

Process Differentiation for
Academically Diverse High School Classrooms

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Abstract

This study evaluated the effects of process differentiation on student literary analysis performance in a standard level 11th grade English class. Differentiation aims to help students of all ability levels succeed in diverse, inclusive classrooms. Process differentiation focuses on manipulating the “processing” part of a lesson, the part where students are learning new information, to help differentiate instruction for students. Literary analysis is a popular writing assessment for high school English students due to its use in standardized assessments, like PARCC. Literary analysis requires students to read multiple texts and compare their themes through a written prompt. The students in the experimental group of this study ($n = 23$) had differentiated process instruction based on ability level, whereas the students in the control group ($n = 27$) had non-differentiated process instruction when reading two texts. Results of pretesting indicated that the groups did not differ significantly in their ability to conduct literary analysis prior to the intervention. On a posttest literary analysis assessment based off of the two texts, the mean score of the experimental group (Mean = 6.04, SD = 0.88) was significantly higher than that of the control group (Mean = 5.07, SD = 1.00) [$t(48) = 3.62, p = .001$]. This provides evidence that process differentiation is an effective instructional strategy. Implications, threats to validity, and ideas for future research are discussed.

CHAPTER I

INTRODUCTION

Overview

Differentiation has become a significant theory in education. It is discussed at faculty meetings, in educational research and has even been added to many teacher evaluations. This is not a surprise since it claims to be the answer to a question that teachers have consistently asked for years: how can I make sure all my students succeed?

The introduction of inclusion as a standard practice in public education and the push for all students to reach college and career standards has created the most academically and socially diverse classes yet. Recent research like O'Rourke's (2013) "Teacher Perceptions of Heterogeneous Ability Grouping in Secondary Classes" proves that heterogeneously mixed classes promote student success more so than when students are grouped by ability level. In addition to classes with mixed ability levels, schoolwork has increased in rigor to prepare students for rising college expectations. Holding every student to the same rigorous standard has become more difficult for teachers and any strategy that claims to help bridge the gap between low and high ability students is worth exploring.

The daily work day of a teacher involves an immense amount of planning, grading, and assessing strategies, all to help their students succeed. Research-based strategies that are proven to be successful help teachers determine what is worth spending their time on. As a teacher of mixed ability high school English classes, the researcher strives to assess whether differentiation truly makes a difference. Although process differentiation can focus on a variety of factors such as student interest or prior knowledge, the differentiation in this study will be based on student ability level.

Though there are many types of differentiation, this study assesses the success of “process differentiation,” which alters the learning activities that help students understand lessons or the way students “process” the information stated in a lesson. The literature suggests that process differentiation is an effective method of improving student learning (Tomlinson, 2017). Unfortunately, as reported by Santisteban (2014), while there is a body of research examining the effectiveness of process differentiation for teaching reading comprehension, there is little research on the impact on written production. Consequently, there is a need for research on the impact of process differentiation on writing.

The current statewide assessment focuses on extensive writing prompts, including literary analysis. Since teachers prepare their students to pass these assessments, literary analysis has become a common writing practice in the everyday English classroom. Because it is so common, the researcher felt it to be a useful outcome measure of this differentiation study.

Statement of Problem

The purpose of this study is to address the following question about the impact of differentiation. Does process differentiation make an impact on student literary analysis achievement in a mixed ability 11th grade English classroom?

Hypothesis

The null hypothesis is that there will be no significant difference in the literary analysis scores on a teacher-made assessment between the process differentiation experimental group and the control group.

Operational Definitions

Partnership for Assessment of Readiness for College and Careers (PARCC)

The PARCC Assessment is the new statewide assessment for high school students. Students are tested in English and Math. The English portion of the exam tests reading and writing skills, specifically narrative writing and literary analysis. This study will focus on literary analysis assessments (Partnership for Assessment of Readiness for College and Careers, 2012).

