "So I think you learn from people; you get new strategies and different ways of thinking about things in different ways, and that is always valuable." The teachers felt they needed time to collaborate and plan for DI strategies specifically designed for AP students.

Discrepant Cases

Merriam (2009) suggested that researchers "purposefully seek data that might disconfirm or challenge" the findings (p. 219). After carefully reviewing the documents from the PLC AP Canvas course, interview transcripts, and audio recordings of the interviews, I did not find discrepant cases to report. There were no data that challenged the findings throughout the collection, transcription, and coding process.

Evidence of Quality

To ensure I presented an objective, credible truth to my findings, I followed all Walden University IRB recommendations throughout the qualitative case study. Additionally, I triangulated data from interviews and the document review of the AP PLC Canvas course. Merriam (2009) described triangulation as using various sources of data to compare and review data gathered at different times or from people with contrasting perspectives. In my study, I interviewed seven AP teachers who were bound by the same study site and the AP course designation; yet they held different perspectives because of their different content areas.

After I transcribed the interviews, I did member checking, which was a two-step process. Merriam (2009) proposed that member checking is a means of ruling out the possibility of misinterpretations and identifying the researcher's biases. Once interviews were completed and transcribed, I sent the individual transcription to each participant via email and asked them to check the transcripts for accuracy. I gave them one week to return any inaccuracies via email. The second member checking occurred after I interpreted the data. Again, I asked the participants to review the draft findings via email to check my interpretations of the findings for the accuracy of their own data and for the viability of the findings in the setting. I, again, gave the participants one week to read through the findings and confirm that my interpretations were accurate of their intended meaning.

As an additional means of validation, I utilized a peer reviewer. I invited a colleague who served as a second committee doctoral chair for another institution to review all the data to check my themes and findings through a peer review process. This colleague signed a confidentiality agreement before reviewing the data. The peer reviewer and I met and discussed the themes and findings. Using triangulation, member checking, and peer review ensured that the data were credible and trustworthy.

Summary

An exploratory qualitative case study was used to research the strategies that AP teachers used to teach diverse learners in their classrooms. First, I conducted interviews that included semi-structured, open-ended questions that I created and were aligned with the problem statement, literature review, conceptual framework, and five research

questions. Findings from the interviews provided data on the strategies AP teachers used to differentiate instruction to ensure the success of all learners. Participants reported that they used formative data to determine their students' ZPD or readiness. Although knowledgeable and confident in their AP subject area, not all the teachers felt confident teaching diverse learners the skillsets of critical thinking, reading, and writing. However, all AP teachers provided inclusive environments where students felt safe to learn. They felt that creating a positive classroom was integral to student success on the AP exam. AP teachers reported that they needed time to develop DI strategies and desired a greater understanding of DI and how it related to AP students.

The literature in the research detailed the importance of AP teachers using DI strategies so that students could be successful in AP classrooms and on AP exams. Starr (2017) argued that it is the school leaders' responsibility to provide opportunities for students to achieve academically who may not have the skills to be successful in a rigorous AP class. One way to address the needs of diverse learners is through DI both as a school system and in the classroom (Tomlinson, 1999). Judson (2017a) affirmed that there was an upward trend in the number of academically diverse students opting to take AP classes while their AP success rate was poor; therefore, it is important to provide DI for all students (Tomlinson, 2017). Although this study was based on seven participants and a document review of AP Canvas PLC files, it has the implications of improving the success of AP teachers and AP diverse learners.

Interviews from seven participants and analyzing documents from the AP PLC Canvas course yielded eight themes that emerged from the interpretation of the data and included the following:

- use of assessments to inform instruction,
- knowledge of students,
- teacher use of College Board AP resources,
- importance of critical thinking, reading, and writing,
- building relationships,
- student-centered learning,
- differing thoughts of differentiation, and
- the need for collaboration and time.

The findings and emergent themes indicated a need for professional development in the areas of understanding DI and further developing DI strategies as it related to AP diverse learners.

Conclusion

Section 2 included research methodology, data collection, and data analysis. A qualitative case study was used to explore the DI strategies that AP teachers use to reach the diverse learners in their classrooms. Data collection occurred through an examination of document reviews and through open-ended questions in semi-structured interviews.

The project for this research study is a three-session professional development plan. The rationale, review of literature, method of professional development, project

evaluations, strengths, limitations, and implications for social change are discussed in Section 3.

Section 3: The Project

Introduction

In this project study, I explored how AP teachers differentiate instruction through content, process, and assessment to support academically diverse AP students. With the implementation of open enrollment that allows academically diverse students to take AP classes, teachers need to differentiate the content, instructional strategies, and assessments in such a way that all students in the classroom can succeed. AP teachers continued to plan learning experiences for the most advanced learners, but at the same time, they needed to provide support for the learners who may not have the academic skills to be successful (Tomlinson, 2015). My analysis of the data was that the teachers had differing views of what DI looked like in an AP class. The data indicated that the AP teachers needed professional development on how to implement DI in AP classrooms. The data also showed that teachers need time to collaborate to create DI strategies. The literature suggested that many teachers do not understand how to use DI in the classroom and that there is a need for time and professional development opportunities.

Project Description and Goals

The purpose of this study was to examine the strategies AP teachers use when teaching diverse learners in an AP class. The project I designed to align with the findings of this study was a three-session professional development plan with AP teachers as my targeted audience. The workshops will be delivered at the beginning of the school year, during the midterm, and at the end of the school year. The study participants reported that they needed professional development on how to implement DI with a focus on content,

process, and assessment to support academically diverse AP students. The first session will incorporate an overview of the professional development and a presentation of DI and how it relates to content and process. The second session will include assessments and how to differentiate to support diverse learners in AP classrooms. The third session will provide time for teacher collaboration. The goal of this three-session professional development opportunity will be to increase AP teacher effectiveness as it relates to providing DI through readiness, content, process, and environment to ensure student success in AP classes.

Rationale

The purpose of this project study was to explore how AP teachers differentiate instruction through content, process, and assessment to support academically diverse AP students. The study focused on answering five research questions:

- RQ1: How do high school AP teachers determine their students' ZPD or readiness, interests, and learning profiles?
- RQ2: How do high school AP teachers select their content to support all learners?
- RQ3: What processes or strategies do high school AP teachers use to differentiate instruction?
- RQ4: How do high school AP teachers create classroom environments where students achieve?
- RQ 5: What supports do high school AP teachers perceive they need to implement DI?

Analysis of the collected data indicated that the AP teachers had a need for time, collaboration, and clarification on how to implement DI for diverse students in AP classes. For this study, I created a three-session professional development plan, providing research-based data, modeling, and collaboration time. The first goal for the three-session professional development plan is for AP teachers to have a clear understanding of DI and how this supports the diverse AP learners' success in the classroom and on AP exams. The second goal is that AP teachers will implement DI strategies into their content and assessments. Finally, the third goal is for student achievement to increase because of AP teachers' successful collaboration and implementation of DI in content, process, and assessments.

Review of the Literature

Based on the research, I determined that the professional development experiences should offer teachers opportunities to collaborate, practice new learnings, and reflect as a group using professional learning standards (Learning Forward, 2013). The literature suggested that giving teachers time to collaborate, share, and reflect was an important part of the professional development opportunities where teachers were learners.

To explore the literature that supported DI and professional development, I used Walden University's educational databases and Google Scholar to guide my searches. I used the following key terms: *professional development, Advanced Placement, adult learning, learning communities, professional standards, differentiated instruction*.

Professional Development

The professional learning association Learning Forward (2013) published professional learning standards to guide educators to "increase educator effectiveness and results for all students" (p. 7), and this applied to both collective and individual learning outcomes. The seven standards established by Learning Forward are the following:

- learning communities,
- leadership,
- resources,
- data,
- learning designs,
- implementation, and
- outcomes.

Learning Communities

When districts offer professional development opportunities for teachers, they must engage the teachers as learners. Osman and Warner (2020) referred to professional development as any type of program, activity, or training envisioned to improve instructional practice, and believed teachers must be part of the learning process. Research studies have indicated that teachers needed to learn together through learning communities, have time to practice their learnings, and opportunity to reflect with colleagues about their learnings and practice (Hickey & Harris, 2018; Svendsen, 2020). Akiba and Liang (2016) found that school districts were more likely to increase student achievement when the emphasis of professional development was on promoting

collaborative learning activities for teachers through learning communities. Adams and Vescio (2015) determined that, just as students in classrooms were diverse, teachers who participated in professional development were also diverse learners and at different places in their careers. As a result, professional development should focus on both collective and individual learning for teachers.

Furthermore, when planning professional development opportunities, professional learning should connect student learning in teacher classrooms, provide time to discuss teaching and learning opportunities, and present opportunities for educators to have their voices heard within the learning community (Adams & Vescio, 2015).

Leadership

Learning Forward (2013) also recognized the importance of leadership in developing professional development opportunities. The standards support that school leadership had a strong influence on the systems and structures for effective professional development. Nooruddin and Bhamani (2019) concluded that school leadership created cultures in schools where learning communities thrived. The school leadership influenced the learning environment within schools. Swanson et al. (2020) concluded that school leaders must commit to providing professional development on the topic of DI to promote a school culture supportive of differentiation. Although administration helps support the school culture, Hickey and Harris (2018) revealed that another important element of leadership included teachers as leaders. They established that when teachers developed and led professional development opportunities, the overall response was positive. The Learning Forward leadership standard emphasized the significance of

cultivating and maintaining a collaborative culture with high expectations and shared responsibilities.

Resources

According to Learning Forward's (2013) resource standard, schools should provide funds and materials that sustain professional development. Resources include "staff, materials, technology, funding, and time to allocate, track, monitor, and evaluate" professional development (Learning Forward, 2013). One aspect of the resource standard is funding, and professional development is often costly and time prohibitive for districts and educators to implement (Nelson & Bohanon, 2019). Districts find it costly to provide funding for professional development for teachers. Another cost related to professional development was time teachers are absent from their classrooms so that they can participate in professional development opportunities scheduled during the school day (Nelson & Bohanon, 2019). Yet, continuous professional development is critical for improving instruct and student learning, so schools should be creative in their approach to providing resources (Akiba et al., 2015).

Data

Another standard included in Learning Forward's (2013) professional standards focuses on data. A desired outcome included using data to "link student, educator, and system data to inform professional learning decisions" as it pertained to need, progress, and effectiveness (Learning Forward, 2013, p. 30). Cox et al. (2015) conducted a study on professional development in four states and found that professional development delivered in continuous, intensive series using teacher leaders and instructional coaches

yielded more meaningful outcomes. Gaumer Erickson et al. (2017) indicated that evaluating the quality of professional development comes from data to ensure training is relevant and beneficial to teacher learning and student achievement. School systems that collected data on their professional development were able to make informed decisions about the effectiveness and sustainability of the professional learning outcomes.

Learning Designs

Just as learners in a classroom are diverse, teachers in professional development sessions are diverse in their learning. Adams and Vescio (2015) found that teachers who participated in professional development had different learning needs. To that end, learning designs are an important standard for creating professional development. The learning designs should be based on research and proven data. Learning Forward (2013) provided guidance for learning designs when schools create professional development. Ineffective professional development, planners create learning designs that appealed to all participants. Within the professional development, presenters model learning designs that align with desired outcomes with a focus on active engagement from the participants (Learning Forward, 2013).

Implementation

According to Learning Forward (2013), the implementation of professional development focuses on change that is sustainable. Part of implementation is providing a varied, continuous approach to professional development. Single-day, stand-alone, fragmented professional development was not effective for changing teaching behaviors (Gibbons et al., 2017). Korthagen (2017) found that professional development that

connected the professional learning with the personal aspects of the teacher was most effective and resulted in a teacher implementing the new learning within classes with sustainability. Biesta et al. (2015) further indicated that professional development opportunities should provide occasions for teachers to have opportunities for discourse about their teaching and learning so that they can develop agency and implement learnings from professional development. They found that it was important for teachers to collaborate, discuss new learnings, and create lessons.

Outcomes

The outcome of all professional development should be to increase teacher effectiveness as it relates to student success. Learning Forward (2013) suggests that schools identify professional learning needs based on the performance standards of teachers. Professional development should be centered on the needs of the teachers based on the outcomes of their students' learnings. Teachers value professional development that was centered on what the teacher believes, values, and needs (Rutherford et al., 2017). Brand (2020) found that when teachers recognized and understood the value of the professional development, then the professional development had the desired outcomes. After professional development events, Brion (2020) determined that teachers' knowledge gained in professional development sessions should be embedded in the job as the teachers apply new learnings, review data, and reflect on results.

DI Professional Development

The goal of differentiated DI is to maximize all students' capacity for learning (Tomlinson, 2015). Teachers support the philosophy of differentiation, but many times

they cannot provide the strategies needed because they do not understand how to implement (Aftab, 2015). Therefore sustained, supportive, intentional, and meaningful professional development is needed. Valiandes and Neophytou (2018) determined that with administrative support and teacher training through professional development, DI does encourage the improvement of student achievement. School leaders who only provide limited DI support through one hour after-school meetings or other limited times are not successful. Teachers, like their students, require differentiated support and guidance when learning how to use DI to maximize student achievement (Brezicha et al., 2015). Additionally, sustained, consistent professional development yields more effective use of DI by teachers (Goddard et al., 2015). Dixon et al. (2014) determined the importance of providing professional development for DI. They concluded that the greater number of hours teachers spent in professional development for DI, the more teachers were apt to include this philosophy in their teaching.

Building a positive DI foundation for teachers is important. Teachers need focused, timely, and sustained professional development to implement DI (Nicolea, 2014). Mills et al. (2014) concluded that differentiation is a complex concept that is difficult for teachers to enact in their classrooms and that schools and districts need to provide more support and professional development.

These studies and concerns suggested a need for districts to provide in-depth professional development and time for AP teachers to demonstrate that they have clear understandings so that they can address the needs of all learners in their diverse classrooms.

Project Description

Three-Session Professional Development Workshop

The purpose of this study was to examine the strategies AP teachers use when teaching diverse learners in an AP class. The project I designed to align with the findings of this study was a three-session professional development plan with AP teachers as my targeted audience. The workshops will be delivered at the beginning of the school year, during the midterm, and at the end of the school year. The participants reported that they needed professional development on how to implement DI with a focus on content, process, and assessment to support academically diverse AP students. The first day will incorporate an overview of the professional development, a presentation of DI, and how it relates to content and process. The second session will include assessments and how to differentiate to support students. The third session will be a summary of the previous workshops and will be time to reflect on DI, share strategies, and plan for continuous AP PLC DI opportunities.

Potential Resources and Existing Supports

To implement the plan, I will need the following resources: physical space at the central office for the workshops, Internet access, a Touch Panel screen, teacher issued laptops, Internet, markers, and large paper. All the resources are available at our central office location. There is a central office director of professional development whose job is to oversee and help publicize professional development opportunities. There are technology directors to support any technical issues that may arise during the workshops.

Potential Barriers and Potential Solutions to Barriers

There are few barriers to the implementation of the workshop. One possible barrier is securing space for the workshop. However, a solution to this is there is a district calendar that houses the schedule for the meeting rooms. With preparation, I can secure the space for the workshops. Another potential barrier is the availability of the workshop participants. To ensure that participants will have time to attend the professional development, I will schedule the workshops during district planned professional learning days for teachers.

Implementation and Timetable

The findings from this study will be formally shared with school leadership. The proposed project is a three-session professional development workshop (Appendix A) that will take place at the beginning of the year, midyear, and at the end of the year. This professional development plan will consist of three major findings from the data. These include an overview of differentiation, how DI supports advanced level classes in content and process, and implementation of DI strategies in AP classrooms.

Session one of the workshops will take place within the first month of school and will include a presentation of research studies of DI and the effects on student achievement. Teachers will read excerpts from articles on using DI in classrooms with a focus on content and process or strategies. The participants will discuss and reflect on what they observe and how it applies to their own classroom. Teachers will also understand the importance of knowing their students' readiness levels or ZPD. There will also be time to discuss DI strategies as they relate to advanced students who are diverse

learners. Teachers will share best practices of understanding student readiness, collaborate with peers, and develop plans to use DI in their classrooms before the second session of the workshop.

The second workshop will occur midyear. Teachers will have implemented DI strategies from the first session and reflected on their understanding and application of DI in advanced classes. The second workshop will include time for teachers to collaborate. The data analysis and literature review support the idea that teachers need time to share best practices of using DI strategies in their AP classrooms. The teachers will also create lessons with DI strategies and ask peers to review them to provide feedback before the third workshop. Bleiler-Baxter et al. (2020) found that an important step in creating collaborative communities was through peer observation. During this workshop, teachers will have time to collaborate, plan, and arrange peer observations using a Classroom Observation form developed by Killion (2013) for Learning Forward. The observation template is from Killion's (2013) *Professional Learning Plans: A Workbook for States, Districts, and Schools,* and is included in the workbook as a tool for educators to use for academic purposes. I also obtained permission via email from ASCD to use the template as part of the workshop.

The third workshop will occur at the end of the school year and will be a time of reflection and planning for continuous support. Sustained, consistent professional development yields effective use of DI by teachers (Goddard et al., 2015). Therefore, the third workshop design will include planning for teachers to continue working as an AP

learning community. During the workshop, the teachers will share data from their observations, reflect, and plan.

Roles and Responsibilities of Student and Others

As the researcher of this project study, my role and responsibility are to communicate the findings to the local school district administration. I will present the project study findings to the district leadership team and ask for permission to invite AP teachers to the workshops. My main role is to present the workshop to the AP teachers. I will be the organizer and facilitator. It is my responsibility to coordinate with district leaders to obtain the space for the workshops, work with technology leaders for access to resources, and coordinate with the director of professional learning for incorporating the workshops into the district schedule. The role of the AP teachers will be to collaborate and engage in the workshops. District leaders will also be invited to attend the workshop.

Project Evaluation Plan

I created the project to support the needs of AP teachers, as the research data indicated. To assess the effectiveness of the three-session workshops, I decided the best evaluation plan would be formative evaluation. The overall goal of this professional learning opportunity is continuous growth and reflection, so formative assessment works best for evaluating the process of the workshops. The plan includes collaboration, reflection, and peer observations. Formative evaluations align with the goals of supporting teachers with DI in their classroom as they learn how to implement DI. However, summative assessments are finite in their evaluation, and using a summative evaluation after the participants have time to implement their learnings and new

knowledge will allow me to evaluate the overall effectiveness of creating change in their teaching and student achievement (Killion, 2013).