Literary Analysis

Literary Analysis is one type of writing measured on the statewide PARCC Assessment. This type of writing consists of a comparison analysis of thematic ideas through several pieces of text, using textual evidence as support from each analyzed text. Through this analysis, the writer is evaluated based on clarity, stylistic appropriateness, comprehension of the two texts, and knowledge of standard grammar and spelling conventions (Partnership for Assessment of Readiness for College and Careers, 2012). In this study, these literacy analysis skills are objectively evaluated through an assessment written by the researcher to mimic the PARCC literary analysis assessments. The researcher evaluated the subjects by combing their performance on two different literary analysis assessments.

Differentiation

Differentiation breaks down parts of a lesson so students with different interests, abilities, and background knowledge may learn at the same level. Differentiation can manipulate the content students learn, the process they follow, or the product they create in a lesson (Tomlinson, 2017). In this study, differentiation of process was based on student ability level. These ability levels were based on performance through the school year, so that the examiner determined group membership prior to the literary analysis pretest. Ability was determined through the researcher's

professional judgement as their teacher, classroom observations, and their grades for the first half of the school year.

Process

The process of a lesson is the part of the lesson that helps students understand the content being taught. This “process” could be the way students organize the information they are learning (like a graphic organizer or specific highlighting technique), the way students understand the information (like working individually, in groups or lead by the teacher) or even the way they are offered content (like listening to a text or reading it silently). “Process” is usually the middle part of a lesson after the instruction is given but before students need to prove they have learned the content.

CHAPTER II

REVIEW OF THE LITERATURE

In an academically diverse classroom, one of the many challenges faced by teachers is educating all students equally. These students have different interests, ability levels, and background knowledge, so educators must think of all these factors prior to teaching a concept to the class. Recent research on differentiation has suggested that this practice is the best way to support these students and the educators who teach them. This literature review explores the research supporting the different methods of differentiation and its effect on a specific assessment, literary analysis.

Section one explores academically diverse classrooms. Section two informs about differentiation and its background. Section three evaluates the different methods of differentiation, content, process and product. Section four explores literary analysis. The final section, section five, summarizes and explains past research.

Academically Diverse Classrooms

In the Maryland public school system, students are heterogeneously grouped, meaning they are no longer being grouped by their ability level. This has been brought on by policy changes throughout the country, “changing educational initiatives, such as inclusion, have also added to the heterogeneity by increasing the numbers of students with disabilities who receive instruction in general education classrooms” (Kronberg et al., 1997, p. 1). Inclusion is one cause for the increase in heterogeneous classes and grouping. However, recently, educational research has increased and “research has indicated that separating students by ability often exacerbates existing academic inequity” (O’Rourke, 2013, p. 3). Grouping students homogeneously, or by ability level, reinforces certain patterns within student academic ability. In homogenous

grouping, students who are considered “high achieving” are continually challenged to work hard and earn grades that reflect this, while students who are considered “lower achieving” stay on track with their struggling peers and continue to fall behind. Therefore, Maryland and many other states have chosen to group students heterogeneously, creating the academically diverse classroom.

Even though the need for heterogeneous grouping is supported by research, “mixed ability classes can also create challenges for teachers and students” (O’Rourke, 2013, p. 3). These classes provide an equal opportunity for all students to succeed though teachers can find it challenging to educate these academically diverse students to the same extent. This is especially difficult when assessing students on higher-level skills, like literary analysis at the high school level.

While teaching these academically diverse groups of students, “teachers felt unable to provide appropriate instruction to meet all their students’ needs and had difficulty assessing student progress” (O’Rourke, 2013, p. 3). This reinforces the clear need for research that provides detailed instructional strategies to assist teachers in educating these students. To meet the needs of a diverse classroom, differentiation may be analyzed, because “as diversity among students increases so must the differentiation of teaching and learning” (Kronberg et al., 1997, p. 1). Therefore, differentiation can be one solution to the teacher struggle of meeting all students’ needs, but what methods of differentiation work best for these academically diverse students? How can this theory of education be broken down into individual instructional practices that can be brought into any classroom?