I selected formative evaluation for the evaluation process because it allows participants to provide feedback after each session in modes such as survey forms and in informal ways such as questions and comments throughout the workshops. For example, an informal evaluation may come from a participant asking questions or the facilitator asking the participants for feedback throughout the workshops. Responses may give the facilitator information on what is working or what may need to change for clarification and understanding. At the end of each workshop, the participants will be asked to complete written evaluation surveys. This formative data will allow the facilitator to collect data on the effectiveness of the sessions and to make adjustments for future workshops.

A summative survey will be sent to the participants during the following school year to determine if the workshop promoted positive change in the participants' daily teaching and planning. The overall goal of the evaluation is to determine if the participants were positively influenced by the information learned and if the learnings were incorporated into the teachers' teaching practices.

Stakeholders

Stakeholders for the professional learning workshops include AP teachers, school principals, instructional coaches, and district leaders. I expect the AP teachers to learn from each other to develop DI strategies that will support the achievement of the diverse

learners in their classrooms. The instructional coaches and school principals will support teachers with resources and concerns.

Project Implications

Local Community

This project has many implications for social change. I created the project to meet the needs of AP teachers who have diverse learners in their classrooms. Many teachers associate DI strategies with students who struggle with basic academic skillsets. Others find DI difficult to implement. The results of the data analysis revealed that teachers wanted to learn more about DI and how they can implement strategies for their students in AP classes. Through this project, teachers may gain more confidence and knowledge of DI. Students will benefit from learning experiences that are tailored to their learning needs. As a result, student achievement may increase in AP classrooms. Increased success of students in AP classes by diverse learners may create opportunities for positive social change in that more underserved students will be provided opportunities to achieve in AP classes.

Larger Context

This professional development plan has the potential to support teachers beyond the local school district. With the increase of academically diverse students who choose to take AP classes, there is a growing need for DI to support these students (Gagnon & Mattingly, 2016; Godley et al., 2015; Tomlinson, 2017). This professional development workshop may provide a model for other districts to imitate to support student achievement and success of all learners within an AP classroom. Equity and access to AP

classes open the door for diverse learners; thus, teachers must meet the needs of all students through DI.

Conclusion

In Section 3, I provided a description of the proposed project, provided a rationale for the project study, reviewed literature as it related to professional development opportunities, presented the program evaluation plan, and discussed implications for social change in both the local and in a larger context. In Section 4, I will present the strengths and limitations of the project, make recommendations for alternative approaches, and describe my learning process.

Section 4: Reflections and Conclusions

Introduction

Section 4 details both the strengths and limitations of my project study. Additionally, I include a self-reflection of the overall work and what I learned as a student, researcher, and writer. I then recommend alternative approaches to the study and reflect on the overall process. Finally, I describe future recommendations for further research.

Project Strengths and Limitations

One strength of this project is that it focused on the need for providing professional learning experiences for teachers on the implementation of DI in AP classes. Many teachers struggle with implementing DI and do not understand how it can be used for advanced learners in AP classrooms. AP students are diverse learners that range from students who struggle academically to students who are labeled as gifted and talented (Warne, 2017; Warne et al., 2015). Therefore, a three-session workshop focusing on collaboration, reflection, and implementation should have a positive effect on AP students because teachers may be better equipped to support all learners.

Another strength is that the project provides teachers with time to collaborate and create lessons that include DI strategies, content, and assessments. Throughout the project, teachers are included in the learning process, and this is an important element for teacher learning (Osman & Warner, 2020). The project included large and small group collaboration times to provide teachers with opportunities for discourse and planning.

A limitation of this project may be the participants' time investment in a workshop commitment that spans a school year. To embark on a school year professional learning project, all participants must be engaged, collaborative, and reflective. The teachers must be motivated by the need for further knowledge on ways to support diverse learners. Teachers should volunteer to participate and not be required by administration or district mandates.

Recommendations for Alternative Approaches

The problem targeted in this study was that teachers need to understand DI, implement DI in advanced classrooms, and have the time to collaborate and reflect through a year-long professional development plan. To address this problem differently, I could have approached the study differently. An alternate approach could have included a focus on specific AP subject areas. I could also have included classroom observations and explored AP teachers' lesson plans to gather data. Another approach could have been to develop a training that spanned 3 consecutive days instead of a school year. Continuous, intensive professional development is effective (Cox et al., 2015). A consecutive 3-day time frame could provide teachers with an in-depth and immersive style of professional development.

Another alternative to the three-session approach would be to conduct the professional development series as a recorded webinar. The webinar could be housed on the school district website and would allow AP teachers to participate during times that are conducive to them. This would also allow teachers to participate according to their learning needs and pace (Adams & Vescio, 2015).

Scholarship, Project Development and Evaluation, and Leadership and Change

Scholarship

Throughout my EdD journey, I developed scholarly skills. First, I learned that research skills include critical reading, critical thinking, and scholarly writing. Learning to read critically suggests that students summarize, analyze, and synthesize information. These skills are then synthesized into new learnings. Through the process, I have learned how to research a topic using multiple peer-reviewed journals, summarize important information, analyze the data, and synthesize the information to think critically about a topic. I learned how to collect and organize information from multiple sources. Research students must understand the connections and disparities among the different concepts on similar topics and organize the information into clear findings and assertions. With each assertion, the research student must provide sources from scholarly articles. I learned that all research includes strengths, limitations, and alternative approaches. This approach taught me that research is a continuous and fluid journey.

Throughout the process, I established a greater knowledge of scholarly writing. Clear, concise writing is critical to scholarly writing. Word choice, syntax, and purpose help create clarity. Understanding and knowing grammatical and syntactical rules are important for preciseness. Correctly documenting and citing authors and researchers is critical in the research process.

Project Development

Based on the data analysis, I determined that a three-session professional development series would be the best project to develop because of my research. The

progression and organizing a professional development plan based on research have allowed me to strengthen my skills as a collaborator, educator, and organizer. I have also learned that attention to detail, organization of ideas, and overcoming barriers are important skills for educational leaders and scholars. The data collection process allowed me to collect data from participants based on their needs as AP teachers who teach academically diverse learners. During the planning process of the project study, I learned that it is important to ground the work in peer-reviewed research and studies. I learned that professional development has standards just as course curriculum does and that planning learning sessions for educators should be standards based. Many professional development opportunities are single-day trainings without follow-up or evaluations. As a result of my research, I learned that sustained, continuous professional learning opportunities are best suited for teacher agency and sustainability. Finally, I learned that continuous learning is important to effect change in the educational world.

Leadership and Change

As a developer of a project with social implications for change in how teachers support academically diverse learners, I have acquired leadership skills. I have become more adept at creating and organizing professional development opportunities grounded in research that are specifically tailored to teachers' needs. I have the confidence to support and train teachers in applying DI strategies and support in AP teachers' classrooms. I feel confident in my abilities to lead teachers through the professional development process. I developed a three-session professional development series that supported teachers of academically diverse learners.

Analysis of Self as Scholar

As an educator with 34 years of classroom experience, I did not see myself as a scholar. I was a teacher and a learner, but not a scholar. Yet, this doctoral journey has helped me to develop into a scholar who reads research studies to improve my teaching and positively impact my students' learning. As a result of the project study, through conducting the research, reading the peer-reviewed articles, and writing in a scholarly style, I view myself as a scholar.

Analysis of Self as Practitioner

This project study has affected my professional experience as a practitioner. I have learned about the importance of using scholarly research to change my own teaching and learning practice. Applying research findings to my daily classroom practices helps me to improve my students' success. Now, when I am presented with a topic or new educational idea, I immediately look for research articles to support and further my knowledge and understanding.

Analysis of Self as Project Developer

I have confidence in my ability as a project developer. I have organized and created a series of professional development workshops for teacher leaders in my state. I also have experience with leading professional development opportunities in my district and school. I used my experience developing past projects to guide my decisions for details and engage the participants in professional learning.

Reflection on Importance of the Work

There is a paucity of research on DI as it relates to advanced students or students who take AP classes. This doctoral study is important because it focuses on how teachers can implement DI in their classrooms, where there are diverse learners. In this work, I plan to support teachers in implementing DI and knowing how to support academically diverse learners so that students can achieve. It is imperative that AP teachers recognize the academically diverse learners in their classroom and create strategies that support their learning needs so that these students can experience academic success. The project developed as part of this study presents approaches to support the AP teachers' need for time and collaboration for creating strategies that support all learners. This work could positively affect AP teachers and their abilities to meet students' academically diverse needs in AP classes.

Implications, Applications, and Directions for Future Research

Minimal research exists about DI in AP classrooms. This project study is important because it addresses the need of all AP students and the support that is needed to ensure that academically diverse students succeed in AP classrooms. In this work, I aimed to describe the strategies and support that AP teachers use to reach all learners so they can experience success. Further research is needed for specific AP subject areas and the DI support that students need. For example, AP English Literature and Composition students may have different academic needs and supports than AP AB Calculus students. Because there is little research on DI in AP classrooms, additional research may be needed to address students' needs in specific subject areas.

Conclusion

Using an exploratory case study approach, I explored the DI strategies AP teachers use to support the increasing number of academically diverse learners who enter AP classrooms through open enrollment. The recommendations based on the data and findings were utilized to create a professional development plan that supported diverse learners. Teachers identified the need for understanding DI, knowing how to implement DI, and having the time for collaboration and sharing best practices. The professional development plan based on the needs of teachers and students could improve teacher learning and AP student achievement when utilizing DI strategies in the classroom.

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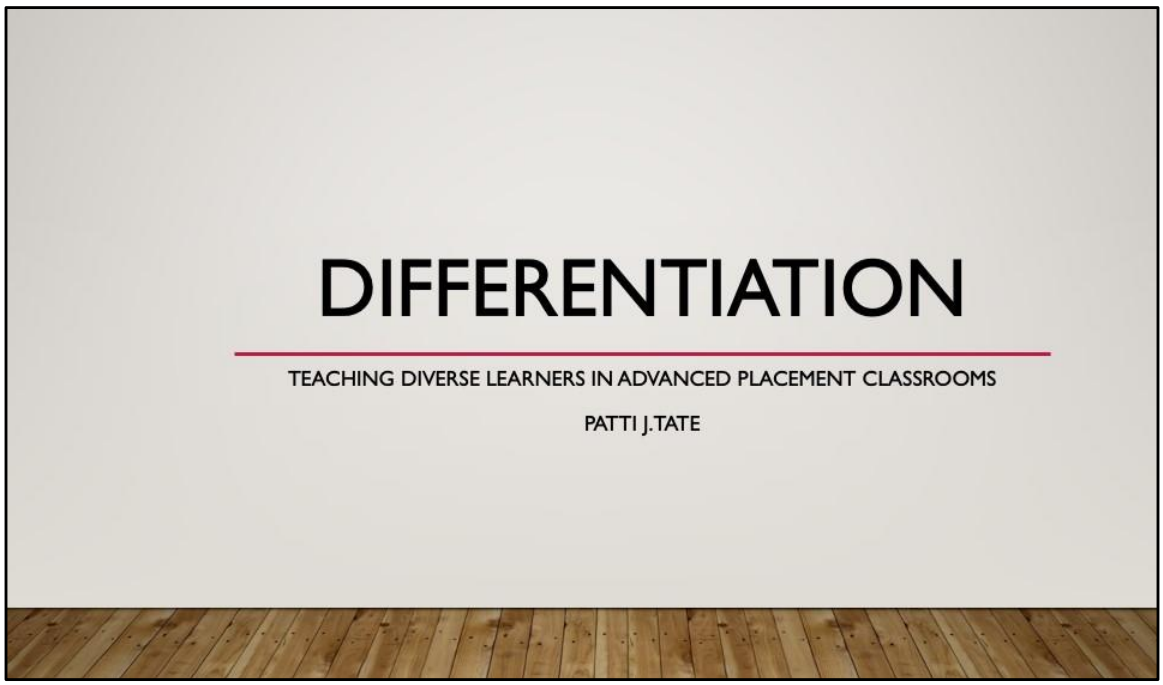
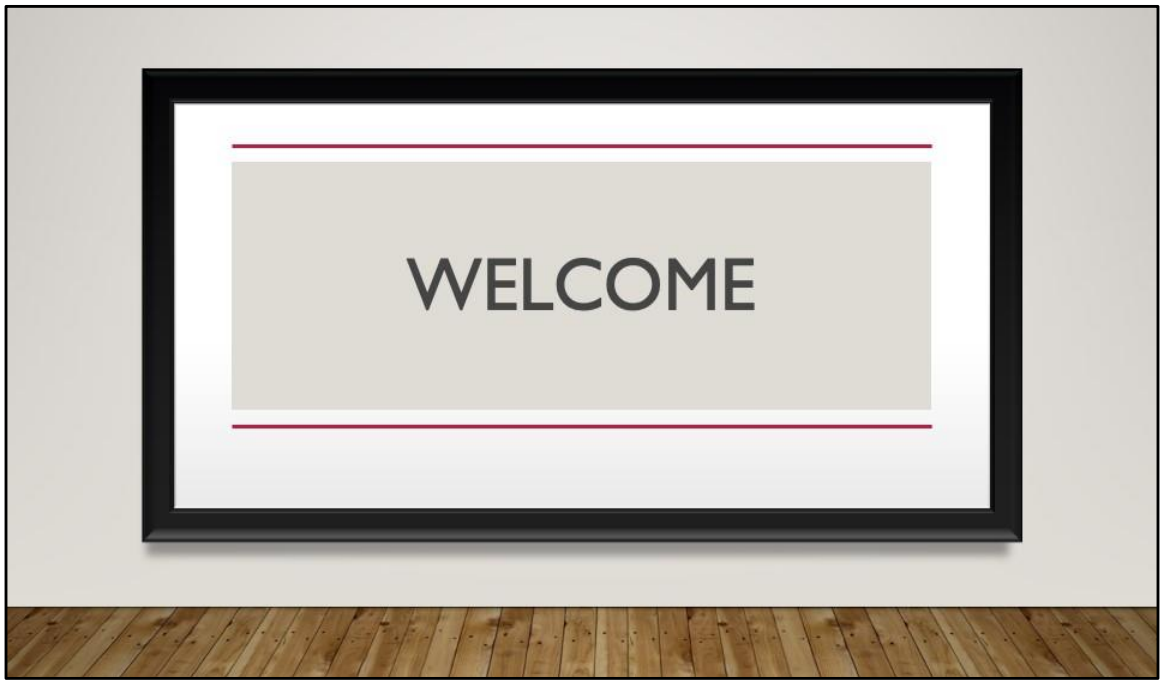
Appendix: The Project

DI Strategies Advanced Placement Teachers Use to Teach Diverse Learners	
Purpose	The purpose for this 3-session professional development is to develop AP teachers' capacity for implementing differentiation through process, content, and assessment.
Target Audience	All AP teachers at the district in this study. The principals and instructional leaders are invited to participate.
Goals and Objectives	Objectives Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms. Create lessons for diverse students in AP classrooms. Implement DI through process, content, and assessments. Goals The goals in-depth professional development and time for AP teachers to demonstrate that they have clear understandings so that they can address the needs of all learners in their diverse classrooms.
Evaluation	Participants will complete KWL to assess their knowledge of DI in AP classrooms. Formative assessments in the form of questions and surveys will determine participants understanding, need for further explanation, and effectiveness of each session. A summative assessment will be sent to the participants in July. This will give the participants time to reflect on the overall effectiveness of the goals of the professional development workshop sessions.
Resources/Materials	Internet Laptop Touch Screen Panel Post-it poster paper Colored markers/sharpies School issued teacher computers Post-it notes Pens and pencils
	1inch binders for participants to organize notes and handouts Lined paper Handouts: Peer Observation forms, excerpt Chapter 1 from Tomlinson's *Teaching* *Diverse Learners*, Toolbox handout Post assessment evaluation Weblinks: Link to Padlet Link to Piktograph Link to Collegeboard.org Name tags Exit tickets





Participants will sign in and attach name tags.