Differentiation Background

The study of academically diverse students leads to teacher recognition that not all students can be taught in the same manner. Differentiation breaks down instruction and student learning to meet the individual needs of each person in the classroom. This is considered a successful theory of teaching because it meets every student where he or she is in his or her own ability. “It is obvious that learning is the outcome of quality teaching which is not based on what the teachers do, but on how and on what students are working on and how they feel” (Stavrou & Koutselini, 2016, p.6). Differentiation is quality teaching because it goes past simply what the teacher does in the classroom and aims to manipulate the products students produce, the content they study, and the process they use to comprehend this content.

Not only should diverse students be taught lessons in different ways, but the content they’re taught and the product they produce from this teaching may differ as well. “The differences in students are significant enough to make a major impact on what students need to learn, the pace at which they need to learn it, and the support they need from teacher and others to learn it well” (Tomlinson, 2000, p. 1). Tomlinson, one of the founders of differentiation, began her research on this topic in the 1990s. It originated as a response to standard-based teaching and an increase in high stakes testing. Because of this, differentiation was developed as not an alternative to this new standard based learning but as a philosophy that teachers should always have, “differentiation is not a recipe for teaching, it is not an instruction strategy, it is not what a teacher does when he or she has time. It is a way of thinking about teaching and learning” (Tomlinson, 2000, p. 1). This emphasizes the importance of differentiation, sometimes called individualized instruction, as part of good teaching rather than an additional strategy to add to the classroom.

One study by Kanevsky (2011) argues that, “deferential differentiation, based on students’ learning preferences, provides teachers with a relatively direct approach to curriculum modification: give students what they want” (p. 5). Providing students with the differentiated tools that they believe work best for them makes instruction more enjoyable for students. This study involved students taking a survey called the “Possibilities of Learning Survey.” This survey is designed to “put the process of designing differentiated curriculum into the hands of students ... each item specifies a feature of a learning activity based on one of the differentiation strategies” (Simon Fraser University, 2013, p. 23). However, this study, though it was done with student interest in mind, does not necessarily prove effectiveness of the different methods that students enjoy: “follow-up studies will be essential to determine the effects of implementing students’ preferences for learning in the ways recommended” (Kanevsky, 2011, p. 12). This study proved that students enjoyed taking their own interests into consideration when learning, though the relationship between student interest and student achievement was not researched.

Content, Process, and Product

While differentiation has been shown to simplify teaching in an academically diverse classroom, it needs to be broken down to fit with each class’s unique students. Specifically, research proves that differentiation can be separated into three major methods; “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” (Tomlinson, 2017, p. 1). So teachers may provide instruction for their classroom through differentiating by the content students are taught, the process in which they learn this content, and the product they develop to prove their understanding.

Studies show the success of differentiating via these three methods while studying differentiation; one study explained that they “achieved substantial results regarding the students’ success, because the content is adjusted to students’ knowledge and in accordance with that - student advances” (Bikić, Maričić, & Pikula, 2016, p. 2792). This study emphasizes the results of “content differentiation,” but what does that mean for the other two methods of differentiation. Are they as effective as the content differentiation used in the mentioned study?

The content method of differentiation adapts the materials taught by the educator. Teachers may adapt this by the student’s readiness, interest, or learning profile; for example, it is “inappropriate to ask a student who currently speaks and understands little English to read independently from a grade-level U.S. history book” (Tomlinson, 2017, p. 125). Therefore, a teacher working with this student would provide an abbreviated or lowered level text for this student to read while his peers worked from the textbook.

Additionally, the processing students do while receiving instruction is essential to their comprehension of the content. During the process method of differentiation, “the teacher offers more than one way for students to make sense of what’s important” (Tomlinson, 2017, p.134). Educators must consider multiple options for content to fit with their diverse students in addition to developing different ways for students to process the content.

Research completed by Santisteban (2014) examined the impact of differentiation on student reading and writing skills. This study worked with students whose highest level of education was first grade. This heterogeneous group of students were of different ages, social backgrounds, and ability levels. The study focused, though not directly stated in the research, on process differentiation by teachers altering tasks related to the “process” of student learning, like graphic organizers, Venn diagrams, and visual representations of texts. Students were asked to

read a story and complete differentiated process assignments while reading. Then they were asked to retell the story through a “story sequence to measure comprehension. The study was able to determine that these process differentiation tasks “bring students opportunities to connect self with the text and the content ... [and] facilitate students’ reading comprehension” (Santisteban, 2014, p. 46). The differentiation tasks helped students to connect with the texts and assisted students in comprehending the texts they are given.

The researcher additionally noted, “there are no findings in the literature about written production or vocabulary acquisition for struggling readers and writers” (Santisteban, 2014, p. 46). So, while this study did notice a difference in student connections and reading comprehension, it was unable to determine findings in writing skills. This study concluded with the idea that more research is needed to determine the impact of differentiation on written production.

In a 2013, 434 undergraduate students across two separate education campuses were part of a study where one campus “experienced differentiated instruction while the other half was exposed to the whole-class instructional approach” (Joseph, Thomas, Simonette, & Ramsook, 2013, p. 1). The study used surveys, student achievement, and student and teacher testimonies to determine the effectiveness of this differentiation. The researchers of this study analyzed differentiation at the college level and determined that “if adopted more widely, a differentiated instructional approach has the potential to revolutionize teaching and learning” (Joseph et al., 2013, p. 12). The importance of differentiation is shown at all levels of education but, “while the study provided positive outcomes for a course in curriculum studies, there is need for further research to determine the extent to which a differentiated instructional approach is equally successful in other subject domains” (Joseph et al., 2013, p.12). The need for differentiation

research involving different subject areas is important for future studies. Differentiated instruction may prove to be successful for teachers of academically diverse classrooms.

Once the instruction is chosen and suitably processed by the students, they must create a product to demonstrate their proficiency. “Differentiating product assignments in an academically diverse classroom is beneficial for several reasons ... all students can grow from appropriate challenges” (Tomlinson, 2017, p. 156). The need for differentiation to be broken into these three methods is obvious with the understanding that they assist teachers in fitting the curriculum to all students’ unique needs. However, these methods can be overwhelming to an educator. Educators may view this research and believe that they need to teach multiple contents, provide different ways to distribute this knowledge to the students, and grade several different types of assignments for every lesson they teach. These methods must be studied to understand which could be most effective for these diverse classes.

Literary Analysis

For the purpose of this study, differentiation will be evaluated through the student’s completion of a literary analysis assessment. Literary analysis is an assessment based on skills often taught in high school level classes, particularly now that it is assessed in the PARCC assessment. This essential graduation requirement includes literary analysis as one indicator of student writing proficiency.

Literary analysis on the PARCC assessment is almost exclusively shown through prompts that analyze more than one text as it has been supported that “literacy concepts are best taught in a situation where students are exposed to a range of texts dealing with a similar subject or topic” (Locke & Cleary, 2011, p. 20). Literary analysis attempts to follow this by asking students to create a comparison of thematic ideas through several pieces of literature.

Additionally, the Partnership for Assessment of Readiness for College and Careers (2012) emphasizes the importance of this written assessment and states that, “all analytic writing should put a premium on using evidence, as well as on crafting works that display a high degree of logical integration and coherence” (Partnership for Assessment of Readiness for College and Careers, 2012, p. 89). This higher level, analytical skill is an appropriate measurement for the effects of differentiation in an academically diverse high school class due to its challenging nature and instructional requirements.