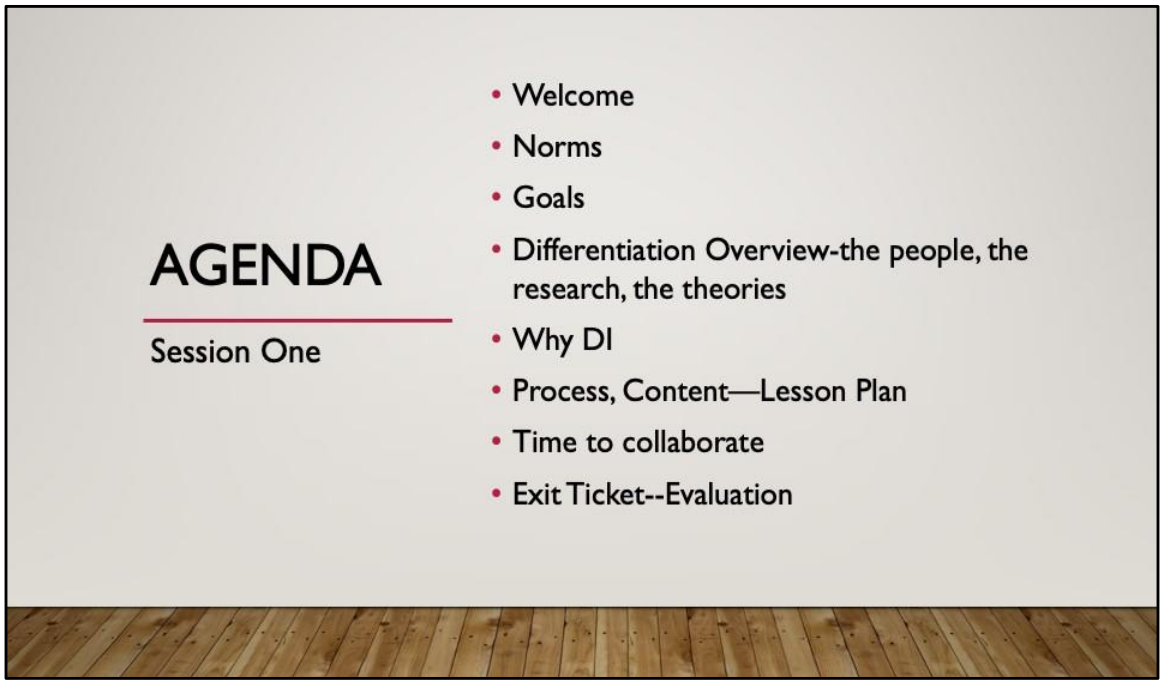
9-9:15

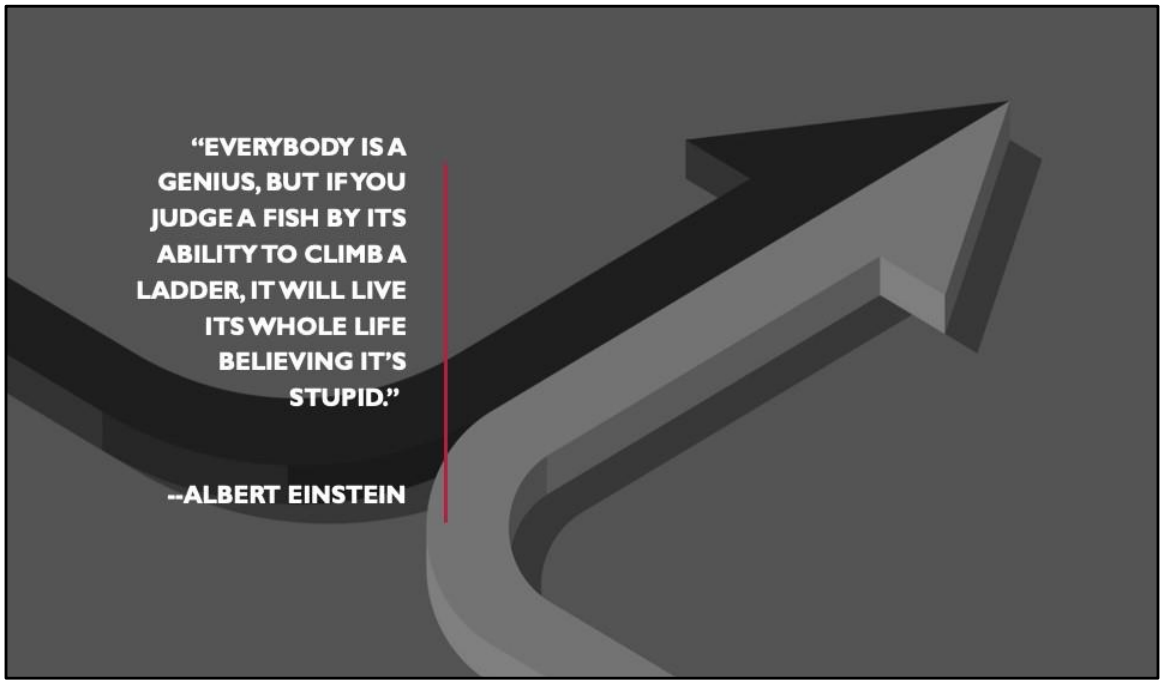
All participants will be seated at tables and begin session. Ice Breakers—each person will describe 1 unique characteristic about themselves.

Remind participants where bathrooms and refreshments are located.

Review meeting norms. Stress the importance of a safe learning environment where participants can share ideas.

9:15-**9:30**


AGENDA
Session One
• Welcome
• Norms
• Goals
• Differentiation Overview-the people, the research, the theories
• Why DI
• Process, Content—Lesson Plan
• Time to collaborate
• Exit Ticket--Evaluation


"EVERYBODY IS A GENIUS, BUT IF YOU JUDGE A FISH BY ITS ABILITY TO CLIMB A LADDER, IT WILL LIVE ITS WHOLE LIFE BELIEVING IT'S STUPID."
--ALBERT EINSTEIN

GOALS FOR THE 3 SESSIONS

- Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms.
- Create lessons for diverse students in AP classrooms.
- Implement DI through process, content, and assessments.

- Session 1
- Session 2
- Session 3

DIFFERENTIATION

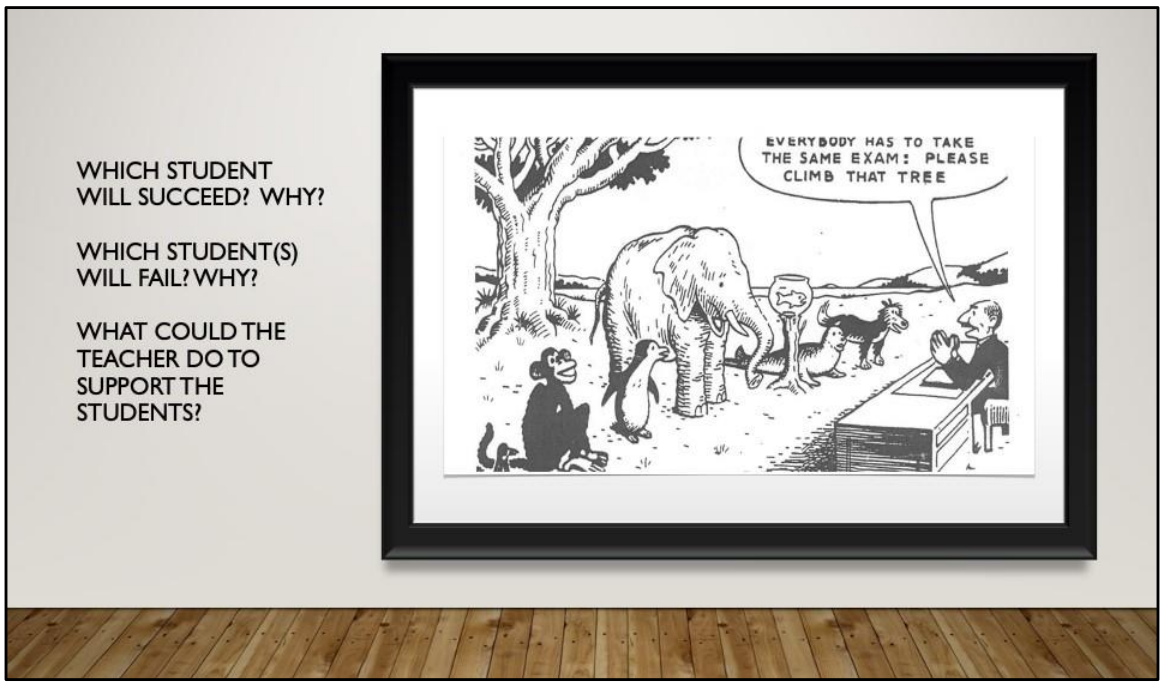
GOALS SESSIONS

- Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms.
- Create lessons for diverse students in AP classrooms.
- Implement DI through process and content.

- Session 1

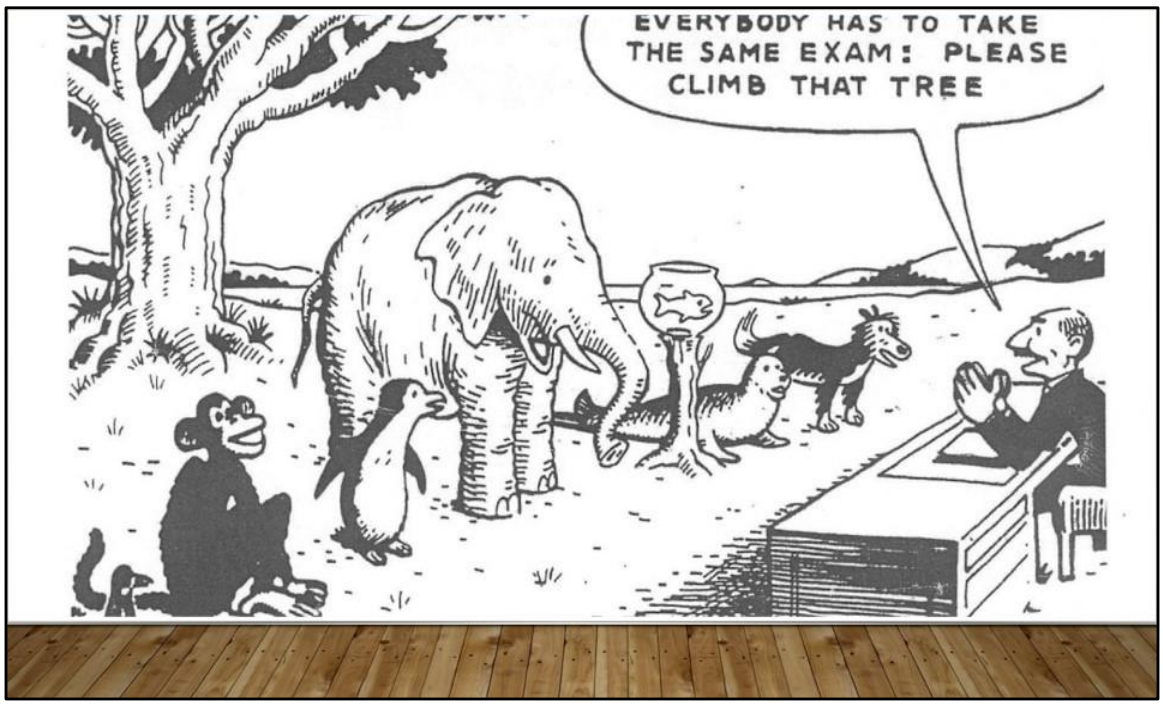
KWL
DIFFERENTIATION FOR AP STUDENTS

- What I know:
- What I want to know:



Ask participants to complete What I know and What I want to know on handout. Share at table. Each table will create a Post-it poster of what they know and what they want to learn. Each table will post around the room and share with the whole group.

9:30-9:45



Allow participants to read slide. Tell participants that these are the students in your AP classroom. Tell them that all AP students do take the same exam.

Go to next slide.

Ask the partipants to reflect on the following questions:

Which student will succeed? Why?

Which student(s) will fail? Why?

What could the teacher do to support the students?

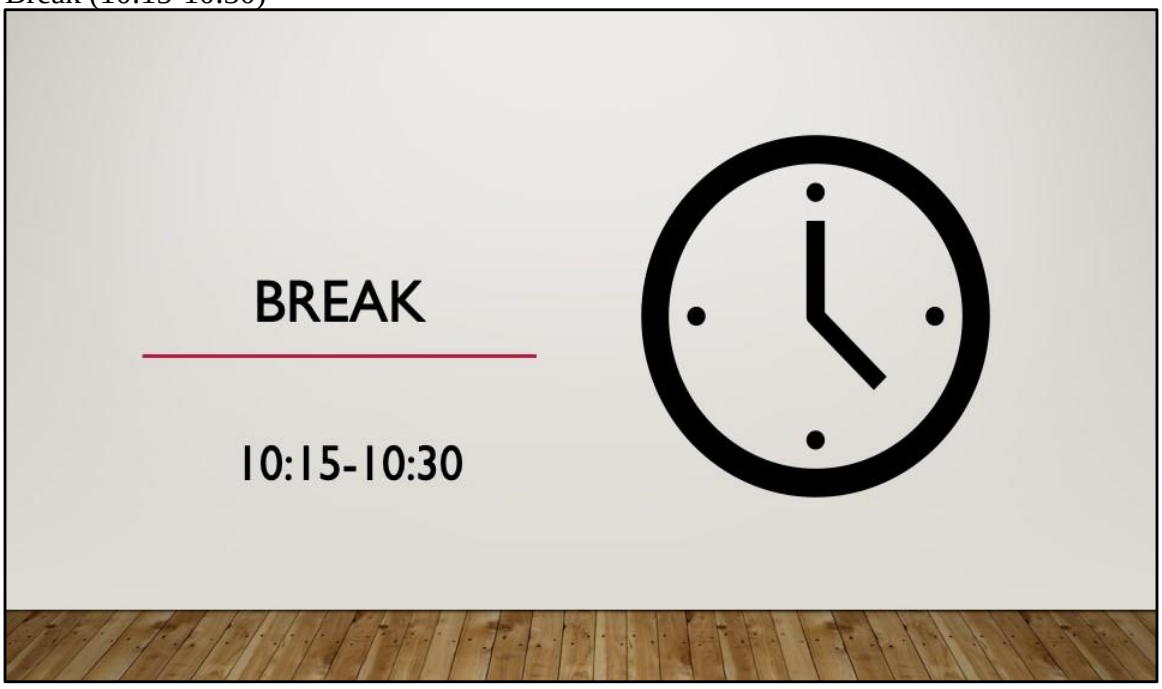
Activity

Imagine these are your students in the classroom. We all know they DO take the same AP exam. How would you support each individual student? Each table will choose a "student" and think of ways to help the "student" succeed in climbing the tree test.

Assign each table a student--monkey, penguin, elephant, fish, seal, and dog. Share.

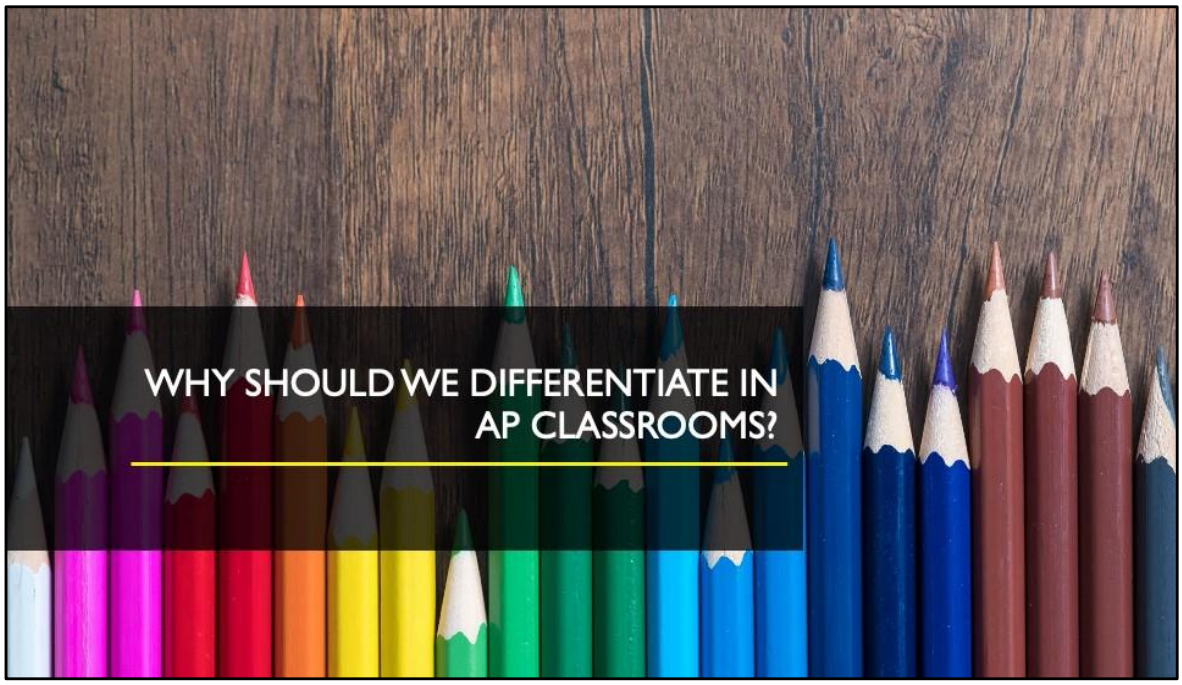
9:45-10:15

Break (10:15-10:30)



Provide data from AP scores released by College Board and AP Central. Ask teachers to review data from past years? Participants will need to access AP Central (www.research.collegeboard.org). Direct participants to *Report to Nation* data.

Table Share



What does the data show about the success of ALL AP students?

What can teachers do to support all learners so that all AP students make 3, 4, or 5?

10:30-11:00

RESEARCH AND THEORY

THE WHY?

HOWARD GARDNER

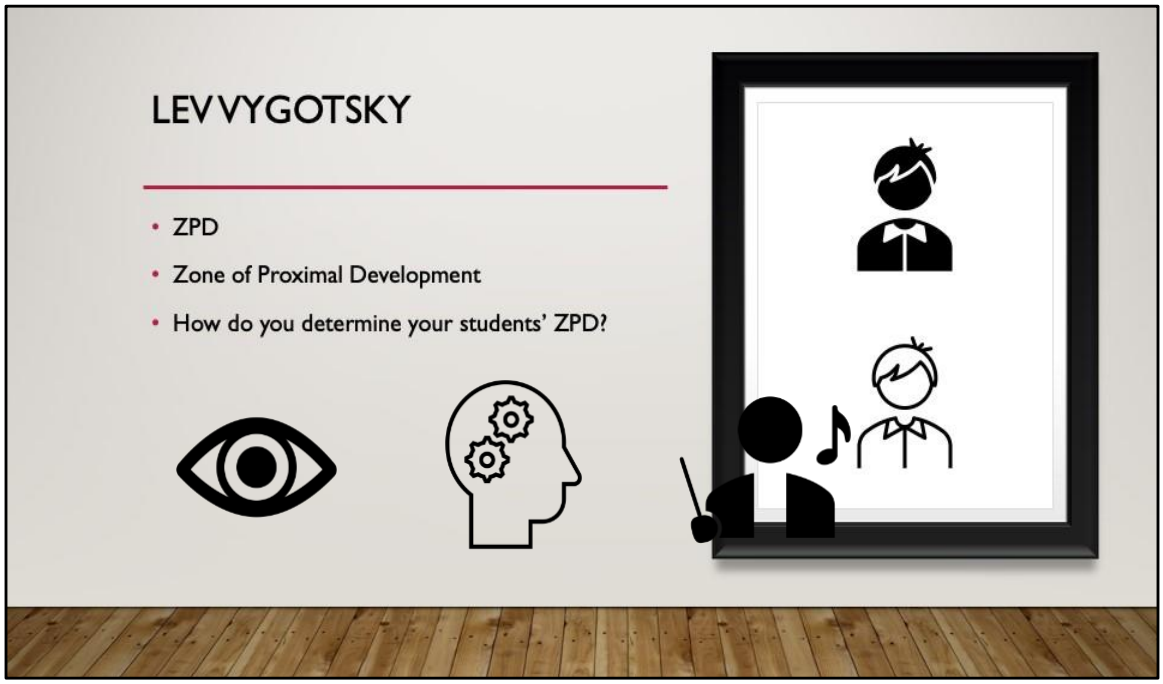
- Theory of multiple intelligences
- **"Everybody is a genius, but if you judge a fish by its ability to climb a ladder, it will live its whole life believing it's stupid." Einstein**

Gardner's theory supports the idea that students learn using multiple intelligences that include the following: logic, spatial, musical, visual, kinesthetic, interpersonal and intrapersonal (Gardner, 1983). Focusing on the premise that all children are not alike in

how they learn; Gardner's theory suggests that students can be gifted in areas other than mathematics and language arts. When teachers provide students different educational opportunities through content, process, and products, then they are differentiating and providing best instructional practices for the individual students.

Allow discussion of Gardner's Theory of Multiple Intelligences and what this means in AP classrooms.

11:00-11:10



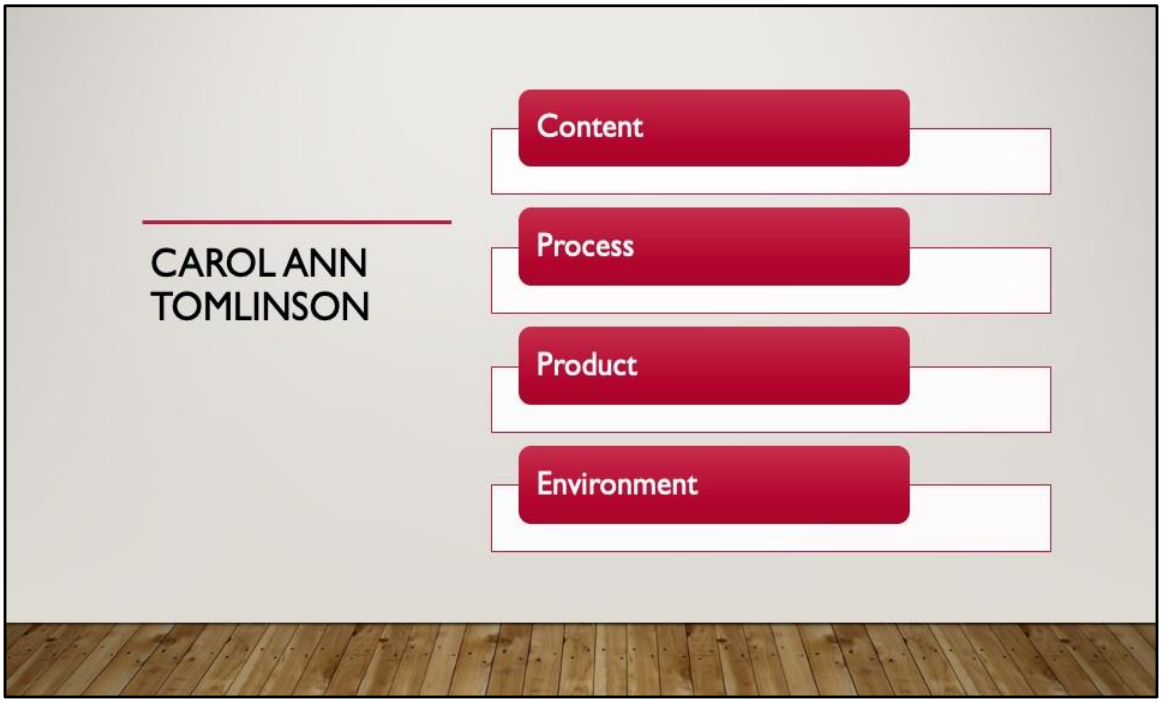
Vygotsky's Zone of Proximal Development (ZPD) is the area in children's development where they can learn, but they must do so under the guidance of a teacher, and when they master the concept they can learn on their own (Vygotsky, 1978). Vygotsky theorized that children learn best at a level where there is no frustration and as the area where children can succeed if they are partnering with peers of similar abilities. Children can learn when the concept is difficult and challenging but only when the idea is within their capacity for understanding. Before DI can be incorporated into the classroom, teachers must identify students' areas of development where learning can be maximized. When teachers know their students' zone of proximal development, then they can scaffold or differentiate to help all learners find academic success.

Participants will create a poster for ideas and strategies for determining ZPD. Post and Share with a Gallery Walk

11:10—11:30

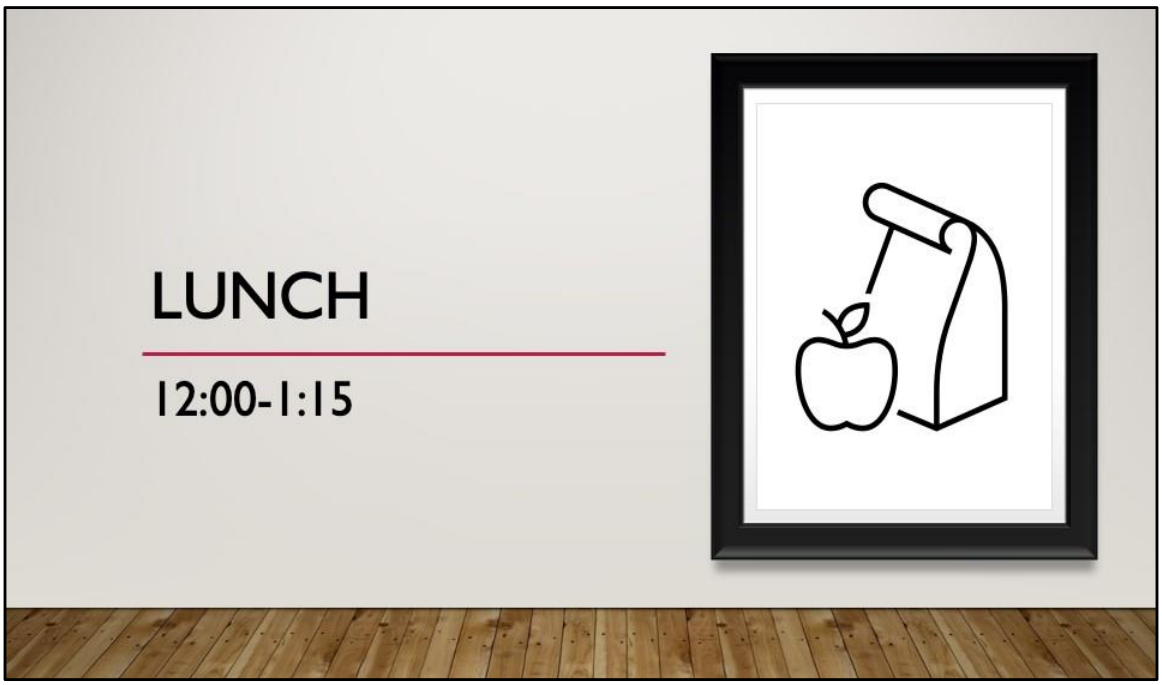
Explain each aspect

Using differentiation, AP teachers can provide multiple approaches for the content that students learn, how students understand the material, and the means students show mastery of the skills.



Distribute handout and read excerpt. Participants will write down 3 take-aways to share with table group.

11:30-12:00



Review Tomlinson and overview.

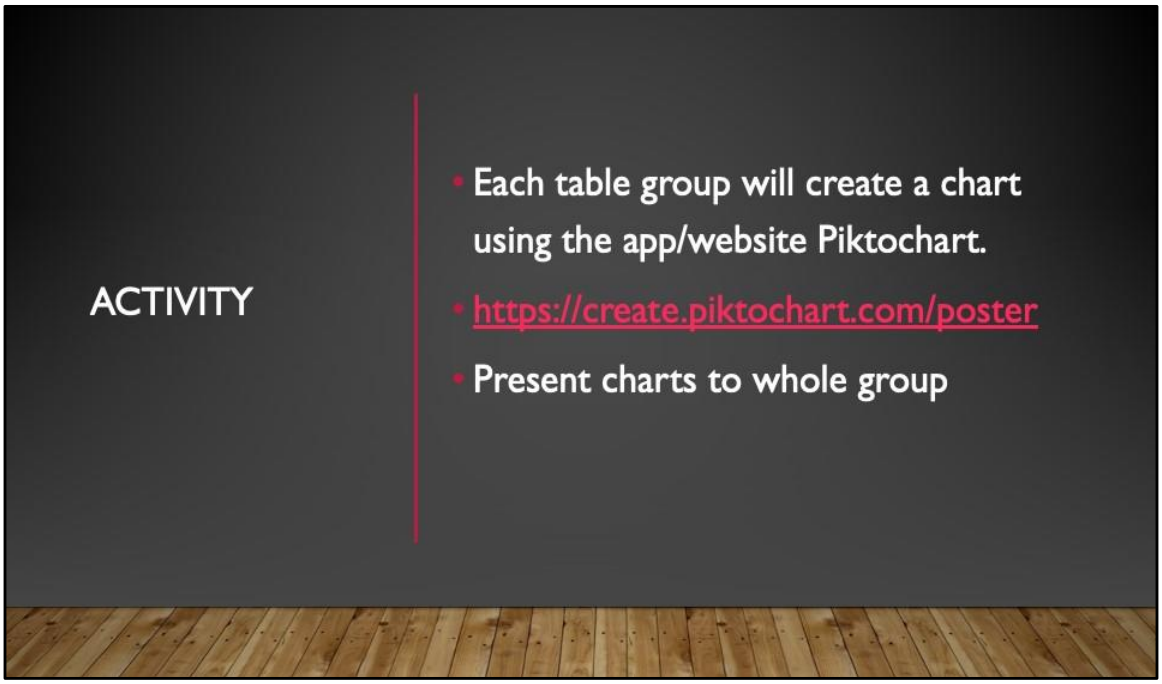
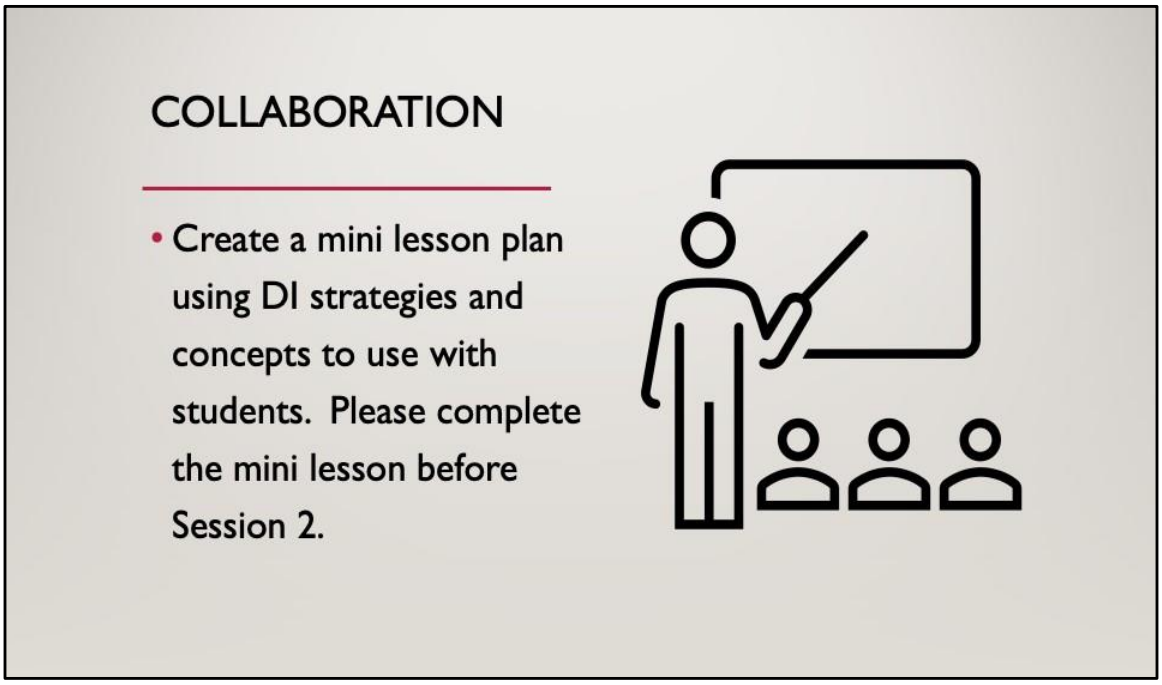


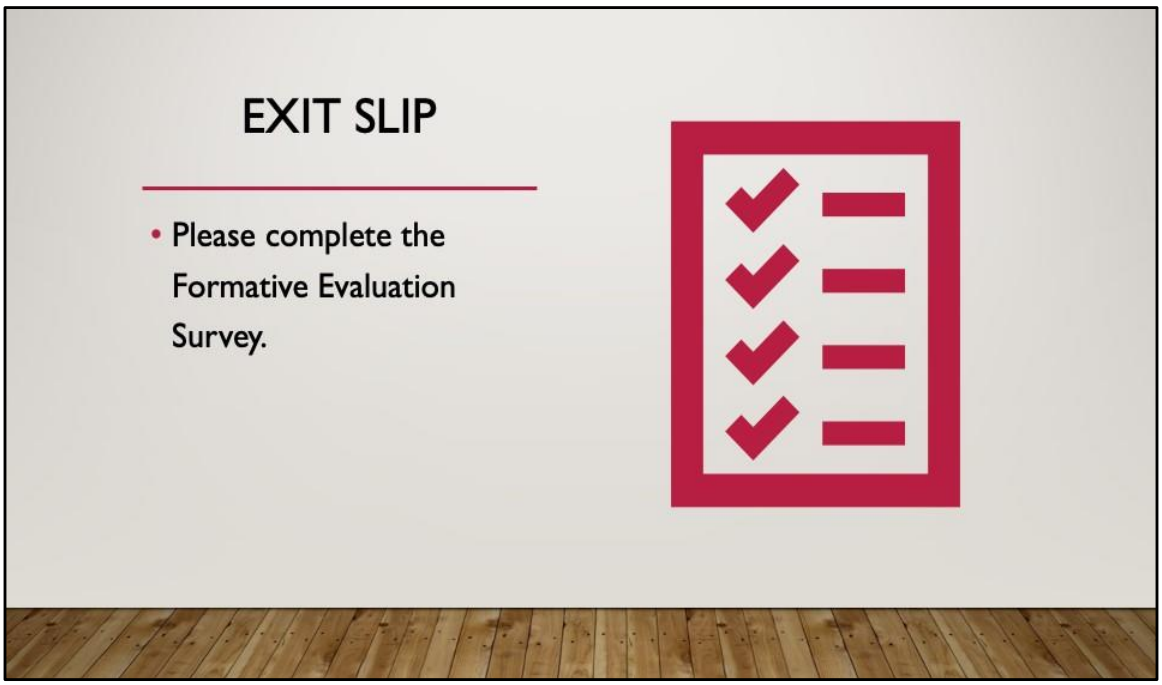
Table groups will create an electronic poster using the app Piktochart of their takeaways from the Tomlinson excerpt. Send the completed poster to patti.tate@waldenu.edu. She will share with the other participants on Touch Panel. Participants will present their "posters".

1:15-2:00

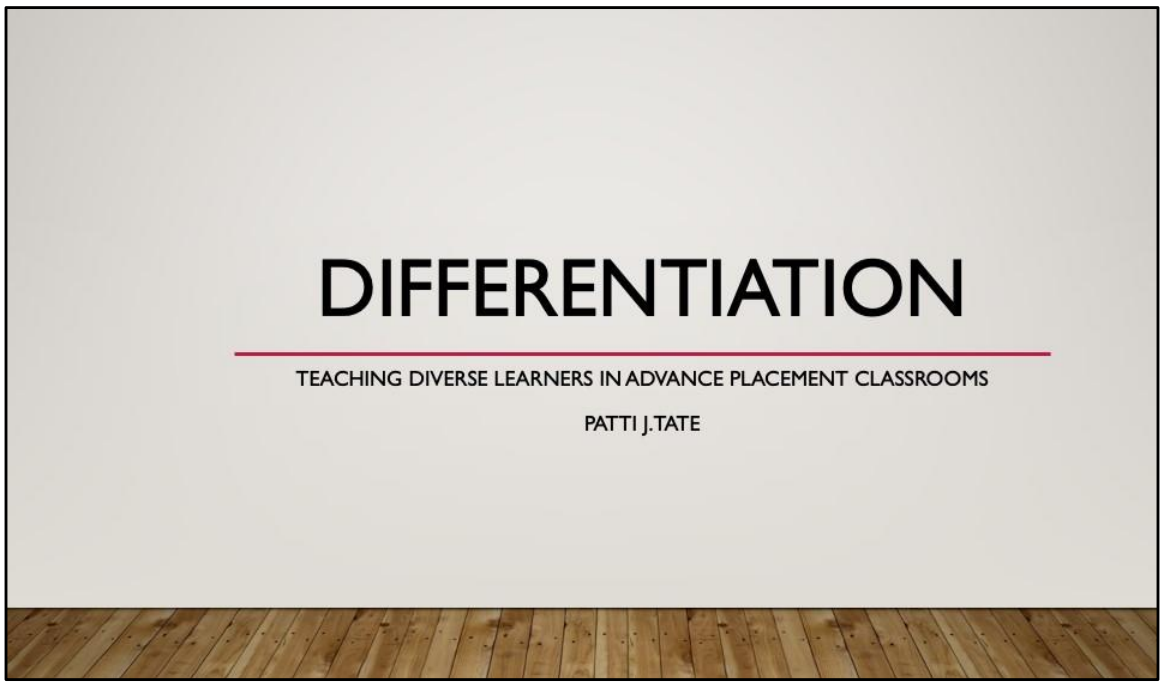


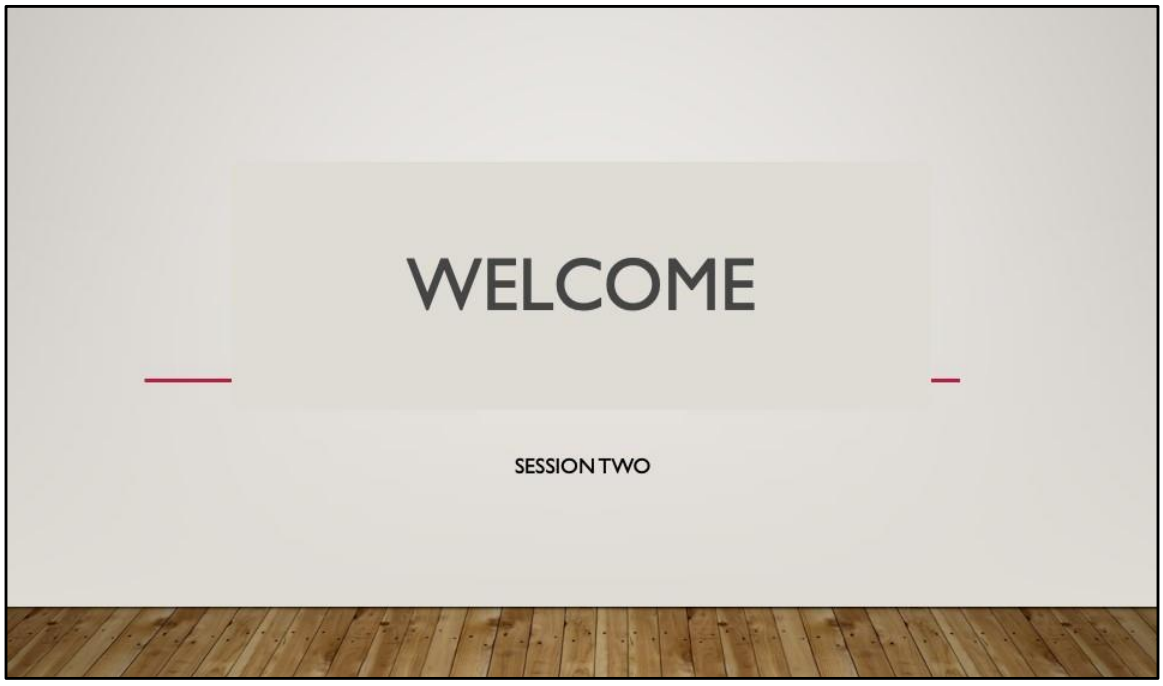
Participants will group by “similar” subject areas. Using your knowledge of DI, create a mini lesson. Please modify and teach the lesson to your AP classes. You will be asked to reflect on the experience and share during Session 2.