Summary and Past Research

Differentiation for this research will be analyzed based on the process method and studied through a research-created literary analysis assessment given to an academically diverse class. Research has shown that differentiation, whether through content, process, or product, is a successful theory of education. Although heterogeneous classes are important for the success of all students, they make creating beneficial instruction difficult for educators. Although there is a body of research supporting differentiation, there is a need for additional research on this topic, particularly in the area of writing. The current study strives to determine whether differentiation actually influences student achievement.

CHAPTER III

METHODS

This study examines the process method of differentiation and its effectiveness on student literary analysis performance in a mixed ability 11th grade English class. The goal was to determine whether process differentiation affects performance on literary analysis assessments.

Design

This study used a quasi-experimental design that manipulates an independent variable to see the effect on a dependent variable. This was done with a convenience sample of the researcher's two standard 11th grade English classes. A pretest was given only to determine the classes used in the study were not statistically different. The independent variable for the study was whether a class received process differentiation. The class receiving differentiated process was randomly chosen from the two classes. The dependent variable was student scores on a researcher-created literary analysis assessment. This study was implemented over two consecutive 90-minute class periods.

Participants

The participants of this study were 11th grade students in a high school in a suburban county on the East Coast. This school has approximately 1500 students with racial demographics approximately as follows: 80% Caucasian, 7% African American, and the remaining racial percentages below 5%. Although some children receive Free and Reduced Meal Services, the school does not qualify as a Title I school. Ten percent of the school receives some range of special education services and 28% of students are involved with Advanced Placement courses.

The 11th grade participants of this study were from two of the researcher's classes. These students are in a standard level English III course. In this county, there are two other levels of

English courses, one being an Advanced Placement class (AP), and one being Collaborate and Cooperative class (CC). AP classes are meant to mimic a college level English class and challenge the students to pass a statewide AP test to earn college credit for this course. CC classes include two co-teachers, one general educator and one special educator, and focuses on making sure special education students receive all their needed services and that the lowest level students have an appropriately paced course for their level. The standard level class falls in between these two other types and students in it are considered on grade level rather than above or below that level.

There were 50 participants in the study total; 23 of these students were in the class receiving differentiated process (experimental class) while the remaining 27 students were in the class without differentiation (control class). Originally, an additional student was in the experimental group but was ultimately excluded from pre- and posttest analyses because this student was unavailable for the posttest. Of the 23 students in the experimental class, 17 were Caucasian, one was African American and four were Hispanic. Eleven of these students were female, and 12 of these students were male. Also in this class, one student received special education services and one student was labeled with LEP (Limited English Proficiency). In the control class, two students received special education services and one student was labeled as having LEP (Limited English Proficiency). Twenty-three of the 27 in this class were Caucasian, two students were African American, two were Hispanic, and one was Asian. Eight of the students in this class were female while 19 were male.

Instrument

Literary analysis is one of the three writing tasks defined and assessed through the PARCC assessment, a current graduation requirement for high school students in the state in

which the study takes place. This has encouraged teachers to incorporate literary analysis in their everyday class lessons, making this type of writing a significant aspect of student learning in English class and a relevant choice for the instrument of this study. Doorey and Polikoff (2016) discuss evidence that the PARCC tests have appropriate reliability and validity. In the technical report by its test developer, Pearson (2017), the reliability based on the internal-consistency measure of the English 11 PARCC assessment was .92.

The instrument of this study was a literary analysis assessment created by the researcher to assess these students. Students read two texts, “Living with Less, A Lot Less” and “Self-Reliance,” and then were asked to respond to the literary analysis assessment, which evaluated the two texts regarding a common theme. Students were given the texts and the prompt on paper and were asked to respond using paper and pencil. The texts and prompt were the same for both class, differentiated process and standard process. This instrument was scored with the PARCC rubric, just like the PARCC literary analysis.