2:00-3:30 Time to Collaborate



Thank the participants for their time. Each table will have copies of the evaluation. Participants will be asked to complete the form and leave on table as they leave.





Participants will sign in and attach name tags.

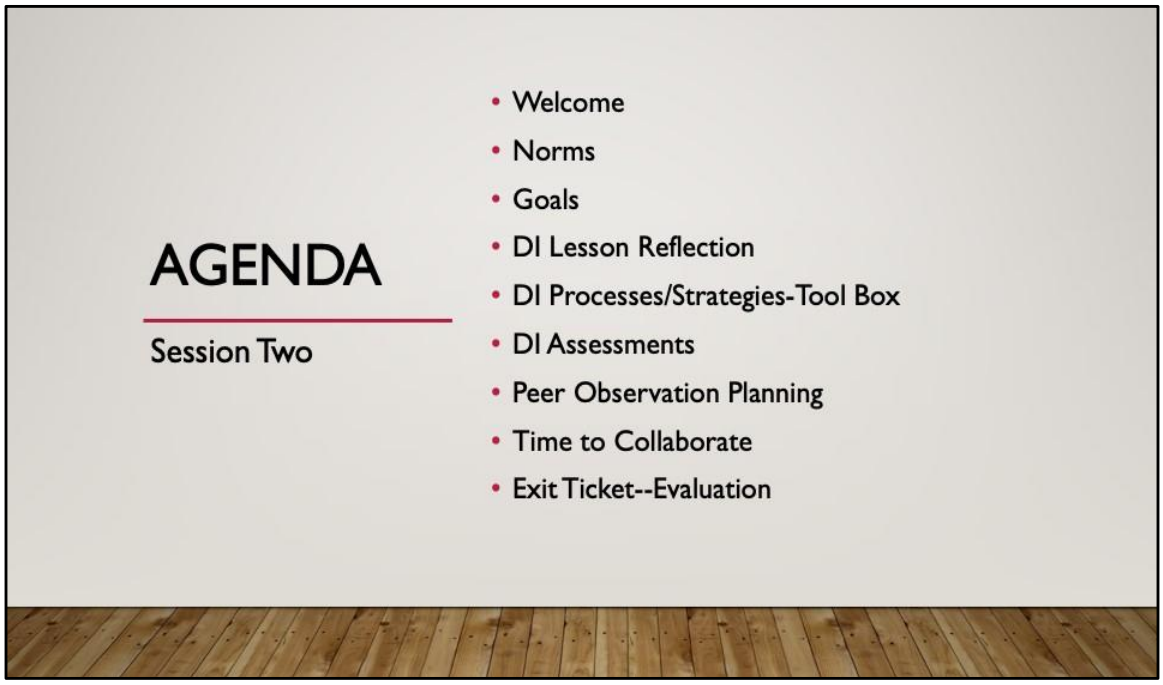
9-9:15

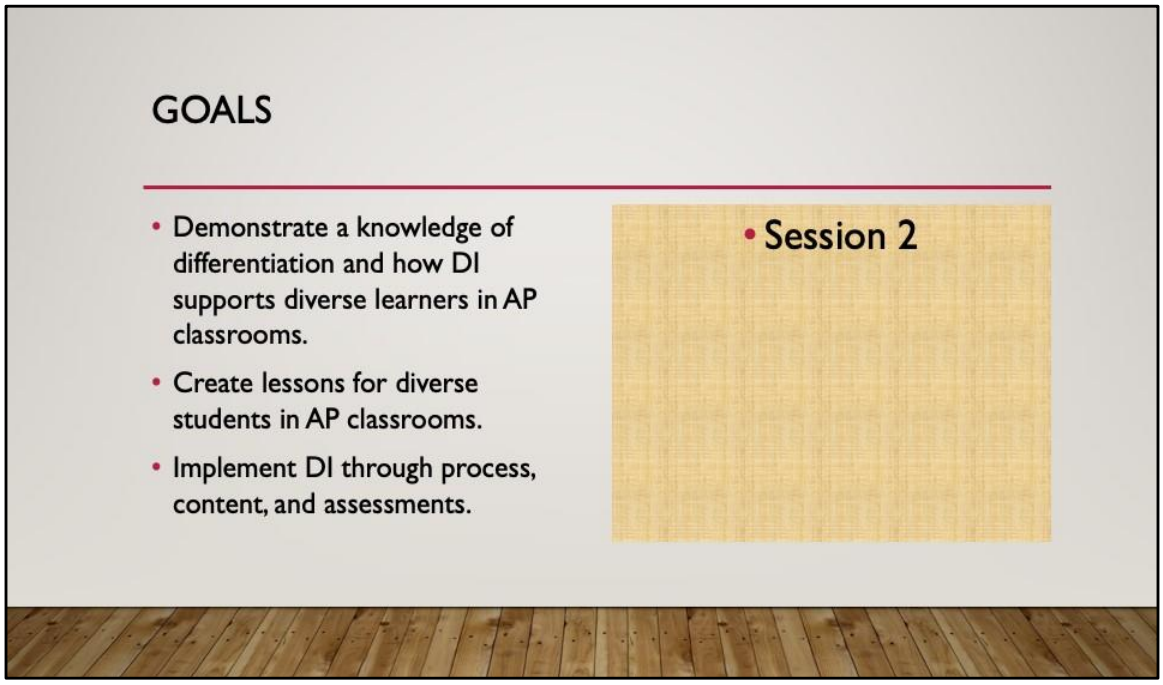
All participants will be seated at tables and begin session.

Remind participants where bathrooms and refreshments are located.

Review meeting norms. Stress the importance of a safe learning environment where participants can share ideas.

9:15-9:30


AGENDA
Session Two
Welcome
Norms
Goals
DI Lesson Reflection
DI Processes/Strategies-Tool Box
DI Assessments
Peer Observation Planning
Time to Collaborate
Exit Ticket--Evaluation


GOALS
Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms.
Create lessons for diverse students in AP classrooms.
Implement DI through process, content, and assessments.
Session 2

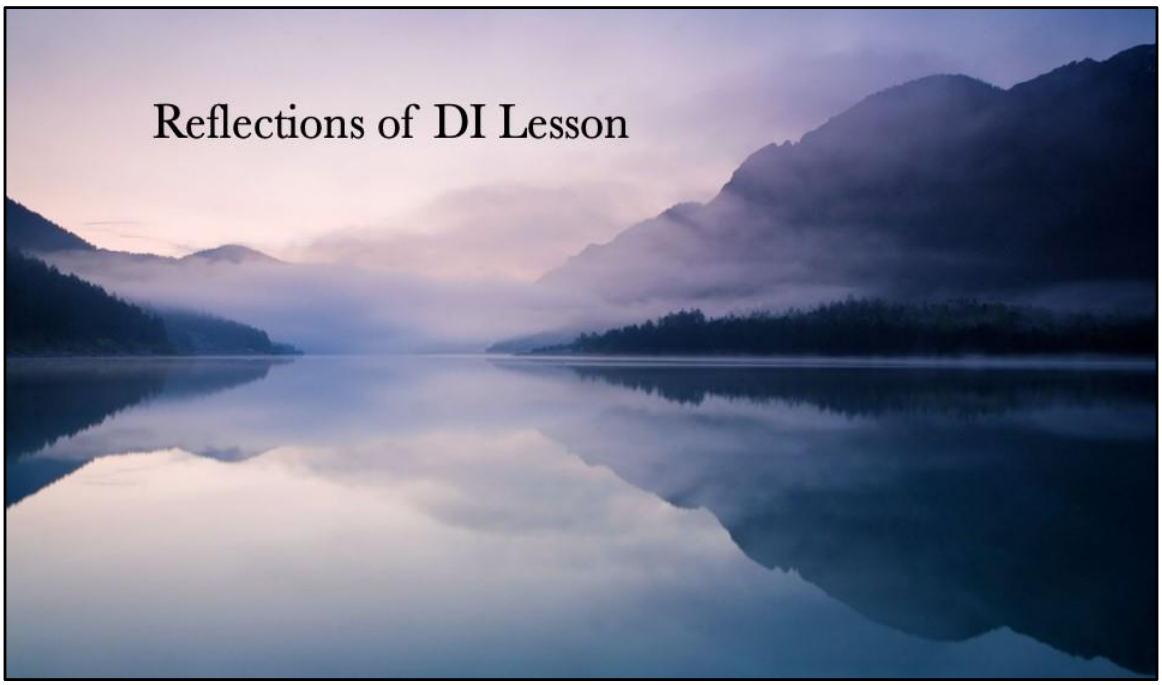


Table share of DI lessons

What worked?

What would you change about the next lesson?

Each table will share what they learned.

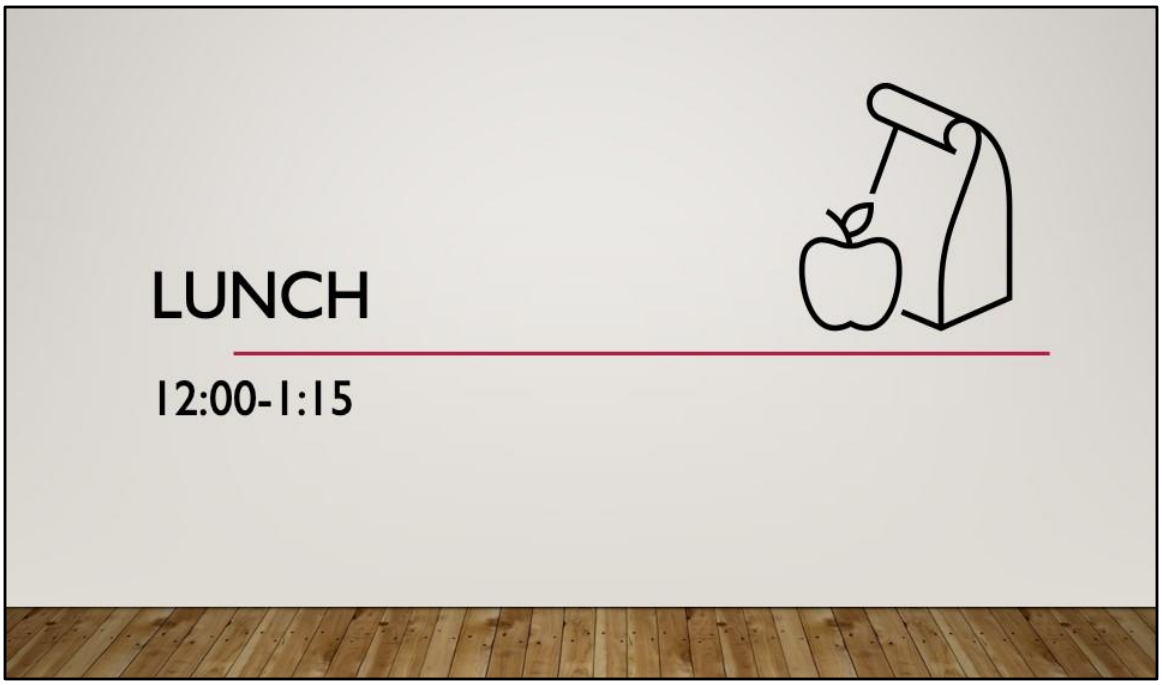
9:30-10:00

Discuss research articles and share facts and statistics on how DI strategies supported DI learners and had a positive effect on achievement. Participants will search for DI strategies and discuss how to adapt to AP students. Participants from each table will then share jigsaw style with other table participants.

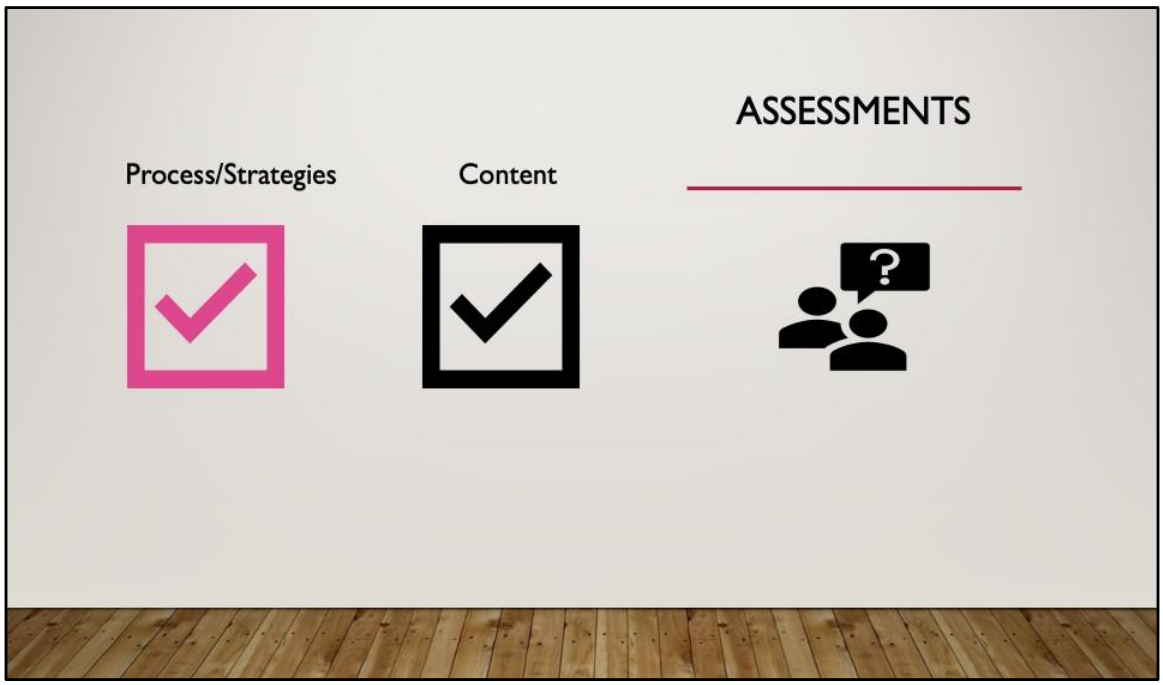
This will begin filling toolbox of strategies for teachers.

Handouts on table of Tool Box

10:15-12:00

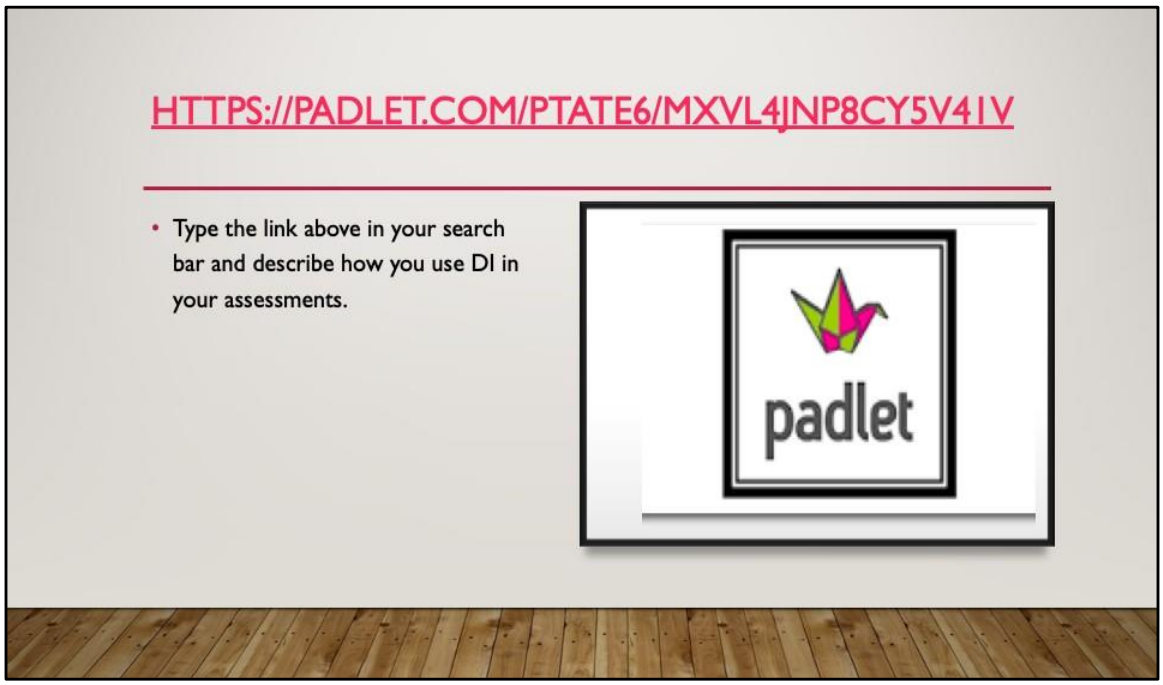


Review DI and Process and Content. Introduce DI and assessments.



Using the Padlet, teachers will share ideas on DI and assessments.

1:15-2:00



Participants will share DI assessment ideas using Padlet. They will type in the link provided in their search bar. They will be directed to Padlet where they will post their

ideas and will be able to read other participants' ideas and suggestions about DI assessments. 1:15-2:00

Distribute Peer Observation forms from ASCD— obtained permission to use.

Introduce why peer observations are important.

Give participants 5 minutes to read over observation form; discuss take away and salient parts of form.

2:00-2:30

0DLO3DWWL7DWH2XWORRN

Permission

Christy Colclasure <christy.colclasure@learningforward.org>
Mon 8/24/2020 11:41 AM
To: Patti Tate <patti.tate@waldenu.edu>

Hi Patti,

Learning Forward is pleased to grant you permission to use the following tool in your doctoral study.

Please ensure that the following citation and credit line appear with your material. Used with permission of Learning Forward, www.learningforward.org. All rights reserved.

> "Tool 6.2 - Peer observation practice and implications," by Joellen Killion, *Professional Learning Plans: A Workbook for States, Districts, and Schools,* 2013.

Thank you for your interest in our work.

Christy

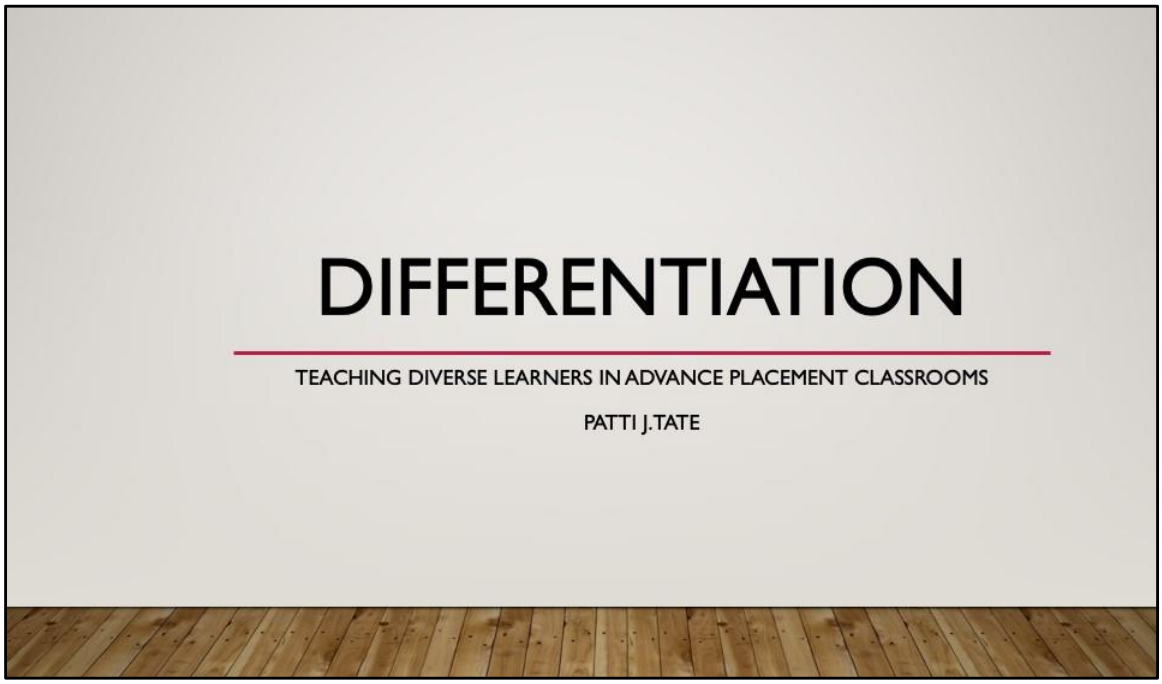
KWWSVRXWORRNRIÀFHFRPPDLOGHHSOLQN"YHUVLRQ

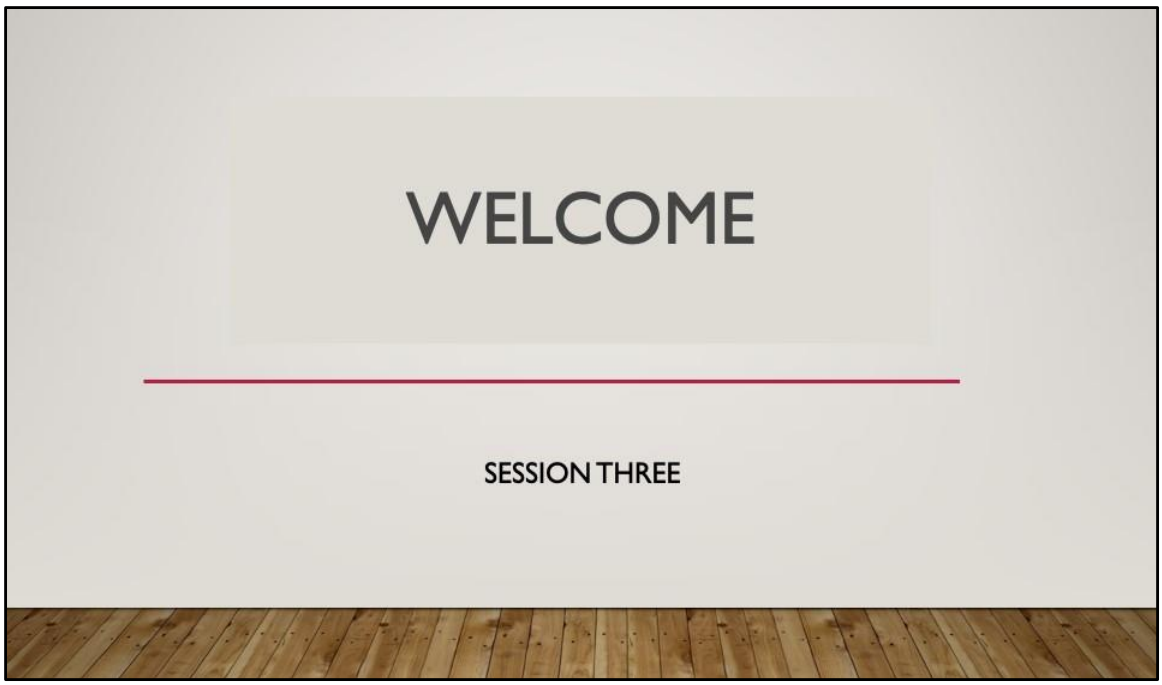
SRSRXWY

2:30-3:30

Participants will collaborate and design mini DI lessons. They should partner with another participant and schedule a time to observe the lesson. During the lesson, they will be asked to complete the peer observation form. We will use the observation feedback during Session 3.

Thank the participants for their time. Each table will have copies of the evaluation. Participants will be asked to complete the form and leave on table as they leave.





Participants will sign in and attach name tags.

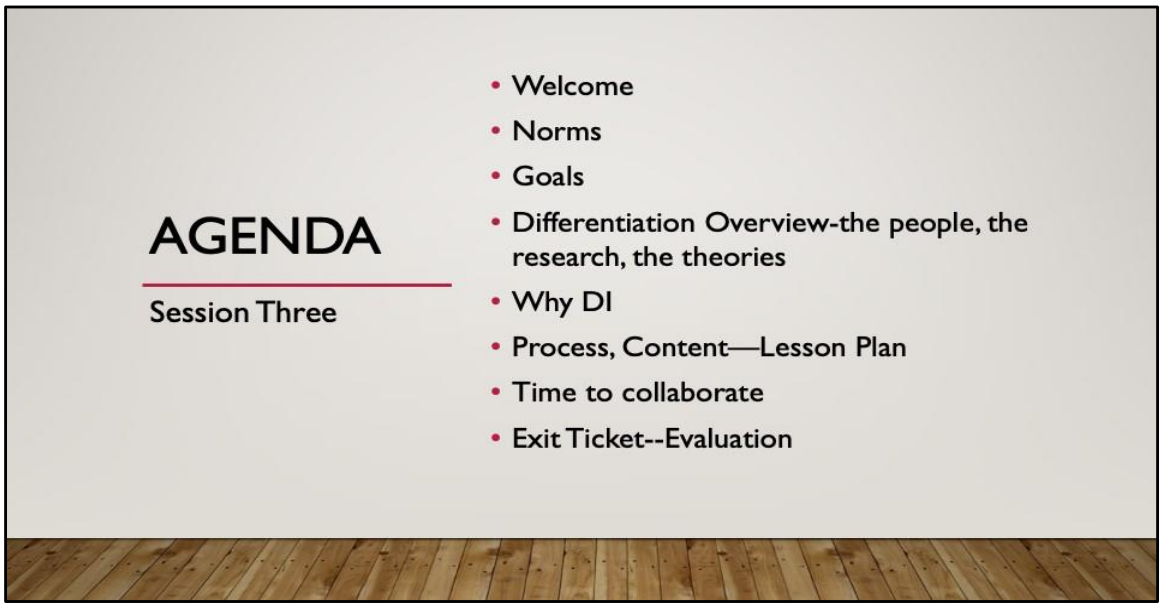
9-9:15

All participants will be seated at tables and begin session. Ice Breakers—each person will describe 1 unique characteristic about themselves.

Remind participants where bathrooms and refreshments are located.

Review meeting norms. Stress the importance of a safe learning environment where participants can share ideas.

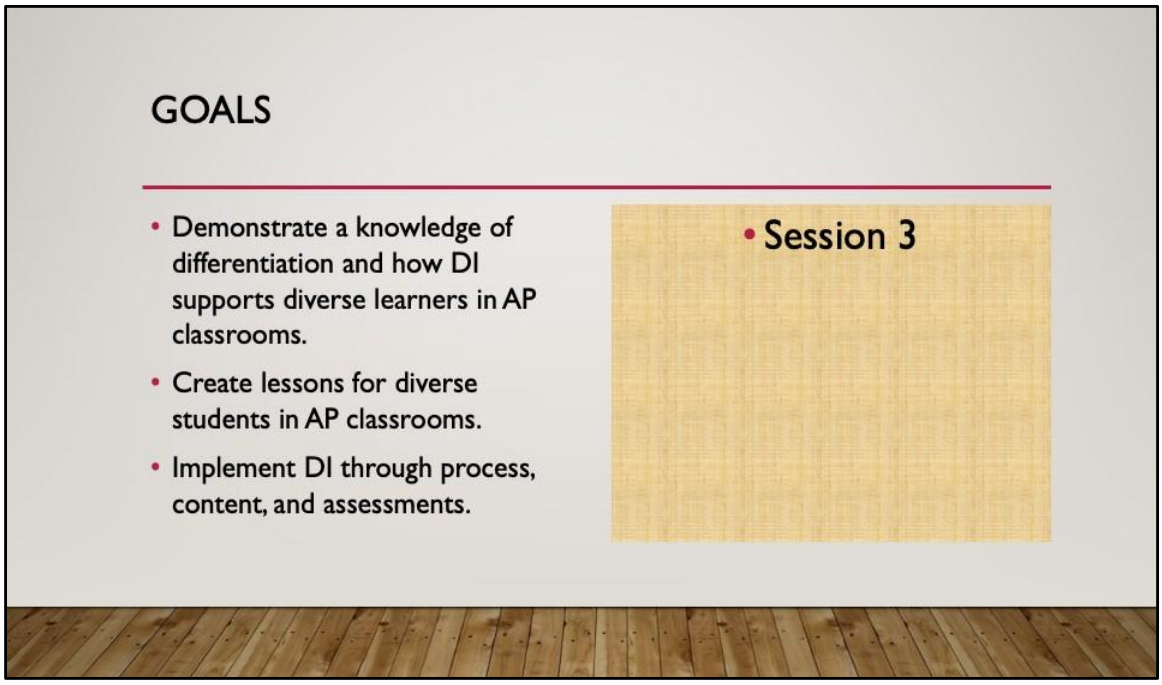
9:15-9:30

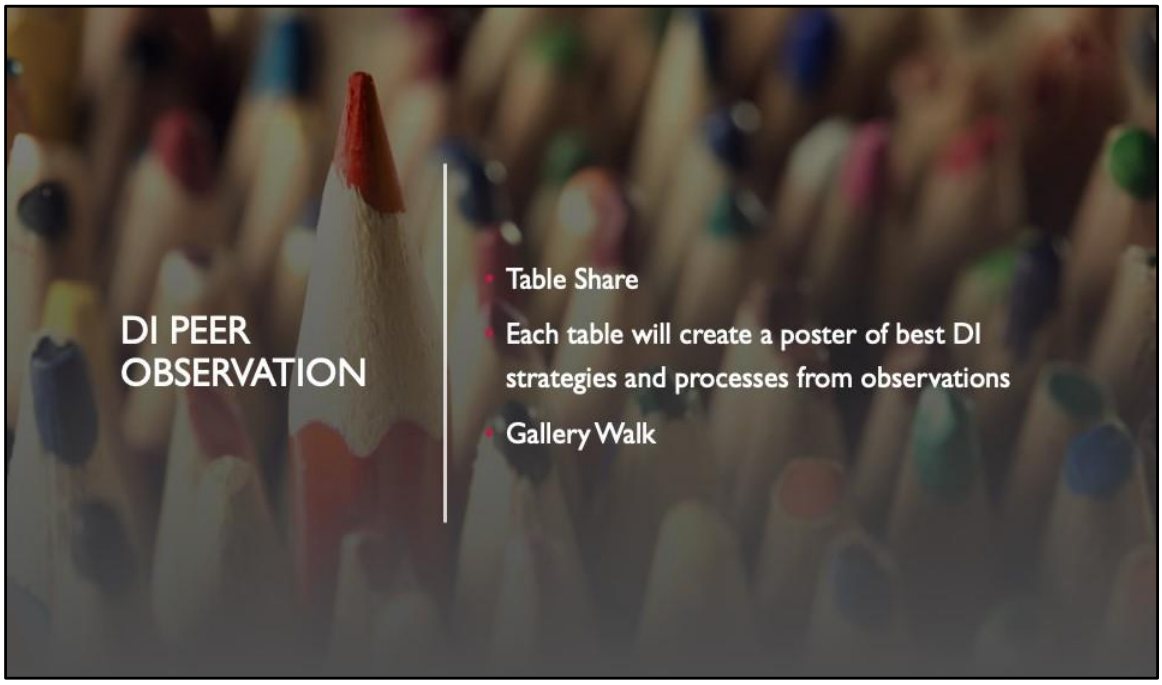


Welcome participants.

9-9:15

All participants will have handwritten name tags.



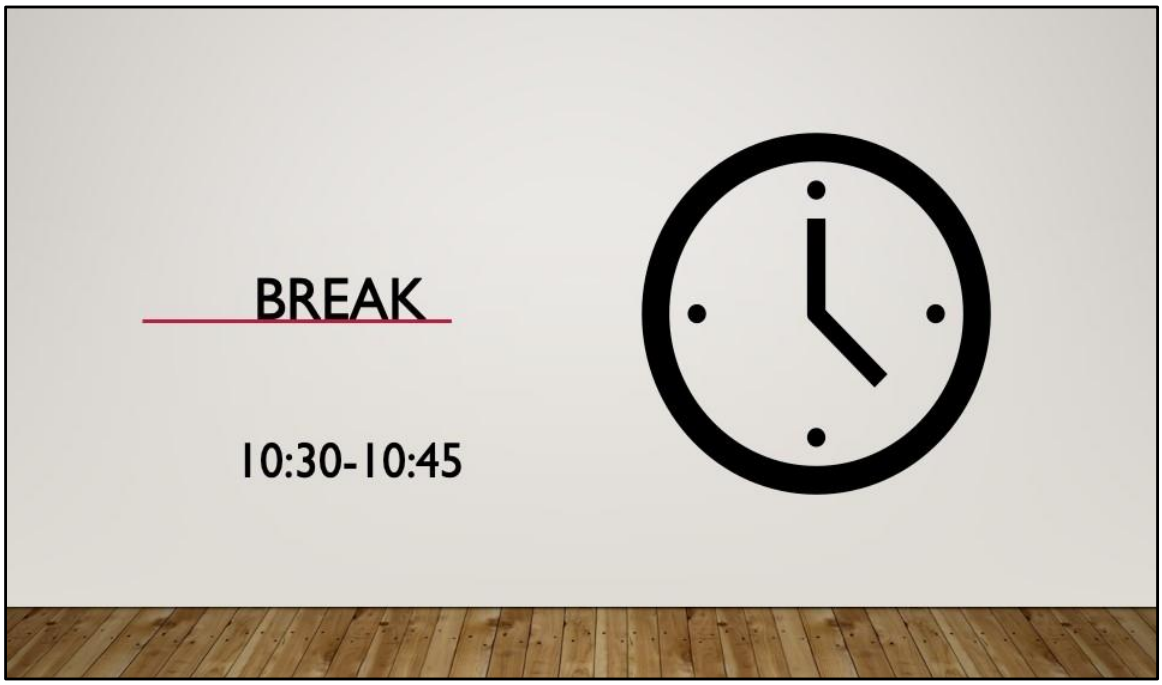


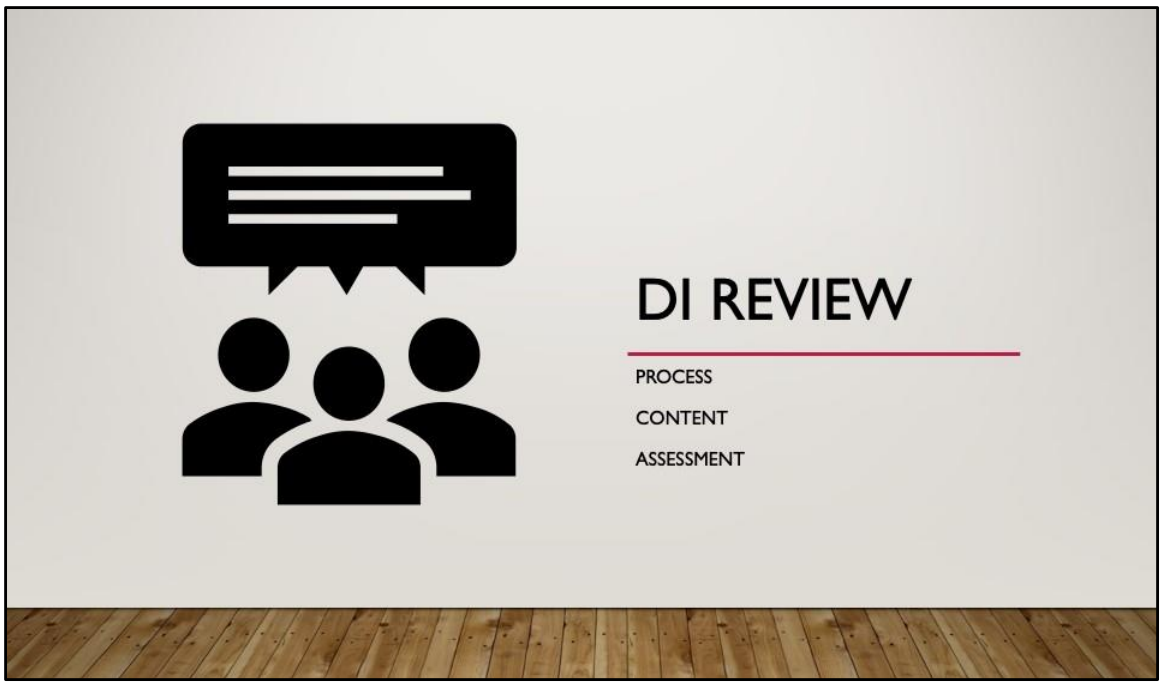
Participants will share at their tables about their experiences and data with the peer observations. The observers will share strategies they saw in the lessons.