This rubric allows for students to earn up to seven points from two different categories. The first, titled Reading Comprehension and Written Expression, is worth four points and focuses on several different, bulleted aspects of student writing. The four-point column, the highest score for this category, states that students must show full comprehension with an accurate analysis of the text(s), address the prompt with effective development of a claim, use clear reasoning through text-based evidence, and maintain clear, coherent writing and style through the work. The second category, Knowledge of Language and Conventions, is worth the remaining three points and states that the student writing demonstrates full command of the conventions of Standard English but may have a few minor mechanic/grammar errors as long as they do not impede the meaning of the writing

In selecting the classroom assignments and the literary analysis questions, the examiner tried to make them comparable in content and process to the PARCC exams, which have documented content validity (Doorey & Polikoff, 2016).

Procedures

For this study, the fifty 11th grade students in two separate classes were given a pretest. Students read a text in class and responded to a short essay writing prompt about this text; this short-essay was used as pretest data. This prompt was designed by the county curriculum and was based on state standards, although it does not seem to be modeled based on PARCC Literary Analysis like the instrument for this study. This pretest was adapted by the researcher from the county curriculum.

The results of an independent sample t-test indicated that prior to the intervention, there was no significant difference in the literary analysis skills between the Process Differentiated group (Mean = 4.87, SD = 0.97) and the Control group (Mean = 4.89, SD = 1.31, $t(48) = 0.06$, $p = .95$). The class to receive differentiated process was randomly chosen.

Both classes received the same lesson and post assessment for this study; however, the experimental group's lesson included process differentiation, meaning the "process" section of their lesson was varied to fit the different ability levels in the class. The lesson involved reading two texts, "Living with Less, A Lot Less" by Graham Hill and "Self-Reliance" by Ralph Waldo Emerson then responding to a researcher created literary analysis assessment. Both "Self-Reliance" and "Living with Less, A Lot Less" were part of the introduction lesson for the 11th grade curriculum for their third unit, Individualism. This unit and the introduction lesson acted as a basis for the lesson and assessment created for this study. The literary analysis assessment following this lesson was to answer the following question:

“In their short essays, Ralph Waldo Emerson and Graham Hill address the impact of Individualism. Write a short essay that analyzes the significance of Individualism in everyday society. Use specific evidence from both texts to support your analysis.”

This literary analysis assessment question was created based on researcher’s professional knowledge of PARCC prompts and PARCC practice assessments.

The control class’s lesson gives the students both texts with some minor class work assignment for each text (this is equivalent to the medium ability level work in the differentiated class). The text “Self-Reliance” by Ralph Waldo Emerson is broken into three sections. Students are supplied with the overall message of the piece and are asked to pick a quote that supports this message for each section. For the text “Living with Less, A Lot Less” by Graham Hill, students are asked to pick out three quotes from the text that relate to individualism (a definition of this is provided for them) and explain how they connect to this ideal. After finishing these two assignments, the students completed the literary analysis test.

To accurately differentiate the process of the experimental class’s lesson, the researcher split the class into three different ability level groups: highest ability, medium ability, and lowest ability. This was done based on the researcher’s professional expertise as the teacher of these classes, classroom observations, and their grades throughout the school year. There were 25 students in the treatment class, and of these students, six students were determined to fit in the lowest ability level group, ten students in the medium ability level group, and eight in the highest ability group.

For the first article, “Living with Less, A Lot Less,” knowledge of individualism and skills to pick quotes from the texts that related to this definition was differentiated based on the student’s ability level. The lowest ability group was given the first article with a definition of

individualism. Quotes that related to this definition were highlighted for these students and they were then asked to complete a small chart explaining how these quotes fit with the definition of individualism. This lesson was differentiated for the medium ability level group by asking the students to highlight their own quotes based on the provided definition then also complete the small chart. The highest ability group students were asked to create their own definition, highlight their own quotes, and then explain how their quotes fit with their definition.

The second text, “Self Reliance” by Ralph Waldo Emerson, was split in three sections. The assignment for each section of the text was to develop an overall message and explain how one quote from this section fit with that overall message. For the lowest ability group, overall messages were already written, and three quotes from that section of the text were highlighted. This group then had to pick the quote that best fit with the overall message and explain. The middle ability group also had overall messages written for them though no quotes were highlighted for them. They had to pick their own quote from each section and explain how it fit with the provided overall message. Members of the highest ability group were required to write their own overall message and then pick their own quote to fit with it and explain.