Tables will list strategies on post-it paper to place around the room.

Gallery Walk

9:30-10:30





Review DI and Process and Content and Assessment

10:45-11:15

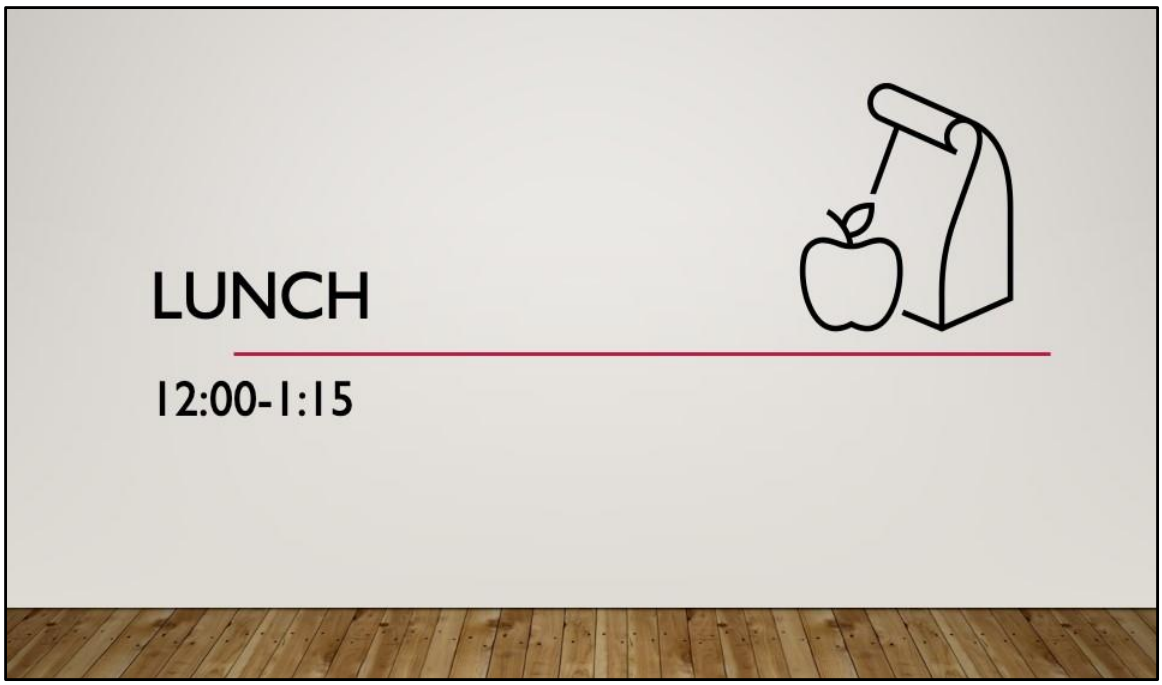
Let’s synthesize the information we have learned and think about the following question:

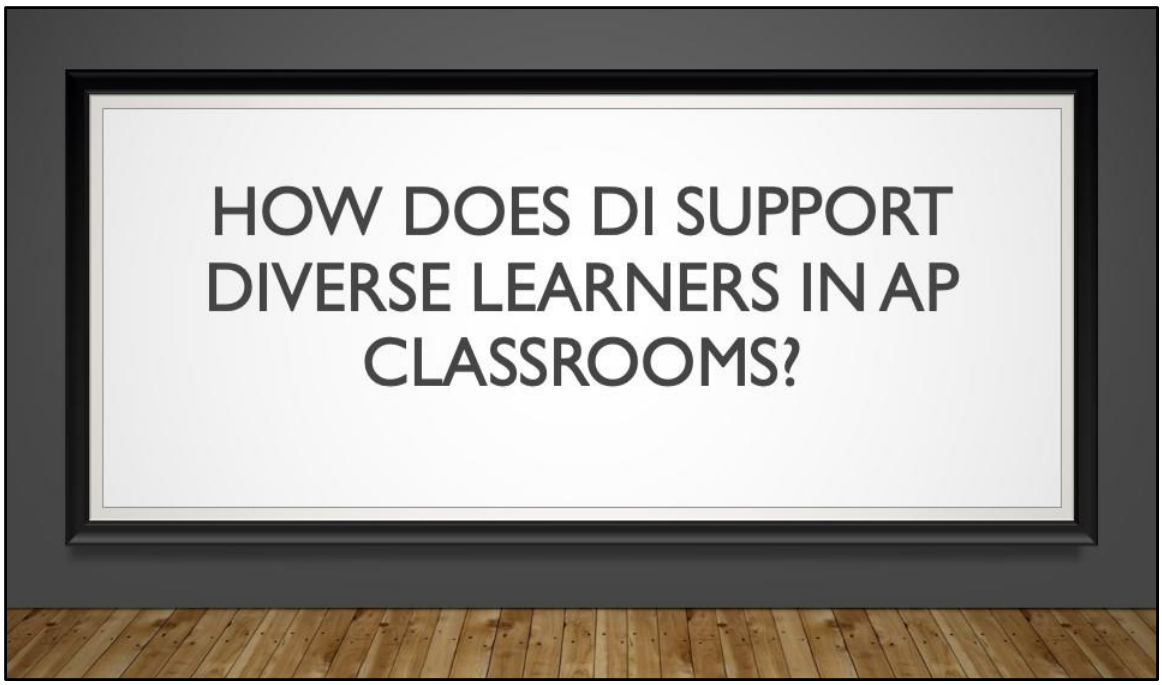
How will DI through Process, Content, and Assessment support diverse learners in AP classrooms?

11:15-12:00

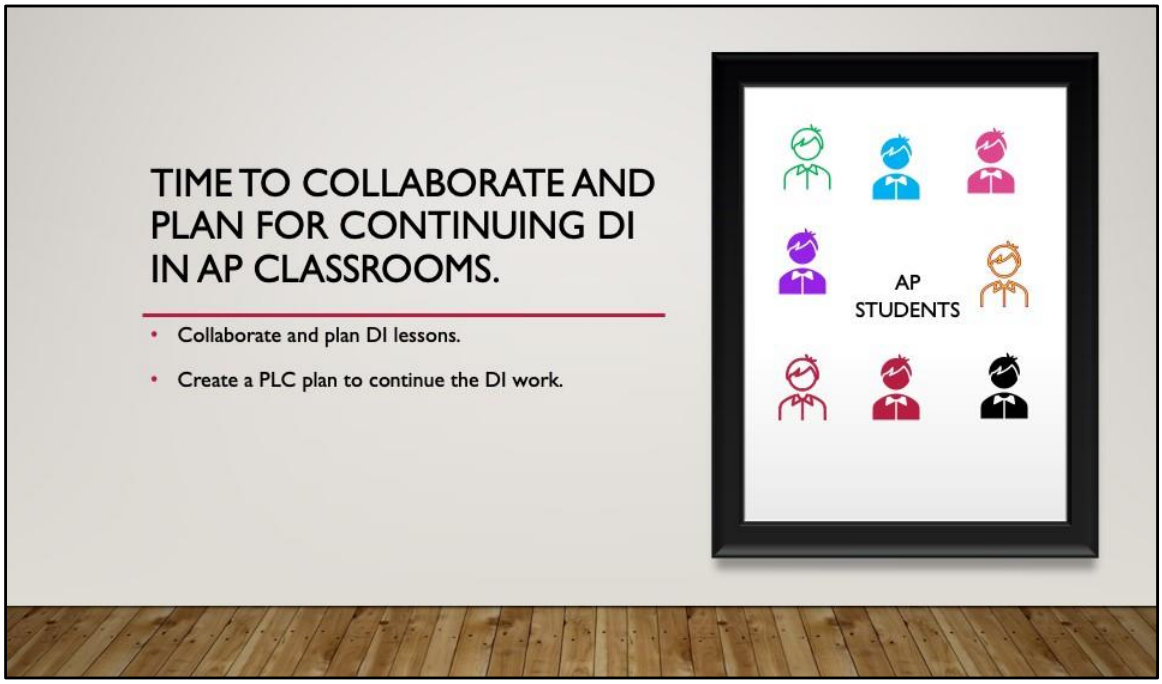
Give participants 15 minutes to reflect and write their answer on post-it paper and place around the room

Silent Graffiti—participants will silently move from poster to poster and write a response to their colleague's answers. (30 mins.)


LUNCH
12:00-1:15



After lunch we will summarize and discuss responses to question. (During lunch break, I will create a Wordle with their responses and share with group.) 1:15-1:30



Provide collaborative time for AP teachers to plan lessons and to create a PLC plan for the next school year to continue the DI work.

Create a plan to submit for continuing the work.

1:30-3:15

Thank the participants.

Tell them that they will receive an anonymous summative evaluation survey about the impact of their participation on the achievement success of their AP students. The survey will be sent in July after AP scores have been released.

Evaluations

Formative Evaluation Session 1, 2, 3 (Circle the Session)

1. Did you attend this professional development workshop with specific expectations?
   _____Yes _____No

2. To what extent were your expectations met?
   _____Less than expected
   _____ Just as I expected
   _____More than expected

3. Rate the time allotted to each section of the PD.
   ____Not adequate
   ____Adequate enough
   ____More than adequate

4. Rate the overall content of this session.
   ____Poor
   ____Satisfactory
   ____Excellent

5. What part of the PD was most beneficial to you?

6. What parts of the PD needs improvement?

7. How will you use the information you learned?

8. What do you want to see in the next session?

Summative Evaluation

This form will be completed by all participants and will be sent through a Survey Monkey so that respondents can remain anonymous. The form will be sent 2 months after Session 3. This will give participants time to reflect and review student AP data to determine if they believe DI strategies had a positive impact on their students' achievement.

1. To what extent were your expectations met?
   _____Less than expected
   _____ Just as I expected
   _____More than expected

2. Rate the time allotted to each section of the PD.
   ____Not adequate
   ____Adequate enough
   ____More than adequate

3. Rate the overall content of the PD.
   ____Poor
   ____Satisfactory
   ____Excellent

4. What part of the PD was most beneficial to you?

5. What parts of the PD needs improvement?

6. Do you think the information impacted student achievement in your classroom? Please explain.

DI Strategies Advanced Placement Teachers Use to Teach Diverse Learners

3-Session Professional Development

Day 1

Goals: Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms; create lessons for diverse students in AP classrooms; and implement DI through process, content, and assessments.

Time	Activity
8:30-9:00	Sign-in, name tags
9:00-9:15	Welcome, Icebreaker
9:15-9:30	Meeting Norms, Agenda, Goals
9:30-9:45	KWL Chart; participants will create a Post-it poster for *What I Want to Know* to post around the room.
9:45-10:15	Activity –How would you support these students? (monkey, penguin, elephant, fish, seal, dog.) Participants will create support that the "students need in order to "climb the tree" test. (Share with whole group.)
10:15-10:30	Break
10:30-11:00	AP Data from AP Central at www.research.collegeboard.org. Using the data, the participants will answer the following question: What does the data show about the success of AP students? What can teachers do to support all learners so that all AP students can make a 3,4, or 5 on AP exams? (Table Share)
11:00-11:30	Introduce DI theories and research data. (Slides 14-16)
11:30-12:00	Read handout—chapter 1 of Carol Tomlinson's *Teaching Diverse Learners*. List 3 takeaways.
12:00-1:15	Lunch on your own
1:15-2:00	Create a Piktochart poster with table members. Use the Piktochart website. Send completed poster to patti.tate@waldenu.edu for whole group presentation. Mrs. Tate will share the completed posters on the Touch Panel and group members will discuss takeaways.
2:00-3:15	Time to collaborate. Participants will group by similar subject areas and using knowledge from Session1, create a mini lesson to implement before Session 2.

Day 1 Handouts

KWL Chart

What I Know	What I Want to Know	**What I Learned**

RE: Permission to use excerpt from C.A. Tomlinson's 2017 How to Differentiate Instruction

Permissions <permissions@ascd.org>
Sun 9/27/2020 2:56 PM
To: Patti Tate <patti.tate@waldenu.edu>

Dear Patti:

In response to your request below, please consider this permission to use the excerpt(s) from the referenced publication for your personal research purposes. Should you include excerpts or cite content in a paper or some other report form, please credit the source accordingly. If your research results in use of our content in a product or publication for commercial release, please contact me again to secure further rights to do so.
Thank you for your interest in ASCD and good luck with your studies.

Sincerely yours,

KATY WOGEC • Permissions Consultant for ASCD
1703 N. Beauregard Street • Alexandria, VA 22311-1714
P 240-478-4788

ASCD LEARN. TEACH. LEAD.

Join us:

From: Patti Tate <patti.tate@waldenu.edu>
Sent: Friday, September 25, 2020 5:45 PM
To: Permissions <permissions@ascd.org>
Subject: Permission to use excerpt from C.A. Tomlinson's 2017 How to Differentiate Instruction

Good evening,
My name is Patti Tate and I am a doctoral student at Walden University. As part of my study, I am developing a 3-day workshop for my district based on the need for Advanced Placement teachers to differentiate in their classrooms where there are diverse learners.

I am asking permission to use an excerpt from C. A. Tomlinson (2017). *How to differentiate instruction in academically diverse classrooms.* Alexandria, VA: ASCD from chapter 1.

After the excerpt has been read, I will collect and shred.

Thank you for your time and consideration.

Sincerely,

Patti Tate

Excerpted from Tomlinson, C. A. (2017). *How to differentiate instruction in academically diverse classrooms.* Alexandria, VA: ASCD.

Kids of the same age aren't all alike when it comes to learning any more than they are alike in terms of size, hobbies, personality, or food preferences. Kids do have many things in common, because they are human beings and because they are all young people, but they also have important differences. What we share in common makes us human, but how we differ makes us individuals. In a classroom with little or no differentiated instruction, only student similarities seem to take center stage. In a differentiated classroom, commonalities are acknowledged and built upon, and student differences also become important elements in teaching and learning.

At its most basic level, differentiating instruction means "shaking up" what goes on in the classroom so that students have multiple options for taking in information, making sense of ideas, and expressing what they learn. In other words, a differentiated classroom provides different avenues to acquiring content, to processing or making sense of ideas, and to developing products so that each student can learn effectively.

In many classrooms, the approach to teaching and learning is more unitary than differentiated. For example, 1st graders may listen to a story and then draw a picture about the beginning, middle, and end of the story. While they may choose to draw different aspects of the elements, they all experienced the same content, and they all engaged in the same sense-making or processing activity. A kindergarten class may have four centers that all students visit to complete the same activities in a week's time. Fifth graders may all listen to the same explanation about fractions and complete the same homework assignment. Middle school or high school students may sit through a lecture and a video to help them understand a topic in science or history. They will all read the same chapter, complete the same lab or end-of-chapter questions, and take the same quiz—all on the same timetable. Such classrooms are familiar, typical, and largely undifferentiated.

Most teachers (as well as students and parents) have clear mental images of such classrooms. After experiencing undifferentiated instruction over many years, it is often difficult to imagine what a differentiated classroom would look and feel like. How, educators wonder, can we make the shift from "single-size instruction" to differentiated instruction to better meet our students' diverse needs? To answer this question, we first need to clear away some misperceptions.

What Differentiated Instruction Is NOT

Differentiated instruction is NOT "individualized instruction."

Decades ago, in an attempt to honor students' learning differences, educators experimented with what was called "individualized instruction." The idea was to create a different, customized lesson each day for each of the 30-plus students in a single

classroom. Given the expectation that each student needed to have a different reading assignment, for example, it didn't take long for teachers to become exhausted. A second flaw in this approach was that in order to "match" each student's precise entry level into the curriculum with each upcoming lesson, instruction needed to be segmented or reduced into skill fragments, thereby making learning largely devoid of meaning and essentially irrelevant to those who were asked to master the curriculum.

While it is true that differentiated instruction can offer multiple avenues to learning, and although it certainly advocates attending to students as individuals, it does not assume a separate assignment for each learner. It also focuses on meaningful learning—on ensuring all students engage with powerful ideas. Differentiation is more reminiscent of a one-room-schoolhouse than of individualization. That model of instruction recognized that the teacher needed to work sometimes with the whole class, sometimes with small groups, and sometimes with individuals. These variations were important both to move each student along in his or her particular understandings and skills, and to build a sense of community in the group.

Differentiated instruction is NOT chaotic.

Most teachers remember the recurrent, nightmarish experience from their first year of teaching: losing control of student behavior. A bench- mark of teacher development is the point at which the teacher becomes secure and comfortable with managing classroom routines. Fear of returning to uncertainty about "control of student behavior" is a major obstacle for many teachers in establishing a flexible classroom. Here's a surprise, though: teachers who differentiate instruction are quick to point out that, if anything, they now exert more leadership in their classrooms, not less. *And* student behavior is considerably more focused and productive.

Compared with teachers who offer a single approach to learning, teachers who differentiate instruction have to be more active leaders. Often they must help students understand how differentiation can support greater growth and success for everyone in the class, and then help them develop ground rules for effective work in classroom routines—all while managing and monitoring the multiple activities that are going on. Effectively differentiated classrooms include purposeful student movement and sometimes purposeful student talking, but they are not disorderly or undisciplined. On the contrary, "orderly flexibility" is a defining feature of differentiated classrooms—and of any classroom that prioritizes student thinking. Research tells us that neither "disorderly" environments nor "restrictive" ones support meaningful learning (Darling-Hammond & Bransford, 2007).

Differentiated instruction is NOT just another way to provide homogeneous grouping.

Our memories of undifferentiated classrooms probably include the blue- bird, cardinal, and buzzard reading groups. Typically, a buzzard remained a buzzard, and a cardinal was

forever a cardinal. Under this system, buzzards nearly always worked with buzzards on skills-focused tasks, while work done by cardinals was typically at "higher levels" of thought. In addition to being predictable, student assignment to groups was virtually always teacher-selected.

A hallmark of an effective differentiated classroom, by contrast, is the use of flexible grouping, which accommodates students who are strong in some areas and weaker in others. For example, a student may be great at interpreting literature but not so strong in spelling, or great with map skills and not as quick to grasp patterns in history, or quick with math word problems but careless with computation. Teachers who uses flexible grouping also understand that some students may begin a new task slowly and then launch ahead at remarkable speed, while others will learn steadily but more slowly. They know that sometimes they need to assign students to groups so that assignments are tailored to student need, but that in other instances, it makes more sense for students to form their own working groups. They see that some students prefer or benefit from independent work, while others usually fare best in pairs or triads.

In a differentiated classroom, the goal is to have students work consistently with a wide variety of peers and with tasks thoughtfully designed not only to draw on the strengths of all members of a group but also to shore up those students' areas of need. "Fluid" is a good word to describe assignment of students to groups in such a heterogeneous classroom. See the Appendix for more information on flexible grouping.

Differentiated instruction is NOT just "tailoring the same suit of clothes."

Many teachers think they are differentiating instruction when they let students volunteer to answer questions, grade some students a little harder or easier on an assignment in response to the students' perceived ability and effort, or let students read or do homework if they finish a class assignment early. Certainly, such modifications reflect a teacher's awareness of differences in student needs and, in that way, the modifications *are* movement in the direction of differentiation. While such approaches play a role in addressing learner variance, they are examples of "micro-differentiation" or "tailoring," and are often just not enough to adequately address significant learning issues.

If the basic assignment itself is far too easy for an advanced learner, having a chance to answer an additional complex question is not an adequate challenge. If information is essential for a struggling learner, allowing him to skip a test question because he never understood the information does nothing to address the student's learning gap. If the information in the basic assignment is simply too complex for a learner until she has the chance to assimilate needed background information or language skills, being "easier

on her" when grading her assignment circumvents her need for additional time and support to master foundational content. In sum, trying to stretch a garment that is far too small or attempting to tuck and gather a garment that is far too large is likely to be less effective than getting clothes that are the right fit. Said another way, small adjustments in

a lesson may be all that's needed to make the lesson "work" for a student in some instances, but in many others, the mismatch between learner and lesson is too great to be effectively addressed in any way other than re-crafting the lesson itself.

Differentiated instruction is NOT just for outliers.

Certainly, students who have identified learning challenges such as autism spectrum disorder, ADHD, intellectual disabilities, visual impairment, and so on are likely to need scaffolding on a fairly regular basis in order to grow academically as they should. Likewise, students who learn rapidly, think deeply, and readily make meaningful connections within or across content areas will need advanced challenge on a regular basis in order to grow as *they* should. And students who are just learning the language spoken in the classroom will typically require support as they seek to master both content and the language in which it is communicated. But in virtually any class on any day, there are students "in the middle" who struggle moderately, or just a little, with varied aspects of what they are seeking to learn.

There are students who know a good bit about a portion of a lesson or unit but struggle with specific steps or content. There are students whose experiences outside the classroom weigh negatively on their ability to concentrate or complete work. There are students who are just about to "take flight" with an idea that has been out of their reach and need encouragement and a boost to ensure their launch is successful. Every student benefits from being on the teacher's radar and from seeing evidence that the teacher understands their development and plans with their success in mind.

What Differentiated Instruction IS Differentiated instruction IS proactive.

In a differentiated classroom, the teacher assumes that different learners have differing needs and proactively plans lessons that provide a variety of ways to "get at" and express learning. The teacher may still need to fine-tune instruction for some learners, but because the teacher knows the varied learner needs within the classroom and selects learning options accordingly, the chances are greater that these experiences will be an appropriate fit for most learners. Effective differentiation is typically designed to be robust enough to engage and challenge the full range of learners in the classroom. In a one-size-fits-all approach, the teacher must make reactive adjustments whenever it becomes apparent that a lesson is not working for some of the learners for whom it was intended.

For example, many students at all grade levels struggle with reading. Those students need a curriculum with regular, built-in, structured, and supported opportunities to develop the skills of competent readers. While it may be thoughtful, and helpful in the short term, for a teacher to provide both oral and written directions for a task so that students can hear what they might not be able to read with confidence, their fundamental reading problems are unlikely to diminish unless the teacher makes proactive plans to help students acquire the specific reading skills necessary for success in that particular content area.

Differentiated instruction IS more qualitative than quantitative.

Many teachers incorrectly assume that differentiating instruction means giving some students more work to do, and others less. For example, a teacher might assign two book reports to advanced readers and only one to struggling readers. Or a struggling math student might have to complete only computation problems while advanced math students complete the computation problems plus a few word problems.

Although such approaches to differentiation may seem reasonable, they are typically ineffective. One book report may be too demanding for a struggling learner without additional concurrent support in the process of reading as well as interpreting the text. Or a student who is perfectly capable of acting out what happened in the book might be overwhelmed by writing a three-page report. If writing one book report is "too easy" for the advanced reader, doing "twice as much" of the same thing is not only unlikely to remedy that problem but could also seem like punishment. A student who has already demonstrated mastery of one math skill is ready to stop practicing that skill and needs to begin work with a subsequent skill. Simply adjusting the quantity of an assignment will generally be less effective than altering the nature of the assignment to match the actual student needs.

Differentiated instruction IS rooted in assessment.

Teachers who understand that teaching and learning approaches must be a good match for students look for every opportunity to know their students better. She sees conversations with individuals, classroom discussions, student work, observation, and formal assessment as ways to keep gaining insight into what works for each learner. What they learn becomes a catalyst for crafting instruction in ways that help every student make the most of his or her potential and talents.

In a differentiated classroom, assessment is no longer predominantly something that happens at the end of a unit to determine "who got it." Diagnostic pre-assessment routinely takes place as a unit begins to shed light on individuals' particular needs and interests in relation to the unit's goals. Throughout the unit, systematically and in a variety of ways, the teacher assesses students' developing readiness levels, interests, and approaches to learning and then designs learning experiences based on the latest, best understanding of students' needs. Culminating products, or other means of "final" or summative assessment, take many forms, with the goal of finding a way for each student to most successfully share what he or she has learned over the course of the unit.

Differentiated instruction IS taking multiple approaches to content, process, and product.

In all classrooms, teachers deal with at least three curricular elements: (1) **content**—input, what students learn; (2) **process**—how students go about making sense of ideas

and information; and (3) **product**—output, or how students demonstrate what they have learned. These elements are dealt with in depth in Chapters 12, 13, and 14.

By differentiating these three elements, teachers offer different approaches to what students learn, how they learn it, and how they demonstrate what they've learned. What the different approaches have in common is that they are crafted to encourage substantial growth in all students with established learning goals and to attend to pacing and other supports necessary to advance the learning of both the class as a whole and individual learners.

Differentiated instruction IS student centered.

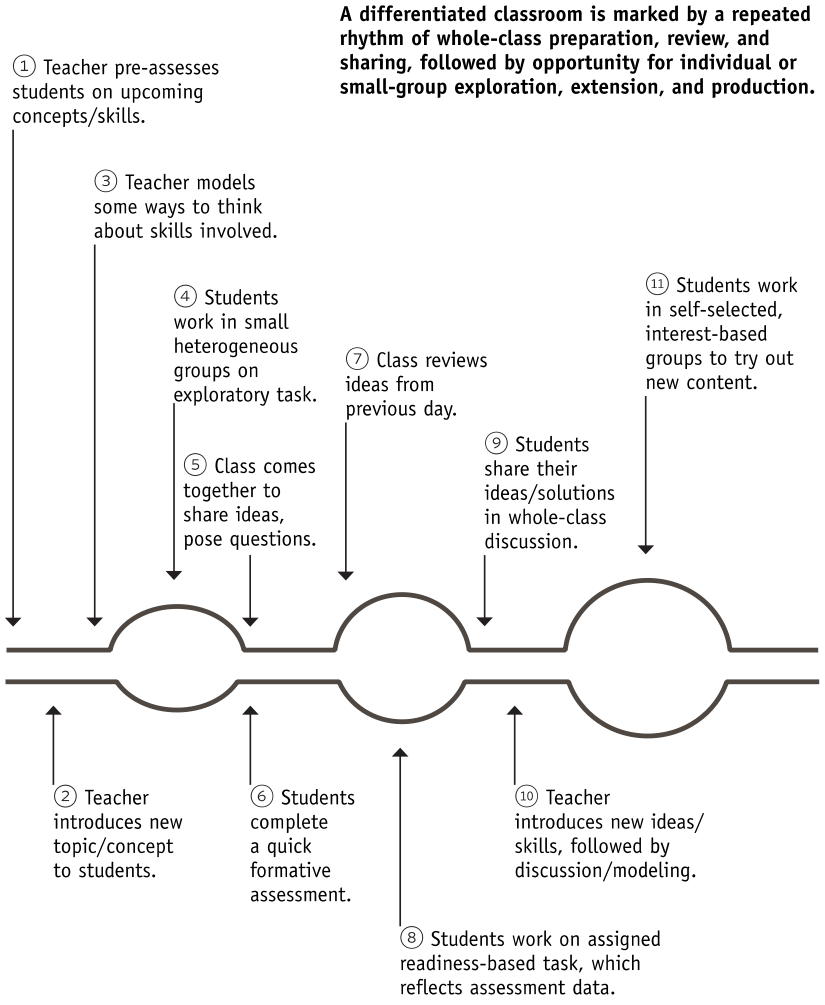
Differentiated classrooms operate on the premise that learning experiences are most effective when they are engaging, relevant, and interesting to students. A corollary to that premise is that all students will not always find the same avenues to learning equally engaging, relevant, and interesting. Further, differentiated instruction acknowledges that later knowledge, skill, and understandings must be built on previous knowledge, skill, and understandings—and that not all students possess the same learning foundations at the outset of a given investigation. Teachers who differentiate instruction in academically diverse classrooms seek to provide appropriately challenging learning experiences for all their students. These teachers realize that sometimes a task that lacks challenge for some learners is frustratingly complex to others.

In addition, teachers who differentiate understand the need to help students develop agency as learners. It's easier sometimes, especially in large classrooms, for a teacher to tell students everything rather than guide them to think on their own, accept significant responsibility for learning, and build a sense of pride in what they do. In a differentiated classroom, it's necessary for learners to be active in making and evaluating decisions that benefit their growth. Teaching students to work wisely and share responsibility for classroom success enables a teacher to work with varied groups or individuals for portions of the day because students are self-directing. It also prepares students far better for life now and in the future.

Differentiated instruction IS a blend of whole-class, group, and individual instruction.

There are times in all classrooms when whole-class instruction is an effective and efficient choice. It's useful for establishing common under- standings, for example, and provides the opportunity for shared discussion and review that can build a sense of community. As illustrated in Figure 1.1, the pattern of instruction in a differentiated classroom could be represented by mirror images of a wavy line, with students coming together as a whole group to begin a study, moving out to pursue learning in small groups or individually, coming back together to share and make plans for additional investigation, moving out again for more work, coming together again to share or review, and so on.

Figure 1.1 The Flow of Instruction in a Differentiated Classroom



Differentiated instruction IS "organic" and dynamic.

In a differentiated classroom, teaching is evolutionary. Students and teachers are learners together. While teachers may know more about the subject matter at hand, they are continuously learning about how their students learn. Ongoing collaboration with students is necessary to refine learning opportunities so they're effective for each student. Teachers monitor the match between learner and learning and make adjustments as warranted. And while teachers are aware that sometimes the learner/ learning match is less than ideal, they also understand that they can continually make adjustments. This is an important reason why differentiated instruction often leads to more effective learner/learning matches than the mode of teaching that insists that one assignment serves all learners well.

Further, teachers in a differentiated classroom do not see themselves as someone who "already differentiates instruction." Rather, they are is fully aware that every hour of teaching and every day in the classroom can reveal one more way to make the classroom a better environment for its learners. Nor do such teachers see differentiation as "a strategy" or something to do once in a while or when there's extra time. Rather, it is a way of life in the classroom. They do not seek or follow a recipe for differentiation, instead, they combine what they can learn about differentiation from a range of sources with their own professional instincts and knowledge base in order to do whatever it takes to reach each learner.

A Framework to Keep in Mind

As you continue reading about how to differentiate instruction in academically diverse classrooms, keep this framework in mind:

In a differentiated classroom, the teacher proactively plans and carries out varied approaches to content, process, and product in anticipation of and response to student differences in readiness, interest, and learning needs.

DI Strategies Advanced Placement Teachers Use to Teach Diverse Learners

3-Session Professional Development

Day 2

Goals: Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms; create lessons for diverse students in AP classrooms; and implement DI through process, content, and assessments.

T**ime**	**Activity**
8:30-9:00	Sign in, name tags
9:00-9:15	Welcome, Icebreaker
9:15-9:30	Meeting Norms, Agenda, Goals
9:30-10:00	Reflections of DI mini lessons. Participants will discuss what worked and the changes for the next lesson. (Table share)
10:00-10:15	Break
10:15-12:00	Distribute *Toolbox of DI Strategies* Handout to each participant for their notebook. They will use time to research DI process/strategies and discuss how the strategies will support AP students. Then each table participant will jigsaw to another table and share their expertise with other table members. Participants will begin to fill their toolbox handout of DI strategies.
12:00-1:15	Lunch on your own
1:15-2:00	DI Assessments Activity. Using a Padlet link
2:00-2:30	Peer Observation form from ASCD used with permission. Discuss salient parts of observation form.
2:30-3:15	Collaborate to create mini-DI lessons and arrange peer observations for Session 3.
3:15-3:30	Exit Ticket: Evaluation Form

Day 2 Handouts

Differentiation Toolbox

Processes and strategies

Assessments

Permission

Christy Colclasure <christy.colclasure@learningforward.org>
Mon 8/24/2020 11:41 AM

To: Patti Tate <patti.tate@waldenu.edu>

Hi Patti,

Learning Forward is pleased to grant you permission to use the following tool in your doctoral study.

Please ensure that the following citation and credit line appear with your material. Used with permission of Learning Forward, www.learningforward.org. All rights reserved.

> "Tool 6.2 - Peer observation practice and implications," by Joellen Killion, *Professional Learning Plans: A Workbook for States, Districts, and Schools,* 2013.

Thank you for your interest in our work.

Christy

Peer observation practices and implications

Use this tool to record ideas gained during a visit to a colleague's classroom and to consider the implications of those ideas for your own teaching practice.

Purpose	Record ideas gained during a visit to a colleague's classroom. Consider how the ideas might be useful in your own classroom.
Non-purpose	Judge your colleague's performance. Identify ineffective teaching strategies.
Time	Time of classroom visit and approximately 20–30 minutes for reflection
Record the behaviors you observed during your visit to your colleague's class. After the class, consider the implications for your classroom.	

Date of visit: _____

Class description:

Observations	Implications for your practice

"Tool 6.2 - Peer observation practice and implications," by Joellen Killion, *Professional Learning Plans: A Workbook for States, Districts, and Schools,* 2013.

DI Strategies Advanced Placement Teachers Use to Teach Diverse Learners

3-Session Professional Development

Day 3

Goals: Demonstrate a knowledge of differentiation and how DI supports diverse learners in AP classrooms; create lessons for diverse students in AP classrooms; and implement DI through process, content, and assessments.

Time	Activity
8:30-9:00	Sign in, name tags
9:00-9:15	Welcome, Icebreaker
9:15-9:30	Meeting Norms, Agenda, Goals
9:30-10:45	Participants at tables will share their take-aways from their participation in peer observations. The participants will share strategies and list on post-it paper to place around the room. After all participants have completed activity, they will complete a Gallery Walk to view the posters. We will convene with an overall group discussion of the peer observation experience with a focus on DI strategies.
10:30-10:45	Break
10:45-11:15	Review with in-depth discussion of DI content, process, and assessments.
11:15-12:00	Participants will reflect and write their answers to the following question on Post-it paper to be placed around the room: How will DI through process, content, and assessments, support diverse learners in AP classrooms? Once the participants have completed the task, the students will participate in Silent Graffiti. During Silent Graffiti, participants walk around the room, read responses, and leave a response.
12:00-1:15	Lunch on your own
1:15-1:30	Summarize the responses from the graffiti activity.
1:30-3:15	Collaborative time for AP teaches to plan DI lessons and to create a plan for the next school year to continue the AP PLC DI work.
3:15-3:30	Exit slip- Evaluation Form. Tell participants to look for summative form in July about the impact of their participation on the achievement success of their AP students. Thank the participants.

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