Following the reading of these two texts and the completion of the work associated with these texts, all students completed the same literary analysis assessment. The treatment class’s scores on these assessments were compared to the control class with an independent samples t-test to determine the impact of process differentiation.

CHAPTER IV

RESULTS

The primary purpose of this study was to determine the impact on achievement on a literary analysis assessment among students who received process differentiation based on their ability levels and students who did not receive differentiation. These students were in a heterogeneous standard level, 11th grade English class. Achievement was assessed using a researcher-created literary analysis based on PARCC-like prompts.

Table 1 below contains the results for the literary analysis scores between the control and experiment groups.

Table 1

Means, Standard Deviations, and t-test Result of Student Literary Analysis Performance

Group	Number of Students	Mean	Standard Deviation	t-test Statistic
Control	27	5.07	1.00	3.62*
Experimental	23	6.04	0.88	

*significant at $p \leq .001$

The mean score of the experimental group (Mean = 6.04, SD = 0.88) was significantly higher than that of the control group (Mean = 5.07, SD = 1.00) [$t(48) = 3.62, p = .001$]. Consequently, the null hypothesis that there will be no significant difference in the literary analysis scores on a teacher made assessment between the Process Differentiation group and the Control group was rejected. The students in the Process Differentiation group were more successful.

CHAPTER V

DISCUSSION

The purpose of this study was to determine whether process differentiation affected student scores on literary analysis in a heterogeneous classroom. The null hypothesis that there would be no significant difference in the literary analysis scores on a teacher made assessment between the Process Differentiation group of students and the Control group of students was rejected. The Process Differentiation group performed at a higher level.

Implications of Results

The significant results of this study suggest that differentiation is an important part of classroom instruction when assessing literary analysis. In addition to the results of this study, observational data also supported differentiation as a successful strategy. The control class, who worked on their literary analysis without the help of differentiated process, struggled to get started more than the students who received process differentiation. These control students also took more time to complete the assessment and asked more questions about the assessment and their answers while they were working. This extended start time and the questions asked made some students in the control class seem less confident in their answer. Comparatively, students in the differentiated process class seemed able to start their literary analysis assessment more quickly and asked fewer questions throughout their writing.

These results suggest that it is important for educators to differentiate process for students of varying ability. To make these more effective, schools could spend more time on professional development focusing on differentiation for teachers, especially English/Language Arts teachers, since this study proved differentiation had a positive impact on a written assessment. Educators should evaluate how they can group students by ability level or give them ability level-based assignments. This may also require administration to provide educators with additional planning time to adjust their teaching to incorporate differentiation.

Theoretical Consequences

Differentiation, as defined by researchers like Stavrou and Koutselini (2016) and Tomlinson (2017), is a theory of education that breaks down instruction and student learning to meet the individual needs of diverse students. This has become a vital part of classroom instruction since recent pushes for inclusion have created more academically diverse classrooms across the country. Being able to teach and challenge all students in an academically diverse classroom with one lesson has become a desire of the educators who teach these students. This study aimed to prove that differentiation was making an impact and it succeeded. This study narrows in on differentiation's effect on one particular assignment and now encourages other researchers to help expand the information found on the effects of this theory.

Results for this study support the theory of differentiation, specifically process differentiation, and its effect on literary analysis. Process differentiation focuses on the middle part of a lesson, the way that students “process” the information they should be learning in the lesson. The study proved that process differentiation does make an impact, specifically on the PARCC-like writing assignment – literary analysis. The other two types of differentiation, content and clarity, were not focused on in this study, which could guide future research. The results of this research not only support the recent need for differentiation in education, but also prove that even more time could be spent researching and integrating this theory into schools. This study serves as a call to action for future researchers, school administration, and educators, showing a potential solution for educating the academically diverse class.

Threats to Validity

This study did involve some threats to validity that require discussion. One potential threat to internal validity was the selection of the study participants. The researcher studied a pre-existing group (the researcher's classes); these groups may not have been the best representation of the population, leading to potential selection bias. This small sample size was unavoidable for this particular study though a larger sample size would have provided greater statistical power and, potentially, more valid results. It is also important to note that the results can be generalized only to standard-level high school English students. This is especially important since there are many other types of classes that could be studied. The county this study is based in also has Advanced Placement (AP) classes that are similar to college classes, honors classes, and CC classes, and an even more heterogeneous group of students who require Individualized Education Plans (IEPs) and a co-teacher in the room. If the study focused on a wider range of students, potentially including some of these other types of classes, differentiation would have been even more pronounced.

Additional threats to internal validity could include experimental mortality, due to one student being removed from the study. This participant was unavailable for the study's posttest and was not included in the statistical analyses. Potential confounding variables, that are relevant in most studies involving young students, could be individual students stress associated with extended writing assignments, a student's physical state as some students attend school sick so they don't miss assignments, and each student's potential mood on that particular day. Young teenage students are very affected by their emotions on any particular day, and that may have influenced an individual's performance on this study's assessment.

Additionally, the assessment used for this study was researcher-created and evaluated. Though the rubric used to evaluate these assessments was not researcher-created, there is

potential for bias while assessing written work. Rubrics to assess written work of this level have a degree of subjectivity despite the goal for objectivity. A multiple-choice test could be scored more objectively and be less prone to bias. Similarly, the researcher was the one scoring the literary analysis and was not blind to group membership. This could have resulted in an unconscious difference in scores based on group membership.

Connection to Previous Studies/Existing Literature

Much research has been completed on the different types of differentiation and their effects on various assessments. The current results of this study are similar to the study done by Santisteban (2014) which discusses the impact of differentiation on student reading and writing skills. The Santisteban (2014) study focused on process differentiation just like this study; however, it did not assess its impact on written production. The current study found that process differentiation does, in fact, affect student writing for literary analysis. However, unlike this study, Santisteban (2014) was able to prove that process differentiation affected student reading comprehension and ability to connect with the text.

Similarly, research done by Joseph et al. (2013) determined differentiation provided positive outcomes for college courses in curriculum studies. Unlike the study provided here, Joseph et al. (2013) did not specifically focus on process differentiation. Instead, this study focused on a different type of differentiation—content differentiation.

Implications for Future Research

Based on the significant results of this research, more studies should focus on the effectiveness of differentiation. Now that this study supports the idea that differentiation affects student writing, specifically literary analysis, future research could aim to find the extent to which differentiation influences other types of student writing or the impact of differentiation on

various other student assessments. Researchers should implement such studies over a longer period of time, maybe even comparing one class that utilizes differentiation all year to one that does not. Larger sample sizes should be considered, or a whole school could be compared to another school like in the Joseph et al. (2013) study where they focused on two college campuses. Additionally, different populations should be assessed. For example, does differentiation make an impact in a professional work setting or early education like preschool? Researchers could obtain more information about the effectiveness of the different types of differentiation. A longer study could compare process, content, and product differentiation to determine which method is most worth educators' time to prepare.

Summary

This study determined that process differentiation positively impacts student performance on literary analysis assessments in a heterogeneous, average ability level 11th grade English classroom. Researcher observations also suggest that this differentiation helps students get started on work and, potentially, feel more confident about their answers to these assessments. The results of this study are consistent with the results of other studies, though it focuses on a different outcome measure. This suggests that providing educators with professional development on differentiation and planning time to add differentiation into lessons would benefit student performance. Future research should focus on different types of outcome measures, subject areas, and populations. It is essential that research continue to address the effects of differentiation as it may be the key to educating students of all different ability levels to the highest extent.

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